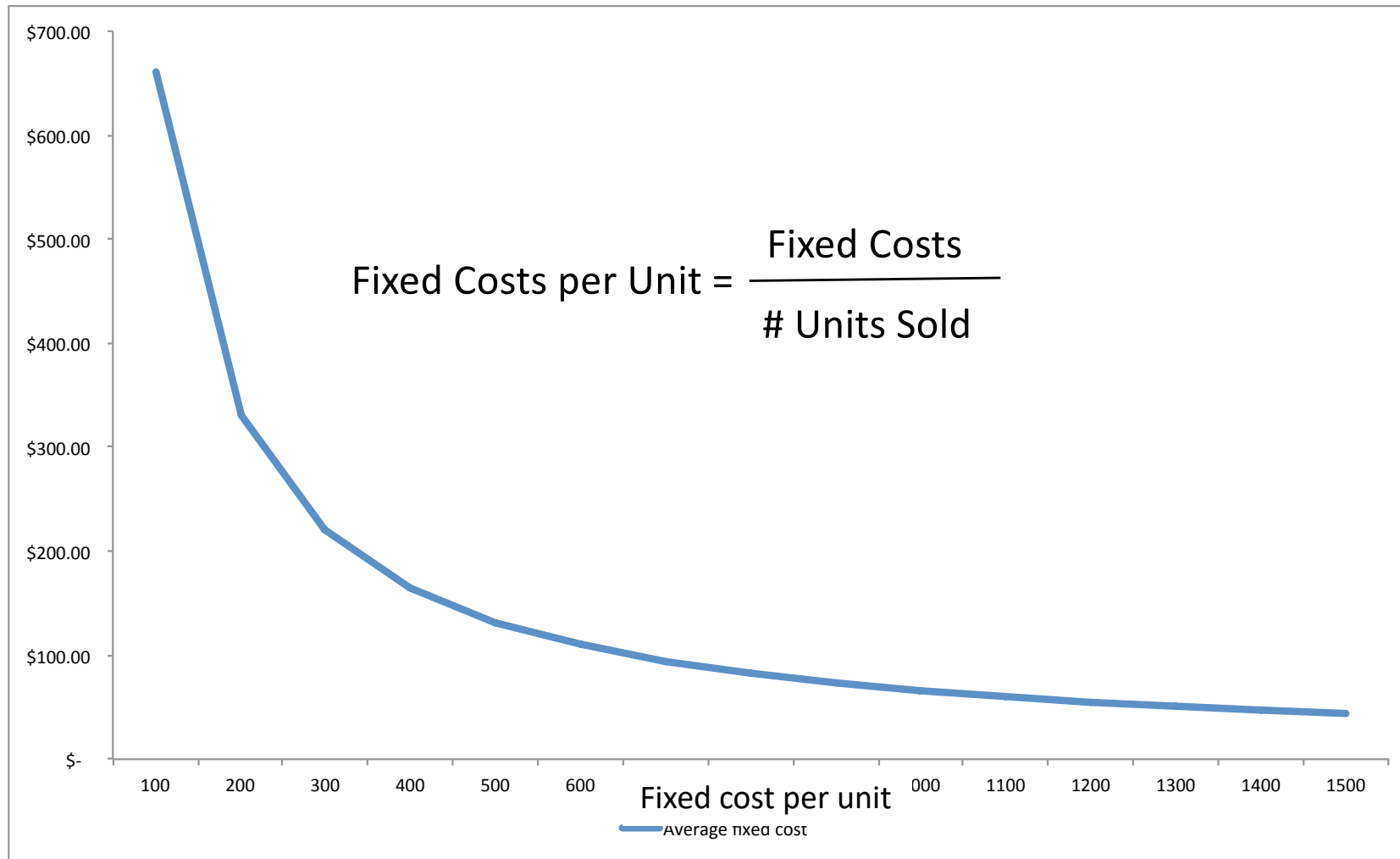


A PULL APPROACH TO COSTING

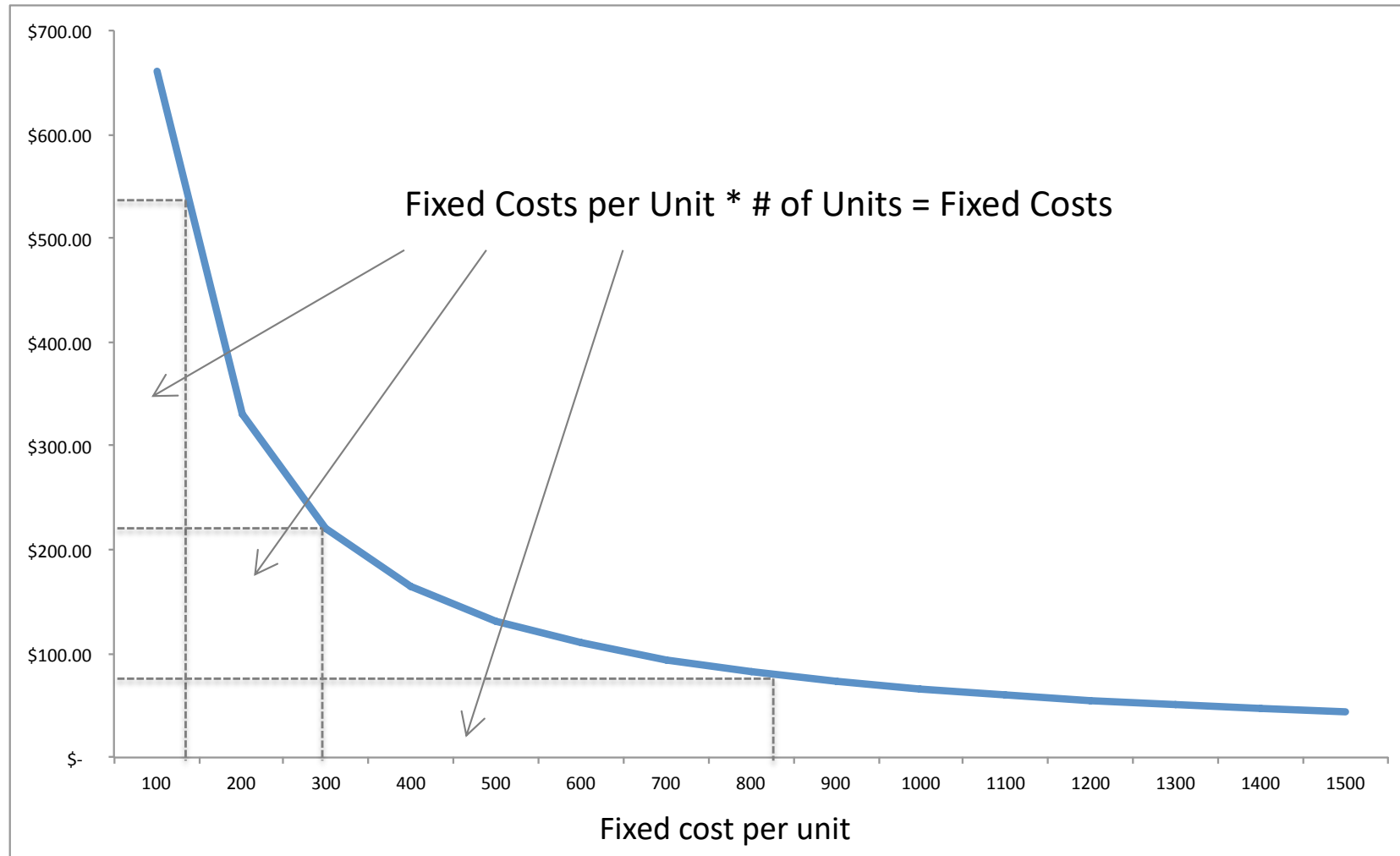
How to determine and insulate the cost of unused capacity



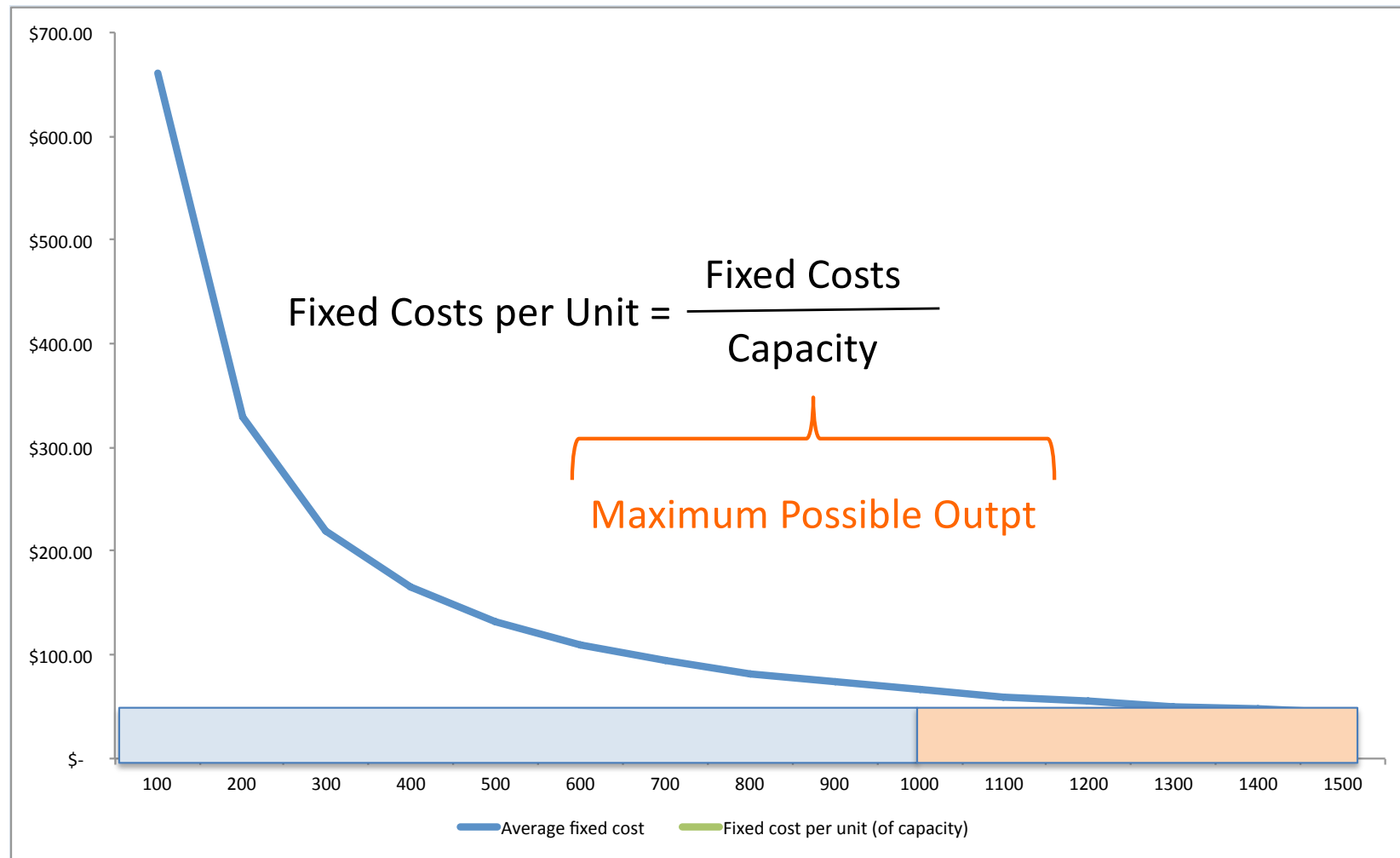
FULL ACTUAL COSTING



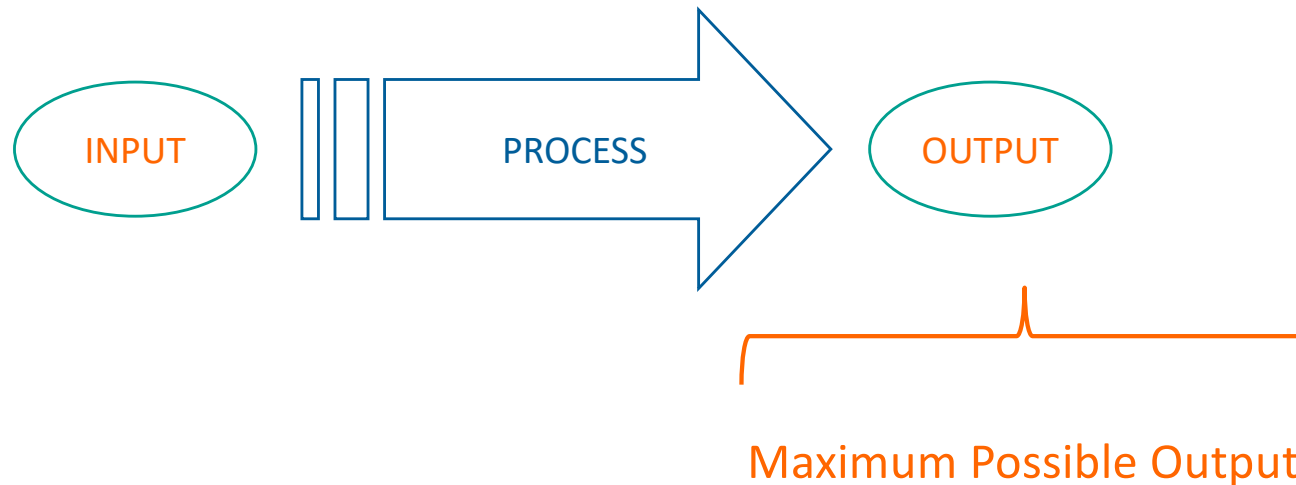
FULL ACTUAL COSTING



FULL NORMAL COSTING



UNDERSTANDING CAPACITY

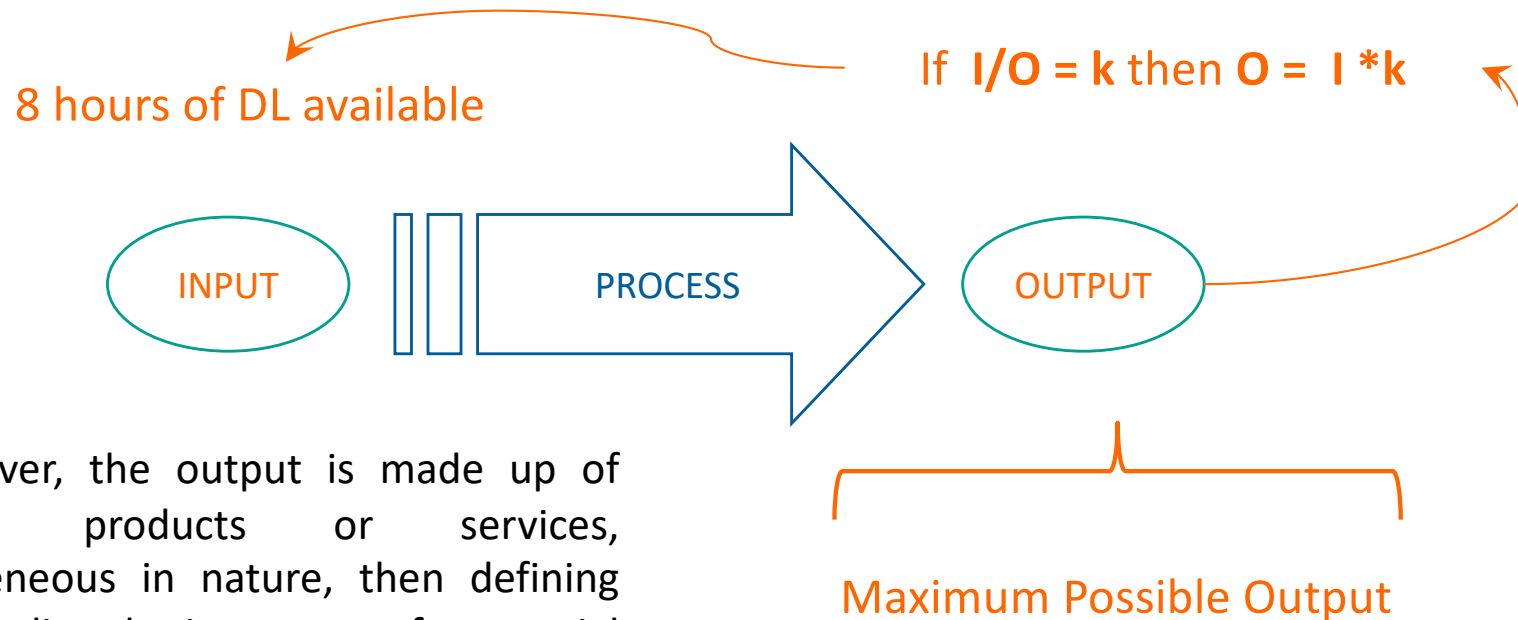


If the output is sufficiently homogeneous there is normally no problem in identifying a measure of capacity.

The capacity is in fact measured with the same unit of measure employed in order to measure the production set up or sold.

- # of units
- # of meters
- # of liters
- # of kilograms
- # of bottles
- # phone calls
- # document processed
- # invoices sent

UNDERSTANDING CAPACITY



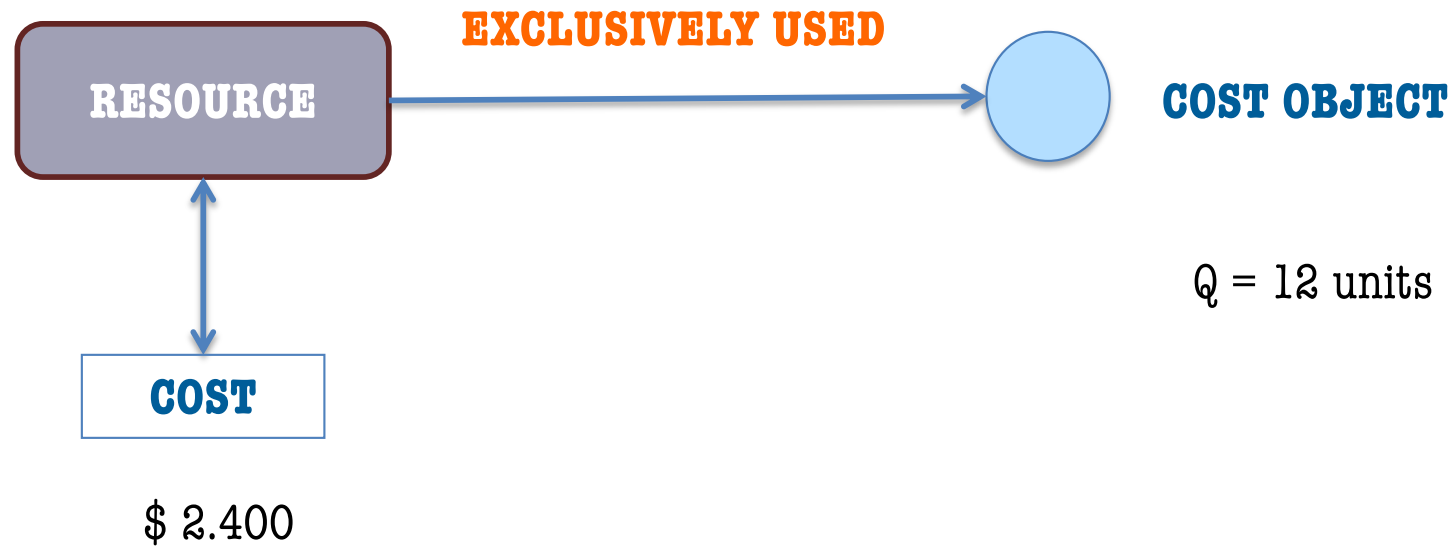
If, however, the output is made up of different products or services, heterogeneous in nature, then defining capacity directly in terms of potential output becomes difficult.

It is preferred, in that case, to provide a measure of capacity in terms of the resources available to carry out the production process.

The step is made possible through the adoption of the assumption that resources work at a constant level of productivity over the period under consideration.

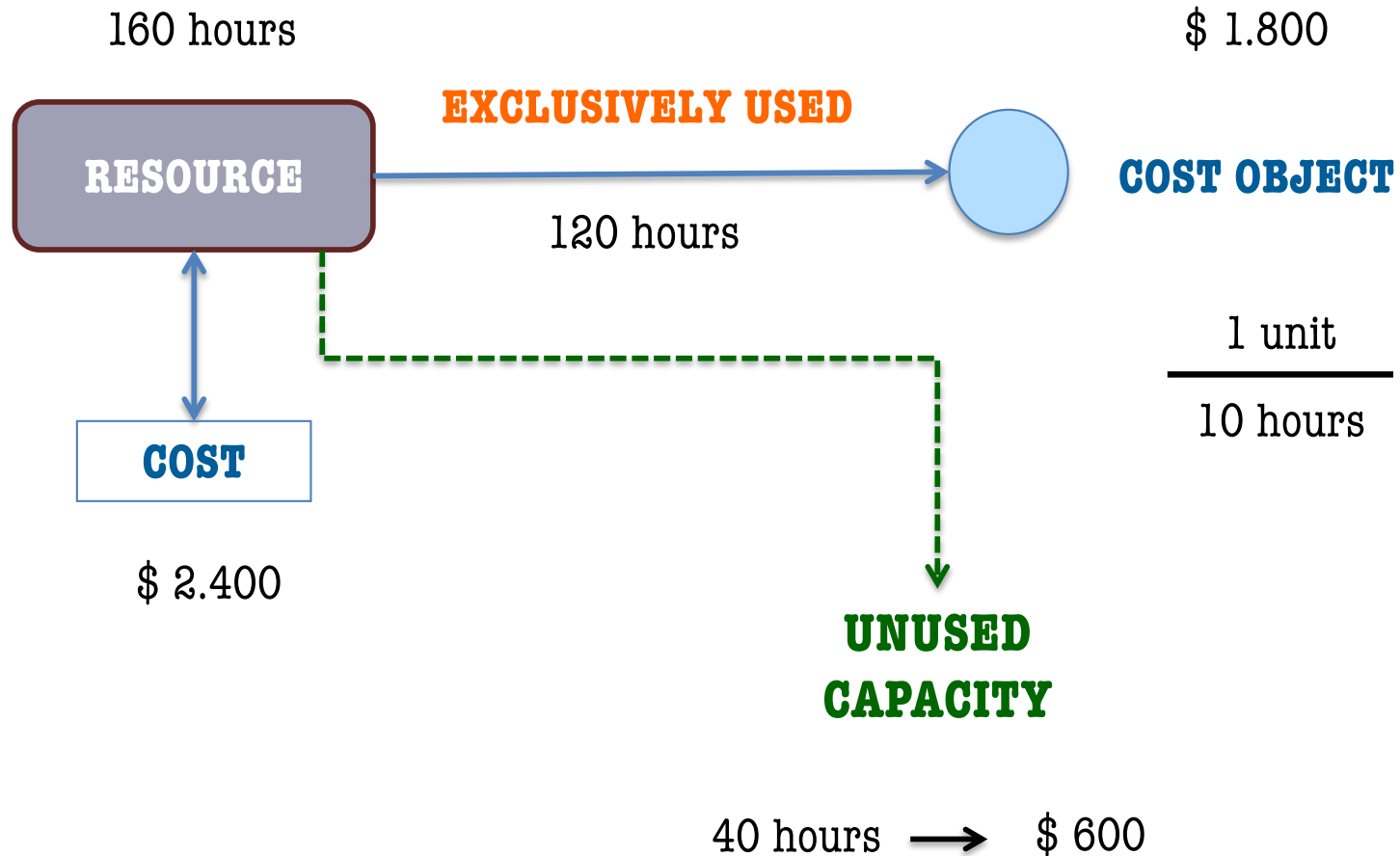
4 Product "A"	0 Product "B"
3 Product "A"	2 Product "B"
2 Product "A"	4 Product "B"
1 Product "A"	6 Product "B"
0 Product "A"	8 Product "B"

TRACING COSTS



TRACING FIXED COSTS

$Q = 12$ units
 $K = 16$ units



DIFFERENT COST RATES

Budgeted cost: \$ 2,400

Actual cost: \$ 2,580

Budgeted hours: 140

Actual hours: 120

Available hours: 160

Worked hours: 170

$$\frac{\text{Budgeted Cost}}{\text{Budgeted Hours}} = 17,14 \text{ \$/h}$$

$$\frac{\text{Budgeted Cost}}{\text{Actual Hours}} = 20,00 \text{ \$/h}$$

$$\frac{\text{Budgeted Cost}}{\text{Available Hours}} = 15,00 \text{ \$/h}$$

$$\frac{\text{Actual Cost}}{\text{Actual Hours}} = 15,18 \text{ \$/h}$$

FIXED COST ALLOCATION



\$ 315,000

K = 525 units



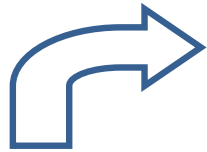
Q = 200 units 80 DL hours per unit \$ 50,000 per units



K = 1.050 units

Q = 350 units 40 DL hours per unit \$ 32,000 per units

INDIRECT COSTS ALLOCATION



$$F.C.U.^{\omega} * (Q_A * \omega_A)$$



$$\frac{F.C.U.^{\omega} * (Q_A * \omega_A)}{Q_A}$$

FIXED COSTS

$$= F.C.U.^{\omega}$$

K^{ω}



$$F.C.U.^{\omega} * (Q_B * \omega_B)$$

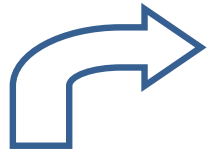


$$\frac{F.C.U.^{\omega} * (Q_B * \omega_B)}{Q_B}$$

$\rightarrow F.C.U.^{\omega} * [K^{\omega} - (Q_A * \omega_A) - (Q_B * \omega_B)]$

UNUSED CAPACITY COST

INDIRECT COSTS ALLOCATION



$$5.25 \text{ \$}/\text{H} * (200 \text{ units} * 80 \text{ h/unit})$$



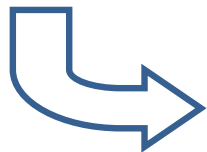
\$ 84,000

200 units

\$ 220,500

$$= 5.25 \text{ \$}/\text{H}$$

42,000 H



$$5.25 \text{ \$}/\text{H} * (350 \text{ units} * 40 \text{ h/unit})$$



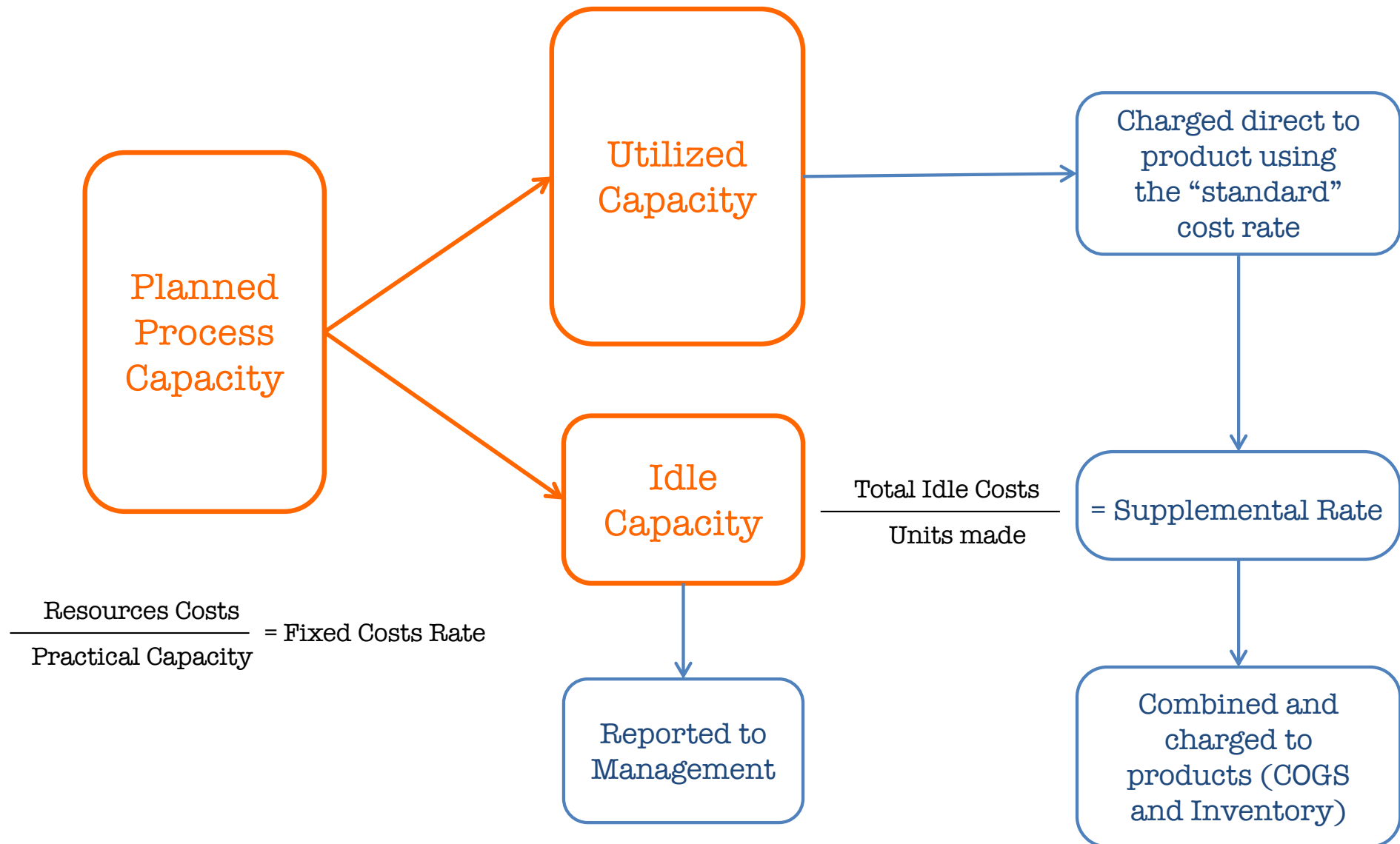
\$ 73,500

350 units

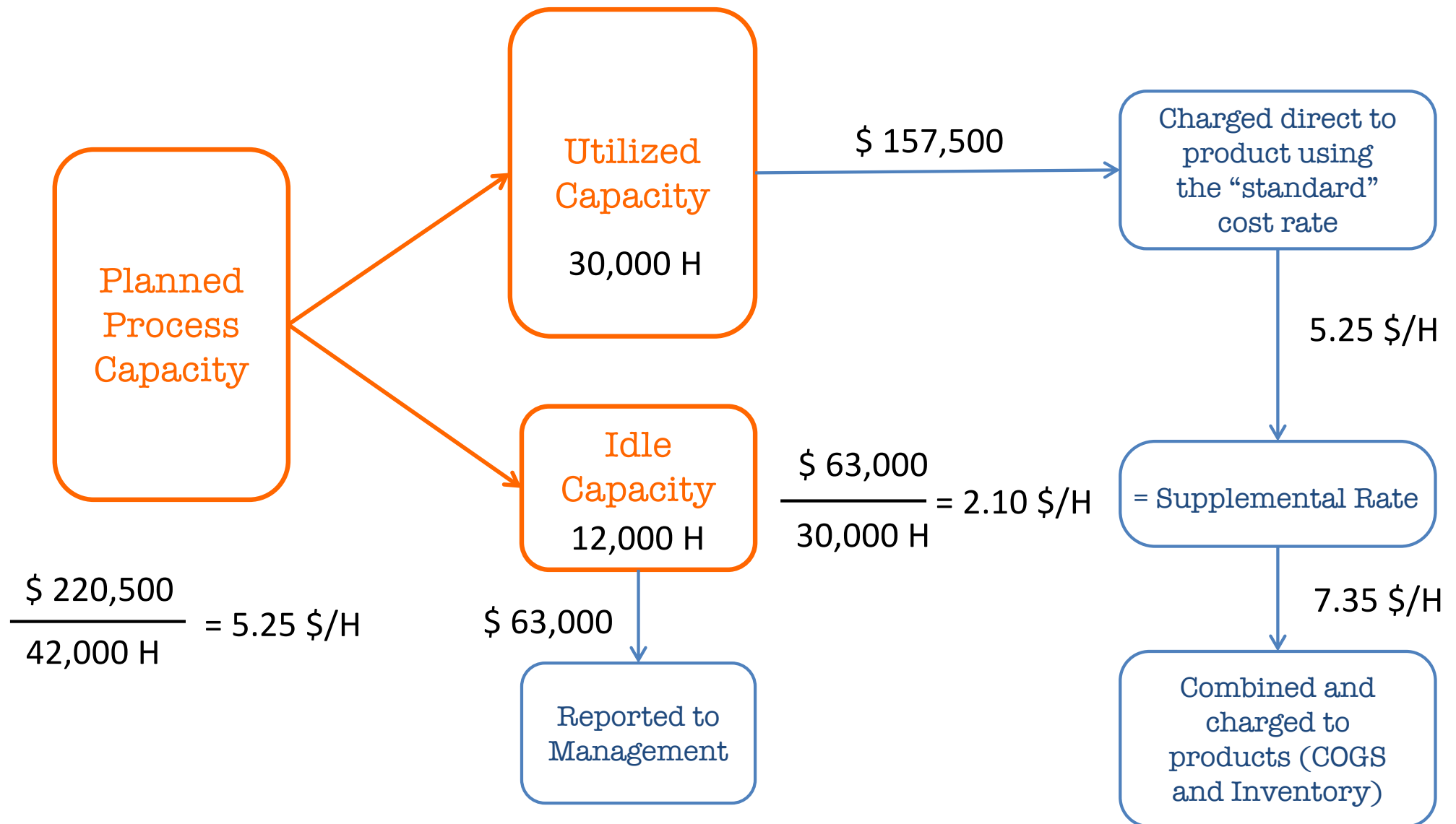
5.25 \$/H * [42,000 hours - (200 units* 80 h/unit) - (350 units* 40 h/unit)]

UNUSED CAPACITY COST

SUPPLEMENTAL RATE METHOD



SUPPLEMENTAL RATE METHOD



FULL NORMAL COSTING

330-10-30-1 The primary basis of accounting for inventories is cost, which has been defined generally as the price paid or consideration given to acquire an asset.

As applied to inventories, cost means in principle the sum of the applicable expenditures and charges directly or indirectly incurred in bringing an article to its existing condition and location.

It is understood to mean acquisition and production cost, and its determination involves many considerations.

330-10-30-2 Although principles for the determination of inventory costs may be easily stated, their application, particularly to such inventory items as work in process and finished goods, is difficult because of the variety of considerations in the allocation of costs and charges.

330-10-30-3 For example, variable production overheads are allocated to each unit of production on the basis of the actual use of the production facilities. However, the allocation of fixed production overheads to the costs of conversion is based on the normal capacity of the production facilities. Normal capacity refers to a range of production levels. Normal capacity is the production expected to be achieved over a number of periods or seasons under normal circumstances, taking into account the loss of capacity resulting from planned maintenance. Some variation in production levels from period to period is expected and establishes the range of normal capacity.

TWO DIFFERENT KINDS OF RESOURCES

CONSUMABLE RESOURCE

The defining characteristic of a consumable resource, also called a flexible resource, is that its cost depends on the amount of resource that is **used**. Examples of consumable resources are wood in a furniture factory and iron ore in a steel mill. The cost of a consumable resource is often called a variable cost because the total cost depends on how much of the resource is consumed.

CAPACITY-RELATED RESOURCE

The defining characteristic of a capacity-related resource is that its cost depends on the amount of resource capacity that is acquired (better: **deployed**) and not on how much of the capacity is used. As the size of a proposed factory or warehouse increases, the associated capacity-related cost will increase. Examples of capacity-related costs are depreciation on production equipment (the capacity-related resource) and salaries paid to employees (the capacity-related resource) in a consultancy. The cost of a capacity-related resource is often called a fixed cost because the cost of the resource is independent of how much of the resource is used in the short run.

A PUSH APPROACH TO COSTING

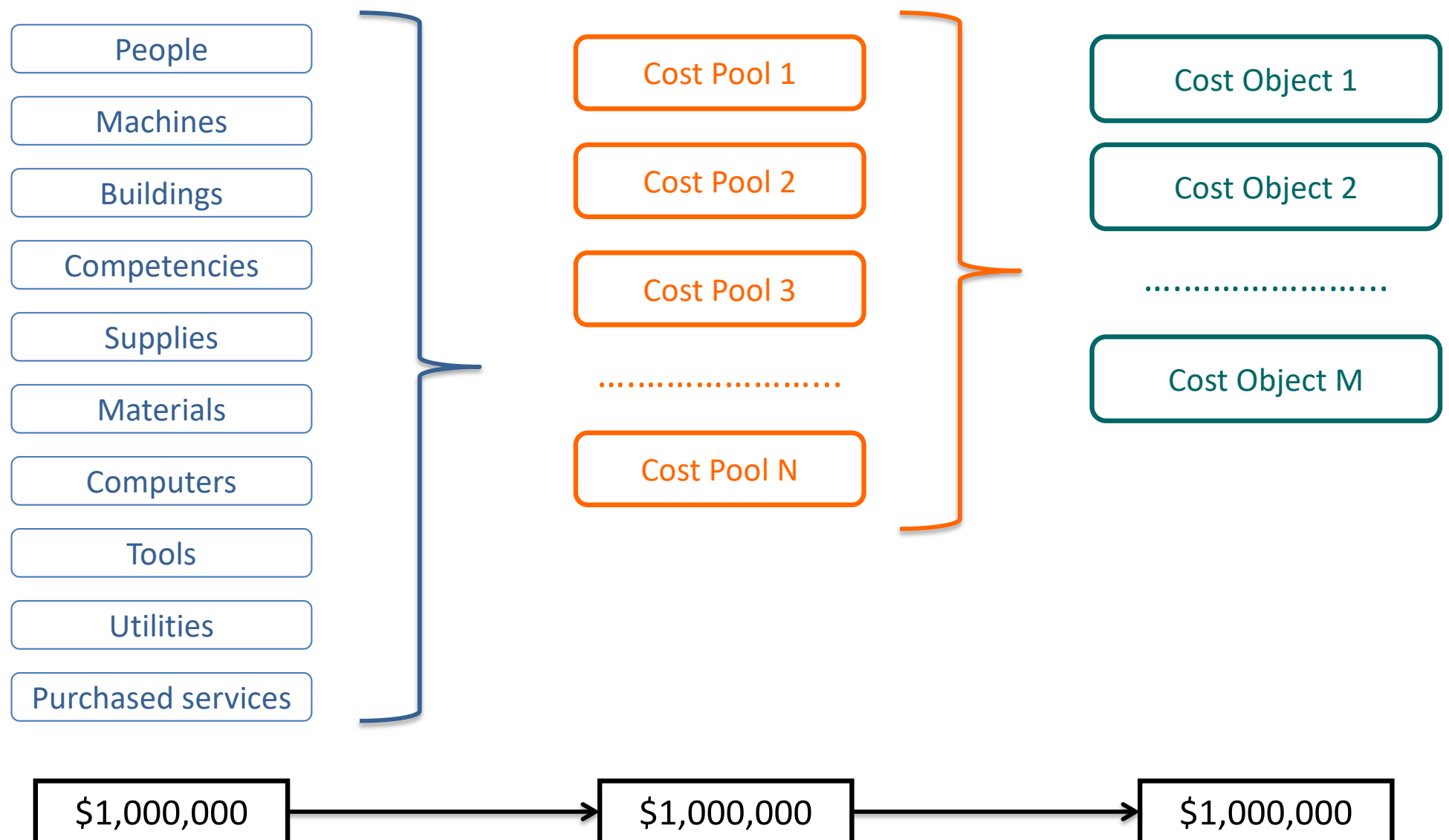
A push approach to costing means full absorption in which 100% of the expenses incurred during a time period are assigned to the activities performed, and all of those activity costs are in turn reassigned to the recipients or “cost objects” that consume them.

The expenses collected in the General Ledger (GL) accounting system (primarily from payments for purchases, employee payroll, and accrual-type journal entries like depreciation) equal the total amount when adding up all of the activity costs and the ultimate final cost object costs.

The push approach proportionately traces costs based on consumption relationships and is like a complete electrical circuit from the provider to the receiver. The benefit of this approach is that there's a 100% complete reconciliation of the expenses to the officially reported financial results in total. Therefore, the cost amounts are credible overall and reasonably accurate.

With the push approach, estimates of driver quantities are acceptable since each assignment must normalize to 100%.

A PUSH APPROACH TO COSTING



A PUSH APPROACH TO COSTING

From: General Ledger

Chart-of-Accounts View			
Claims Processing Department			
	Actual	Plan	Favorable/ (unfavorable)
Salaries	\$621,400	\$600,000	\$(21,400)
Equipment	161,200	150,000	(11,200)
Travel expenses	58,000	60,000	2,000
Supplies	43,900	40,000	(3,900)
Use and occupancy	30,000	30,000	--
Total	\$914,500	\$880,000	\$(34,500)

To: ABC Database

Activity-Based View	
Claims Processing Dept	
Key/scan claims	\$ 31,500
Analyze claims	121,000
Suspend claims	32,500
Receive provider inquiries	101,500
Resolve member problems	83,400
Process batches	45,000
Determine eligibility	119,000
Make copies	145,500
Write correspondence	77,100
Attend training	158,000
Total	\$914,500



SHORTCOMINGS OF THE PUSH APPROACH

A downside of the push approach is that the supplier of the resource capacity expenses (i.e., the “sending” spender of expenses) always recovers 100% of its incurred expenses.

Therefore, if a support group such as information technology (IT) or Finance spends more than its budget, it becomes the receiving internal department’s problem, not theirs. This doesn’t provide an incentive to the support group to reduce its expenses. For example, if resources were added or paid overtime by IT or Finance to meet deadlines or performance measures, those receiving the allocation would bear the cost impact, no matter whose behavior caused the variance.

Another negative aspect of the push approach is that it is frequently capacity insensitive. That is, there’s no obvious way to differentiate and classify individual resource capacities as used or unused (e.g., idle or excess). Hence, the final cost objects will be modestly overcosted for expenses that they didn’t cause or require.

A PULL APPROACH TO COSTING

As a result of the shortcomings of the push approach, the pull approach was born.

Think of it as a **partial absorption of the resources' expenses**. With the pull approach, **senders of expenses can be viewed as mini profit centers in which agreed-upon rates for their services are established**, typically based on a budget of planned expenses and expected volumes.

Consumers of these services pay a fixed rate (i.e., price) for the actual volume that they consume—no more, no less. The pull approach opens a new world of arm's-length relationships between supporting centers and customer-facing departments. Customers, whether they are internal or external, often prefer this arrangement because it allows them to have some control over how much expense from their organization is planned for them as costs.

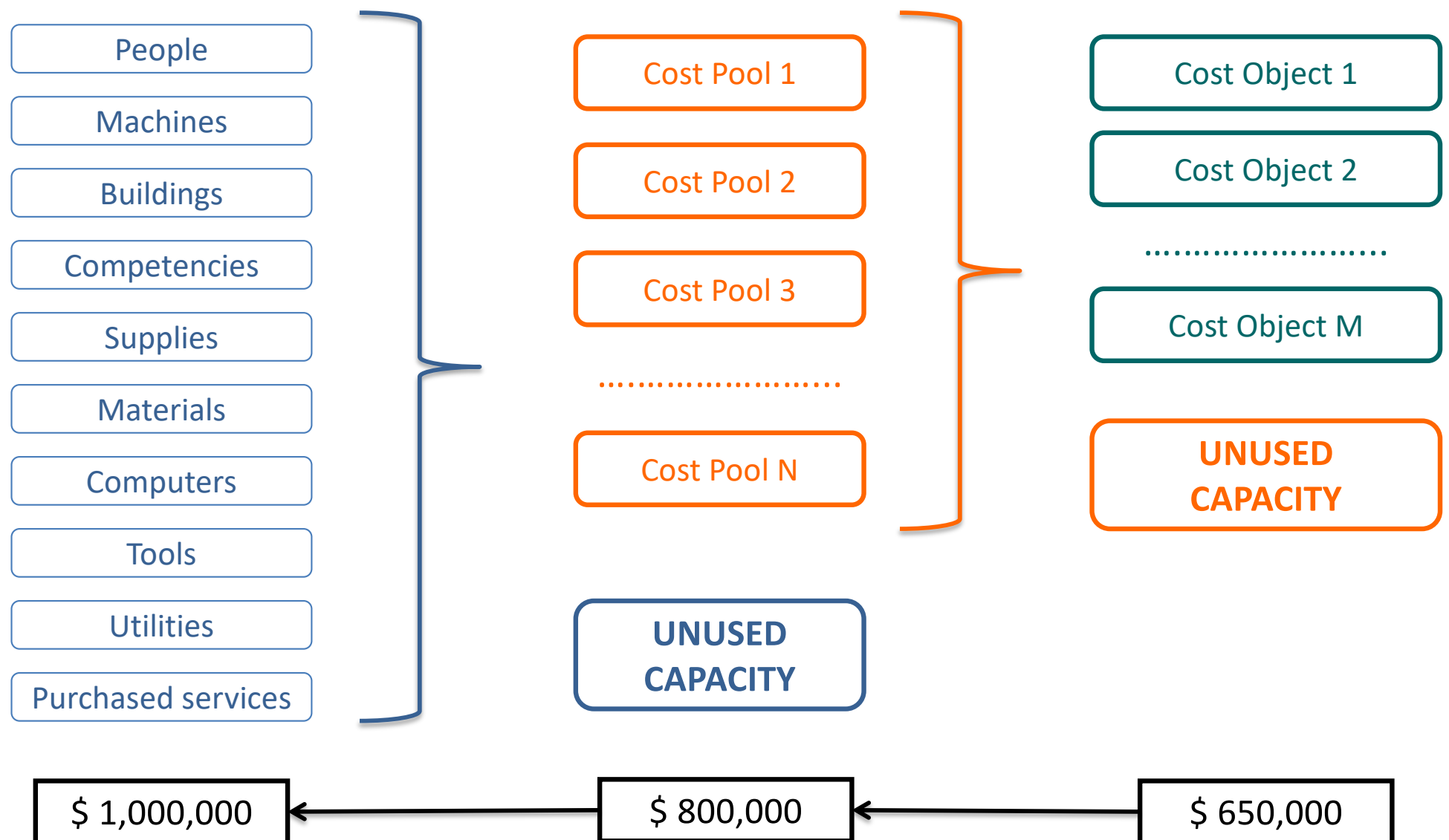
Additionally, internal service providers may favor this method because it can show the value of their services or the need for additional resources based on the over-recovery or under-recovery of their costs charged to their customers. For example, if an IT group were shown to be over-recovering its costs via these charge-outs by a large margin, this information could be used as justification for increased headcount or at least demonstrate that they are performing highly.

A PULL APPROACH TO COSTING

The pull approach also introduces a rudimentary measure of capacity utilization: the percent over/under cost recovery.

But a problem with the pull approach is that the correctness of the cost assignment is highly contingent on setting accurate rates. Imagine a cost assignment network that includes cross-charging in which estimated rates are applied. There would be multiple overrecoveries and underrecoveries of expenses, potentially large ones, because of faulty rates. The result would be a difference from the actual GL expense totals in aggregate, thereby questioning the overall credibility and understanding of the costs

PULL SYSTEMS



SOME TAKEAWAY POINTS FROM MODULE # 12

- ❑ In this module, the problem of properly allocating fixed overhead was explored in depth. The idea of using production capacity as a possible parameter for the allocation process was developed and the associated cost rate was compared to more traditional cost rates.
- ❑ Necessary for understanding the underlying logic is, clearly, a prior knowledge of the concept of “productive capacity”. In this regard it has been seen that the term capacity identifies the maximum possible level of the output produced by the business system. Its definition in such terms turns out however much complex one if one considers one process that produces various heterogeneous outputs.
- ❑ For this reason, a different definition of capacity is often used, one that looks not at the maximum output that can be achieved, but at the maximum amount of resources that can be consumed to achieve it. For this reason, the measure of capacity is often provided in terms of the number of manpower hours or machine hours available. In fact, these are normally the resources that represent the constraint on the production of a higher level of output.

SOME TAKEAWAY POINTS FROM MODULE # 12

- ❑ Having made these important premises, we moved on to an analysis of the practical ways in which this logic can be implemented. It has been seen, in particular, that in the case of heterogenous production the allocation process can be performed effectively if the “capacity” is measured using the same parameter (normally a volume-based one) that is employed in order to homogenize the relative quantities of the different cost-objects considered.
- ❑ It has been underlined how the rate thus identified represents the minimum level of indirect cost logically associated with the cost object. This means, obviously, that this level of cost, at least in the long term, must necessarily be covered by the revenues generated by the sale of the product or the service provided to the client. If this were not the case, in fact, the product or service would be structurally at a loss.
- ❑ The use of this logic in the calculation of the fixed cost per unit also makes it possible to separately highlight the so-called “cost of unused capacity”. This is, of course, very important information for managers because it can be used to examine the economic consequences of sizing decisions.

SOME TAKEAWAY POINTS FROM MODULE # 12

- ❑ In a previous module it has been introduced the distinction between actual costing and normal costing. Normal costing uses a predetermined annual overhead rate to assign manufacturing overhead to products.
- ❑ Well, the accounting principles in this regard establish that “variable production overheads are allocated to each unit of production on the basis of the actual use of the production facilities. However, the allocation of fixed production overheads to the costs of conversion is based on the normal capacity of the production facilities”.
- ❑ This is the reason why Scholars often call the process of defining the fixed cost rate using capacity by using the term “Full Normal Costing” as opposed to “Full Actual Costing” in which the actual level of production is used.
- ❑ Another way of distinguishing the two logics is to define "push approach" the method that transfers downstream all costs incurred at a given level (stage) of the allocation process. The term “pull approach” is used, instead, in order to identify the methodology that identifies unused capacity at a given stage of the allocation process, preventing it from being transferred downstream.