Management Accounting

PRACTICAL CLASS 11
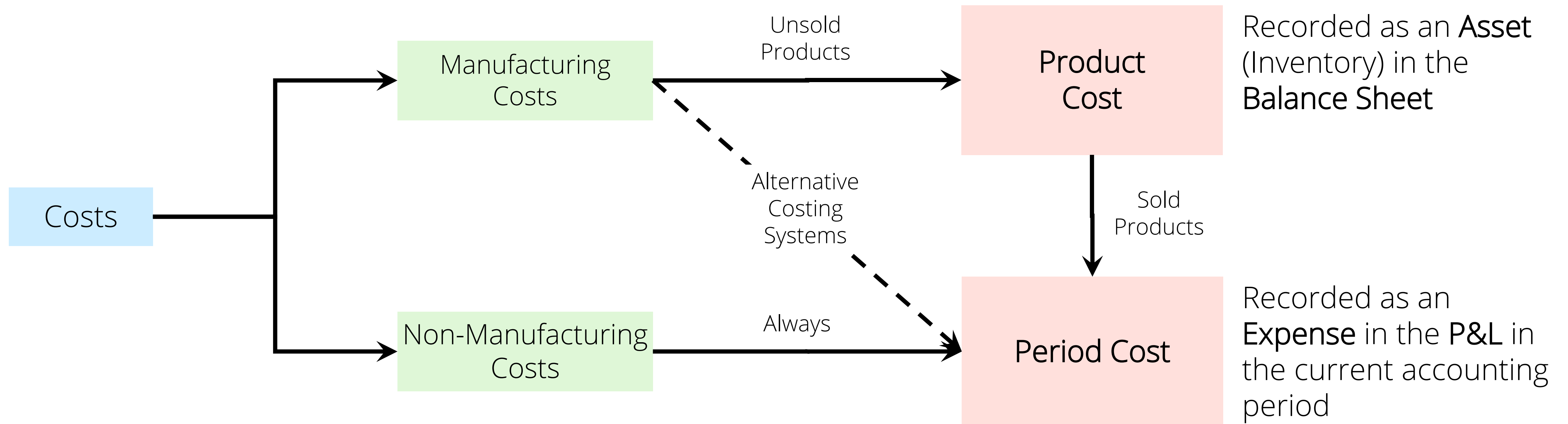
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Alternative Costing Systems

PERIOD AND PRODUCT COSTS, TOTAL FULL COSTING, VARIABLE COSTING, TFCPC, TFCBA, PROFIT COMPARISON AND ADVANTAGES

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# Period vs Product Cost

ESTABLISHING A BASELINE

Total Full Costing

WHAT WE HAVE BEEN DOING SO FAR

Allocate **All Manufacturing Costs to products**, and to value unsold inventories at their **total cost of manufacturing**

Non-manufacturing costs were charged directly to the P&L and excluded from the inventory valuation (period costs)

A costing system based on these principles is known as an absorption or **Total Full Costing System**
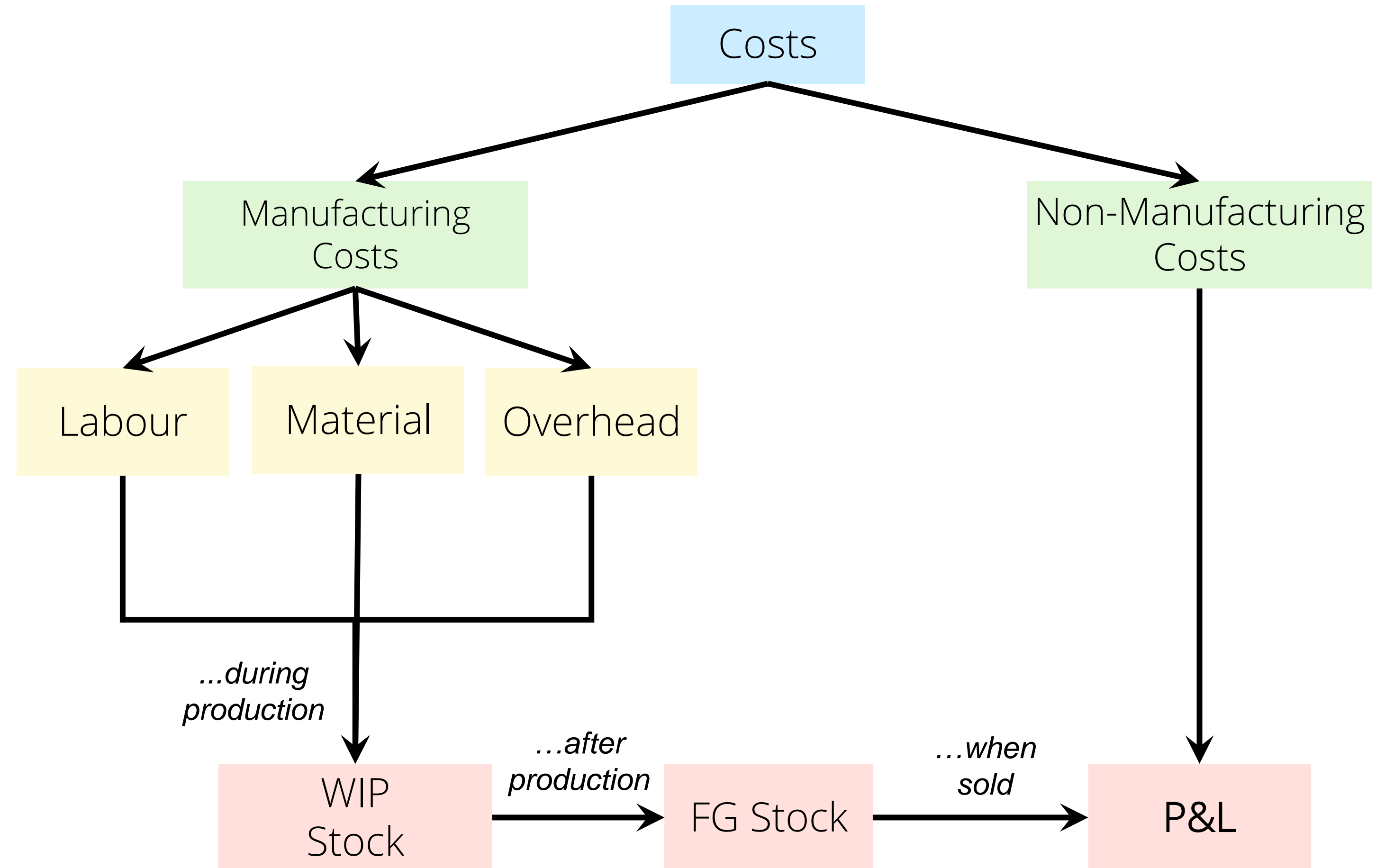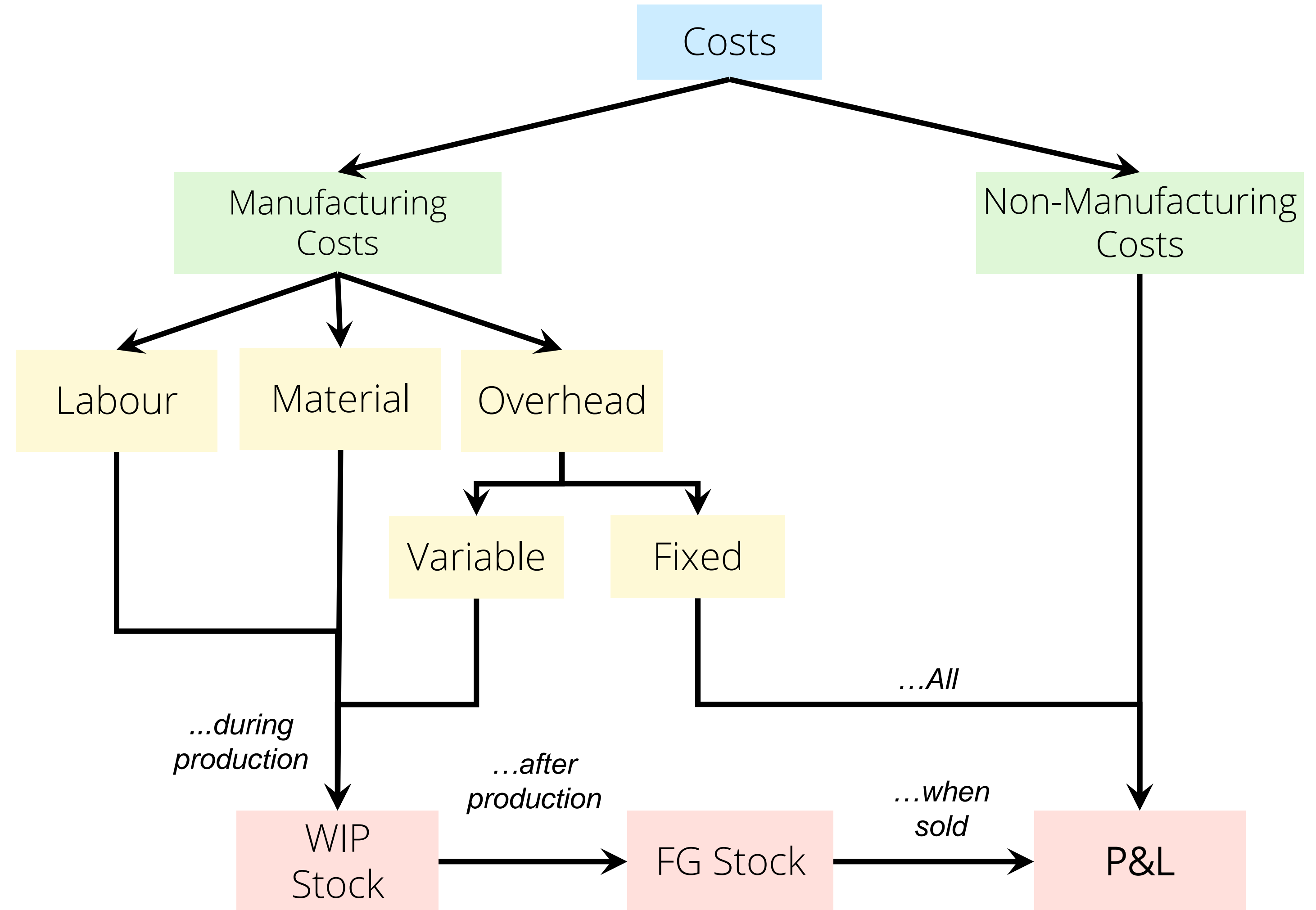
Variable Costing

AN ALTERNATIVE SYSTEM

All Variable Manufacturing Costs traced to products

Fixed Manufacturing Overheads as period costs

$$COGM = MVC_{Unit} * \text{Real Production}$$

$$URO = MFC$$

Costs

Manufacturing Costs

Non-Manufacturing Costs

Labour

Material

Overhead

Variable

Fixed

...during production

...after production

...All

...when sold

WIP Stock

FG Stock

P&L

...assuming labour is all variable

FC Practical Capacity
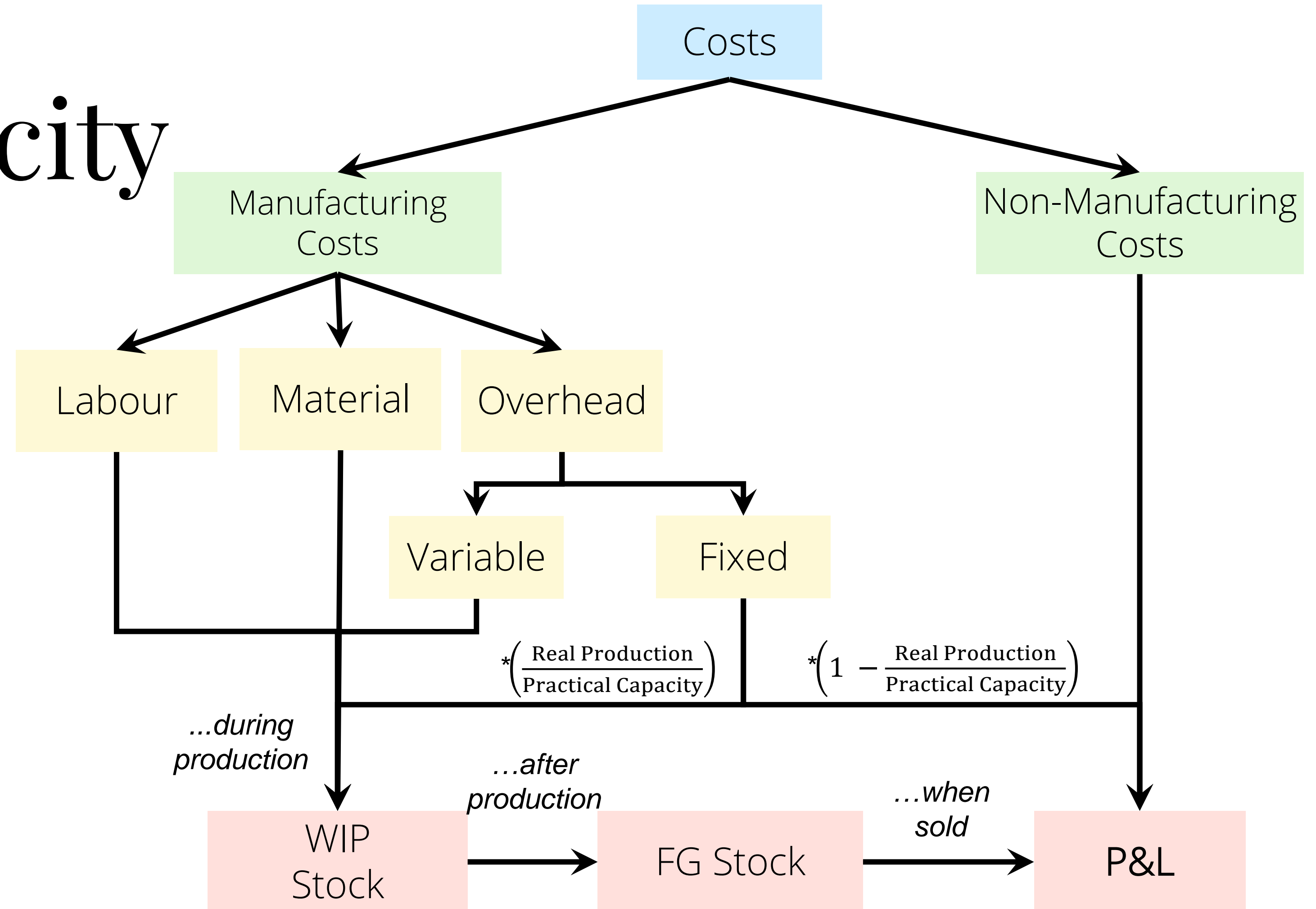
AN ALTERNATIVE SYSTEM

All Variable Manufacturing Costs traced to products

Fixed Manufacturing Overheads split between products and period costs

$$COGM = MVC_{Unit} * \text{Real Production} + \text{MFC} * \frac{\text{Real Production}}{\text{Practical Capacity}}$$

$$\text{URO} = \text{MFC} * \left(1 - \frac{\text{Real Production}}{\text{Practical Capacity}}\right)$$

Note: **Practical capacity is** the production that is likely to be produced by the machine after taking into consideration unavoidable interruptions arising from machine maintenance and plant holiday closures.

...assuming labour is all variable
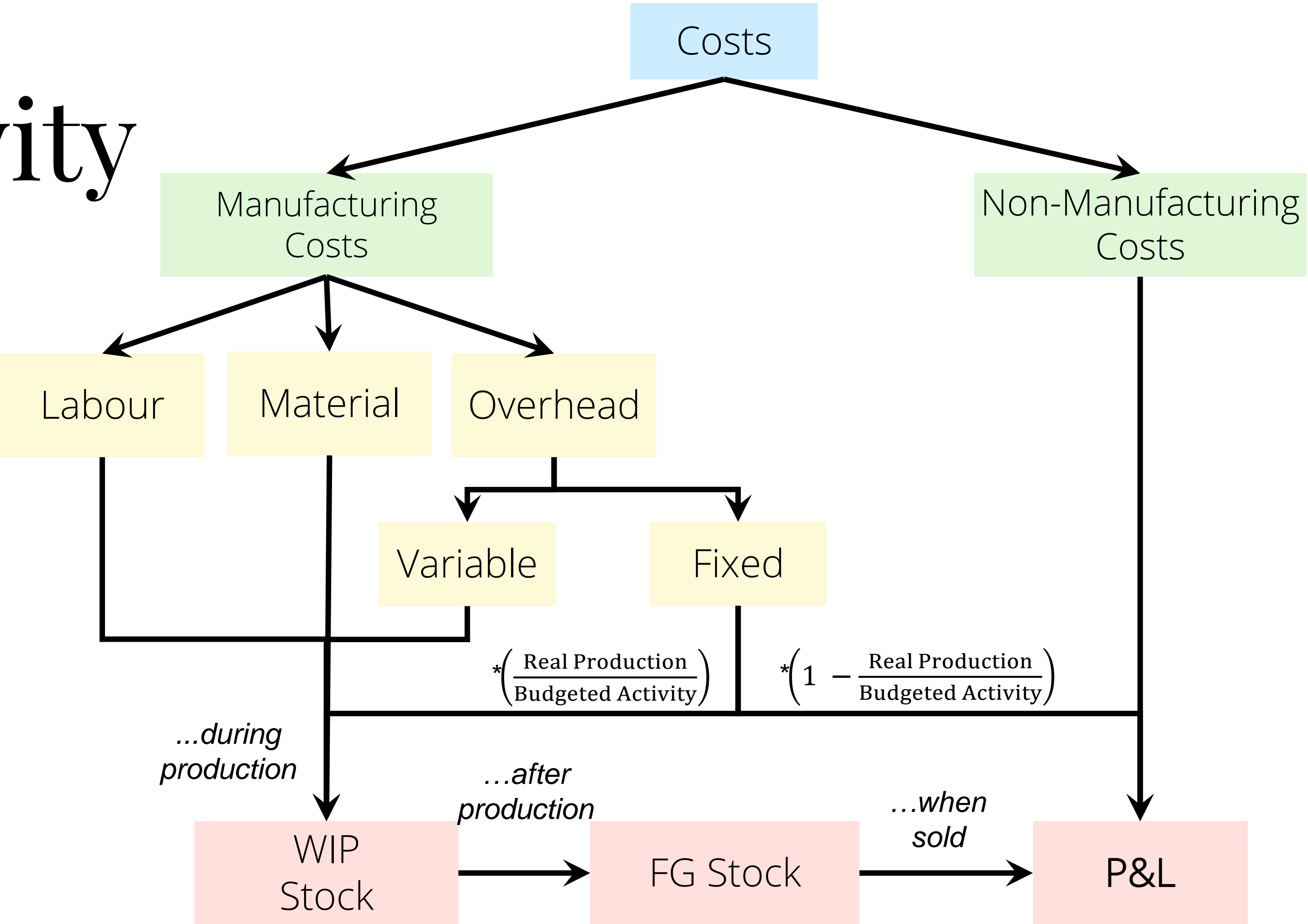
FC Budgeted Activity

AN ALTERNATIVE SYSTEM

All Variable Manufacturing Costs traced to products

Fixed Manufacturing Overheads split between products and period costs

$$COGM = MVC_{Unit} * \text{Real Production} + MFC * \frac{\text{Real Production}}{\text{Budgeted Activity}}$$

$$URO = MFC * \left(1 - \frac{\text{Real Production}}{\text{Budgeted Activity}}\right)$$

Note: **Budgeted activity** is the activity level (volume of production) based on .the capacity utilization required for the next budget period

Costs

Manufacturing Costs

Non-Manufacturing Costs

Labour · Material · Overhead

Variable · Fixed

$*\left(\frac{\text{Real Production}}{\text{Budgeted Activity}}\right)$

$*\left(1 - \frac{\text{Real Production}}{\text{Budgeted Activity}}\right)$

...during production

...after production

...when sold

WIP Stock → FG Stock → P&L

...assuming labour is all variable

Alternative Cost Systems

IN SUMMARY

Type of System	COGM	Under-recovery of OH (UROH)
Variable Costing	$MVC_{Unit} * \text{Real Production}$	MFC
Total Full Costing	$MVC_{Unit} * \text{Real Production} + \text{MFC}$	0
Full Costing Based on Practical Capacity	$MVC_{Unit} * \text{Real Production} + \text{MFC} * \dfrac{\text{Real Production}}{\text{Practical Capacity}}$	$\text{MFC} * \left(1 - \dfrac{\text{Real Production}}{\text{Practical Capacity}} \right)$
Full Costing Based on Budgeted Activity	$MVC_{Unit} * \text{Real Production} + \text{MFC} * \dfrac{\text{Real Production}}{\text{Budgeted Activity}}$	$\text{MFC} * \left(1 - \dfrac{\text{Real Production}}{\text{Budgeted Activity}} \right)$

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Profit Comparisons

COSTS ARE ONLY MOVED AROUND; THEY ARE THE SAME!

There are two ways of **explaining the differences in profit:**

1. Based on the **Manufacturing Fixed Costs** considered as an expense in the **P&L** (UROH + COGS). More MFC in the P&L is associated with lower profit!

Total MFC in the P&L = MFC in COGS + MFC in URO

2. Based on **Inventory Valuation** (how much MFC stay in closing inventory). More costs in inventory, less costs on P&L, thus higher profits!

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Profit Comparisons

COSTS ARE ONLY MOVED AROUND; THEY ARE THE SAME!

- If **Sales = Production**, profit and inventory levels are the same between all systems

- If **Sales > Production** (decreasing stock levels), profits are higher in Variable Costing

- If **Sales < Production** (increasing stock levels), profits are higher in Total Full Costing
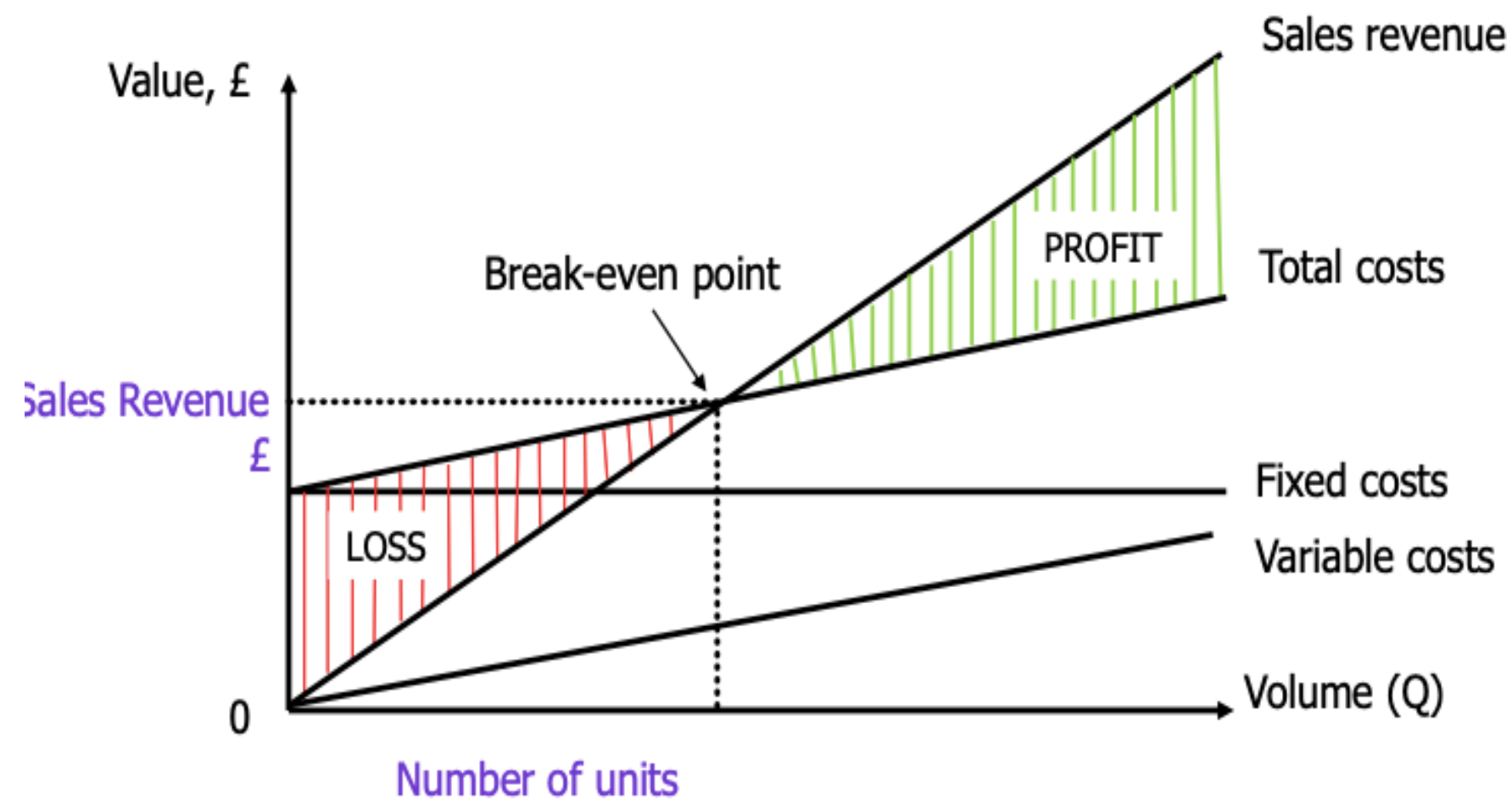
As always, use your discretion, exercises might mix content that mask this relationships 🤭

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Exercise

29 – ALFALINHA COMPANY

CVP Analysis

HOW PROFITABILITY IS AFFECTED BY VOLUME

Unit Contribution Margin $(\text{CM}_{\text{Unit}}) = Price - VC$

How much does each unit contributes to profit

$$CM_\% = \frac{CM_{unit}}{P} * \frac{Q}{Q} = \frac{CM}{Sales\ Revenue}$$

%of sales available to cover FC and profit

$$BEP_{Units} = \frac{FC}{P - VC}, \quad BEP_€ = BEP_{Units} * Price$$

Level of Sales such that Profit = 0

$$Safety\ Margin\ 1 = \frac{Sales - BEP}{BEP}$$

Sales are x% above the BEP

$$Safety\ Margin\ 2 = \frac{Sales - BEP}{Sales}$$

Sales may decline x% before the firm incurs into a loss

CVP Analysis

PROFIT LEVEL

Under the CVP Analysis, the Profit of a Company only depends on the volume of the sales against the BEP.

Each unit sold contributes P – VC (CM Unit) to the profit of the firm. The first X (BEP$_\#$) units are used to pay the FC, whereas the remaining constitute profit.

Alternatively, from the total value of sales, we know that (CM%) * Sales is divided among profit and payment of FC.

Let **X# be the number of units sold by a firm:**

$$\pi = (X\# - BEP_{Units}) * CM_{Unit}$$

Similarly, let **X€ be the value of Sales**

$$\pi = X€ * CM_{\%} - FC$$

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