Strategic Management Accounting (BSA 3210)
BACHELOR OF SCIENCE IN ACCOUNTING (BSA)
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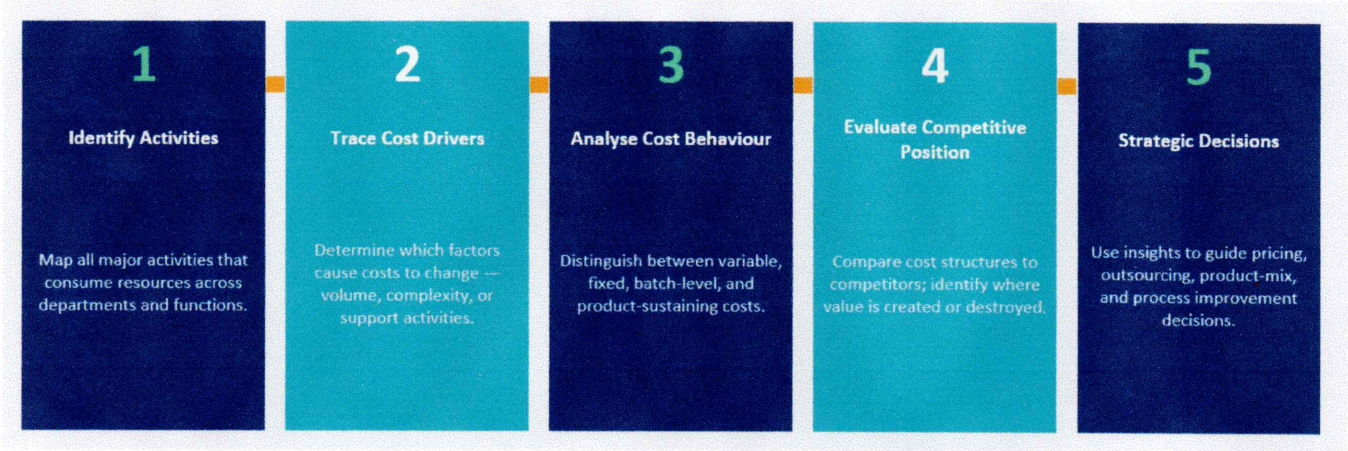
Topic 3: Strategic Cost and process Analysis

- **The Process of Strategic Cost Analysis**
- **Types of Cost System**
  - Full costing
  - Activity-Based Costing (ABC)
  - Time-Driven ABC (TDABC)
- Activity Based Costing
- Identifying opportunities to reduce costs
- Impact of volume diversity.
- Critical factors in designing ABC systems
- Activity-based profitability analysis
- Application of ABC systems in product and service systems
- Process analysis
- Costing Methods Used in Service Sector

3.1 The Process of Strategic Cost Analysis

Strategic cost analysis examines the cost structure of an organisation to identify opportunities for cost reduction, competitive advantage, and improved profitability. It moves beyond traditional costing to provide managers with actionable intelligence.



The Four Key Questions for Strategic cost analysis

1. What Did It Cost and Why?	1.2. What Should It Have Costed?	3. How Can We Improve?	4. What Is Our Next Strategic Move?
• Classify the cost object. • Cost unit • Specify the nature of the cost. • To enhance managerial performance	• Setting standards • Conducting comparisons with the present ▯ Previous cost ▯ Cost of the alternatives ▯ Planned costs ▯ Cost of the Competitor	• Managers are Champions of change. • Managing the performance of each responsibility area • Conducting Performance measures	• Strategic approach required by Managers in organizational roles, • Focusing on efficiency, contribution, • Awareness of external factors.

3.2 Types of Cost Systems

Full Costing

Traditional Absorption Costing

- Developed in early 1900s for manufacturing
- Allocates overhead using a single volume-based rate (e.g., labour hours)
- Simple to operate and understand
- Works well when overhead is low & products are homogeneous
- Loses accuracy in modern, high-overhead environments
- Can distort profitability of low-volume, complex products
- Traditional volume based product cost systems, assumes that products consume all resources in proportion to their production volumes, thus report distorted product costs.

ABC

Activity-Based Costing

- Identifies activities that consume resources
- Uses multiple cost drivers for greater accuracy
- Traces costs to products based on actual activity consumption
- Reveals true profitability of products, customers, & channels
- Particularly useful where overhead is high & products diverse
- Higher setup cost but delivers superior cost intelligence
- ABC system, it is considered that activities cause costs and that products (and customers) create the demands for the activities.

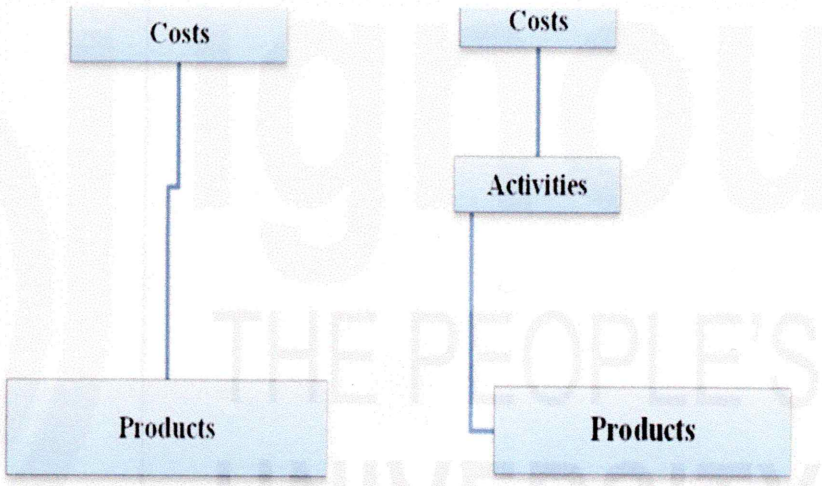
TDABC

Time-Driven ABC

- Simplified variant of ABC; uses time as the universal driver
- Assigns resource costs based on time required per transaction
- Two parameters: cost per unit of time + time per activity
- Easier to update and maintain than traditional ABC
- Handles complex transactions with multiple variations
- Widely adopted in service organisations and logistics

Activity Based Costing Vs Traditional Costing System

No.	Activity Based Costing	Traditional Costing System
1	Allots overheads on the basis of various cost pools and activities.	Assigns overhead based on a single overhead rate
2	Favourable for technology-driven manufacturing process	Favourable for labour driven manufacturing process
3	Favourable when the overhead increase is based on various activities that different for various product	Favourable when the overhead increases are based on traditional components like labour hours



Activity-based costing

Activity-based costing is an alternative to absorption costing for allocating overheads. It involves the identification of the factors (**cost drivers**) which cause the costs of an organisation's major activities. This allows the overheads to be allocated to products or services based on the cost drivers.

Activity based costing (ABC) is an approach to the costing and monitoring of activities which involves the tracing of resources to activities, and activities to end products or services, based upon usage measured via cost drivers.

A **cost driver** is a factor that causes a change in the cost of an activity.

1.1 *Traditional absorption costing: the quality of cost information*

Traditional absorption costing was developed for manufacturing operations in the early 1900s, when the largest items of expense were direct labour costs. Overhead costs were comparatively low, and overhead spending was heavily influenced by direct labour activities. In such an environment, labour-hour based absorption costing provided fairly reliable and valuable information about product costs and profitability.

In a modern business environment, where advanced manufacturing technology is used, the situation is very different. The machine has replaced direct labour, and production overhead expenses are a much higher proportion of total production costs. There have also been large increases in administration and selling and marketing expenses. Direct labour may account for as little as 5% of total product costs.

There has been an increase in the cost of 'support functions' or 'service functions', such as set-up costs, production scheduling, inspection costs, the cost of logistics (transportation and storage), despatch, order handling, data processing and customer service.

However, the amount of work done in many support activities that incur overhead costs is not necessarily related to production volume, nor to direct labour hours of work. In many cases, low-volume (and possibly low-value) products make use of a large amount of resources and time in these support areas. For example:

a) Where order handling is a major support operation, the time and resources used in handling a small order might be almost as great, and sometimes greater, than the time and resources needed to process a large order.
b) Where the costs of setting up a production run are a major overhead activity, a small production run might need more set-up time and resources than a large standard production run.
c) Where packing and despatch are a major overhead activity, the costs of handling non-standard items for despatch might be much greater than the costs of packing and despatching standard items.

Given all these changes, it is perhaps not so surprising that traditional absorption costing information has lost most of its relevance. A system of costing that allocates overhead costs to cost items (products or services) on the basis of production volume or output level (eg on the basis of direct labour hours) cannot be relied on to provide a reliable or meaningful assessment of costs. Cost information needs to help a company to maintain or improve its competitive position, by showing which of its products or services are really the most profitable, and which operations are losing money. Traditional absorption costing simply does not provide this information, and something better is needed.

Activity-based costing (ABC) is a concept for overcoming the weaknesses of traditional absorption costing, by trying to attribute costs to the products or services via the activities that caused those costs to be incurred. It has an advantage

over traditional costing systems because it allocates overhead costs to programmes and activities in a way that reflects the factors influencing those costs.

To implement ABC, an organization must first of all look at all its overhead costs, and try to *identify the main activities* that result in costs being incurred. These are the activities that use up resources. There are no standard rules as to what these major activities should be and they will differ in each organisation. The activities identified in this way need not be confined to a single department, but might be carried out in a number of different departments.

Examples of resource-consuming activities might be the processing of acustomer order, procurement, quality inspection, set-up, despatch, warehousing, and so on.

Instead of collecting overhead costs for a service department or an overhead cost centre, an organisation collects the overhead costs for **activity pools** or **cost pools**. There is a separate activity pool for each major resource-consuming activity. For each activity pool, there should be a **cost driver**. A cost driver is a unit of activity that results in the consumption of resources, and so leads to costs being incurred.

Examples of cost drivers are as follows.

Activity	Cost driver
Ordering	Number of orders
Materials handling	Number of materials receipts
Production scheduling	Number of production runs (or set ups)
Despatch	Number of despatches

For each activity pool or cost pool, a *cost per unit of cost driver* is then calculated. The costs in an activity pool are then assigned to products and services on the basis of:

Units of cost driver □ Cost per unit of cost driver.

This is similar to the absorption of overheads, using an absorption rate, in traditional costing. However, the cost driver represents the factor that has the greatest influence on the behaviour of costs in the activity pool. For example, if a particular product requires 60% of quality control inspections and there is a cost pool for inspection costs, the product should attract 60% of the total costs of quality inspections.

Suppose for example that processing customer orders is a major activity for which there is a cost pool, and that the cost driver for this activity is the number of orders processed. The total costs for the cost pool might be, say, $200,000, and the company might process 1,000 orders in the year. The cost of order processing would therefore be $200 per order. A product for which there are 80 orders in a year would be charged $16,000 for order processing costs.

The traditional method of dealing with overheads is to split them between variable overheads and fixed overheads. If we are using absorption costing we then decide on a suitable basis for absorption (e.g. labour hours) and absorb the overheads on that basis. Activity Based Costing (ABC) attempts to absorb overheads in a more accurate (and therefore more useful) way.

Activity-based Costing (ABC) Accurate cost information is required for different strategic decision making. It has become much relevant in a highly competitive globalised business environment. Activity based costing helps apportioning overhead, which is gradually increasing now-a-days, properly tracing the costs to the products/services. Traditional Cost Systems vs. ABC Traditional systems measure accurately volume-related resources like direct labour, materials, energy and machine-related costs.
However, many support activities such as material handling, material procurement, se ups, production scheduling, etc. are not volume related. Traditional volume based product cost systems, which assume that products consume all resources in proportion to their production volumes, thus report distorted product costs.

On the other hand, under ABC system it is considered that activities cause costs and that products (and customers) create the demands for the activities. ABC system recognizes that businesses must understand the factors that drive each major activity, the cost of activities and how activities relate to products. Activities may be classified into three major categories that drive expenses at the product level. They are Unit related activities, Batch-related activities and Product-sustaining activities. Unit-related activities are performed each time a unit of the product is produced. Batch-related activities are performed each time a batch of goods is produced, e.g., setting up a machine. Product-sustaining activities are performed to support different products in the product line. One additional expense category that cannot be directly attributed to individual products may be identified as Facility-sustaining activities. They are performed to sustain a facility's general manufacturing process.

FACTORS INFLUENCING APPLICATION OF ABC

In case of high volume of overhead expenditure and product diversity or complexity involving different activities in different proportions, the cost ascertainment under traditional costing system may be misleading.

ABC system would help tracing costs more accurately linking costs with the activities that drive such costs.

The steps to be followed are as follows:

⊙ identify the major activities that give rise to overheads (e.g. machining; despatching of orders)

⊙ determine what causes the cost of each activity – the cost driver (e.g. machine hours; number of despatch orders)

⊙ calculate the total cost for each activity – the cost pool (e.g. total machining costs; total costs of despatch department)

⊙ calculate an absorption rate for each cost driver

⊙ calculate the total overhead cost for each product manufactured

⊙ calculate the overhead cost per unit for each product

Example

A company manufactures two products, P and Q. The manufacturing process is highly-automated. The following information relates to production in one year.

	Product P	*Product Q*
Number of units produced	500,000	20,000
Number of batches	500	200
Batch size	1,000 units	100 units
Average number of orders per batch	2	3
Direct materials cost per unit	Ugx 5	Ugx10
Direct labour time per unit	0.05 hours	0.05 hours
Direct labour cost per hour	Ugx10	Ugx10
Machine hours per unit	0.08 hours	0.25 hours
Number of set-ups per batch	2	4

Annual overhead costs:

	Ugx	*Annual volume*
Set-up costs	900,000	1,800 set-ups
Order processing costs	880,000	1,600 orders
Handling costs	630,000	700 batches
Other production overheads	450,000	45,000 machine hours 26,000 direct labour hours

The total production overhead costs for the year are Ugx

2,860,000. A system of ABC is used.

Set-up costs are charged to products on the basis of a cost per set-up. Order

processing costs are charged on the basis of a cost per order.

Handling costs are charged on the basis of a cost per batch.

Other production overheads are assigned to product costs on a machine hour

basis. The cost per unit for each cost driver is calculated as follows.

Cost pool	*Total cost* Ugx	*Activity level*	*Cost per unit of cost driver*
Set-up	900,000	1,800 set-ups	Ugx 500 per set-up
Order processing	880,000	1,600 orders	Ugx 550 per order
Handling	630,000	700 batches	Ugx 900 per batch

Other costs	450,000	45,000 machine hours	Ugx10 per m/c hour

Product costs are now calculated as follows.

Activity	*Total*	*Product P*	*Product Q*
Set-ups	1,800	1,000	800
Orders	1,600	1,000	600
Batches	700	500	200
Machine hours	45,000	40,000	5,000

	Total	*Product P* 500,000 units	*Product Q* 20,000 units
	Ugx	Ugx	Ugx
Direct materials	2,700,000	2,500,000	200,000
Direct labour	260,000	250,000	10,000
Set-up costs	900,000	500,000	400,000
Order processing costs	880,000	550,000	330,000
Handling costs	630,000	450,000	180,000
Other overheads	450,000	400,000	50,000
Total costs	5,820,000	4,650,000	1,170,000
Cost per unit		Ugx9.30	Ugx58.50

Solution

If this company had used traditional absorption costing instead of ABC, the production overheads would possibly have been absorbed into production costs on a direct labour hour basis. The overhead recovery rate per direct labour hour would have been Ugx110 per direct labour hour (2,860,000/26,000 hours). The production overhead cost for one unit of each product would have been 0.05 hours □ Ugx 110 per hour = Ugx 5.50.

The costs of each product would then have been as follows.

	Product P Ugx	*Product Q* Ugx	
Direct materials	5.0	10.0	
Direct labour	0.5	0.5	
Production overhead	5.5	5.5	
	11.0	16.0	
Units produced	500,000	20,000	
Total cost	Ugx 5,500,000	Ugx 320,000	Ugx 5,820,000

The total production costs would have been the same as with ABC, Ugx 5,820,000, but the costs have been assigned to the two products differently. With ABC, Product Q receives a higher charge for overhead costs, because of the smaller batch sizes, the larger number of orders per batch, the larger number of set- ups per batch and the larger number of machine hours required for each unit.

ABC and traditional absorption costing compared

Traditional absorption costing		*ABC*	
	Ugx		Ugx
Materials	20	Materials	20
Labour	30	Cut wood	15
Overhead	30	Paint	10
	80	Erect	20
		Inspect	15
			80

Companies using ABC consider it to be a method of obtaining more relevant and accurate information about the costs of products, processes, services and activities. Traditional absorption costing systems allocate overhead costs to products based on the attributes of a single activity, such as direct labour hours worked or machine hours operated. The allocation of overheads therefore varies directly with production volume. In contrast, ABC focuses on the activities required to make a product or provide a service, based on the consumption or use of those activities.

The unit costs of production are likely to be very different using ABC compared to traditional absorption costing, but this might not be the case every time. For example, the cost of constructing a cupboard might be estimated using traditional costing and ABC as follows.

In this example, using ABC does not change the cost of the cupboard, but it shows how the resources have been consumed and the costs incurred by activities. Arguably, this provides a more useful, practical insight into the way in which costs are incurred. If the company wanted to reduce costs, traditional absorption costing data might suggest the need to reduce direct labour costs. ABC might suggest that combining the erection of the cupboard with inspection might be a way of reducing costs.

Drawbacks to ABC

The main disadvantages of ABC are the cost of establishing and maintaining an ABC system, and the possible complexity of the system.

An ABC system is more expensive to set up and maintain than a traditional absorption costing system, because activities have to be monitored and measured. The system should also be reviewed regularly to ensure that there is a continuing relationship between expenditure and the activities and cost drivers that have been selected.

The analysis of activities and costs can also be taken to excessive detail, by looking at the costs of activities within broader activities. For example, purchasing activities might be a major cost item, and an ABC cost per purchase order might be calculated for the purchasing costs pool. However, purchasing activities could be analysed further, and costs established for sub-activities such as processing a purchase requisition from the warehouse department, finding a supplier for a new component or sub-assembly, putting a purchase order out to tender and chasing late deliveries from

suppliers. A different cost driver could be selected for each sub-activity.

The point to note is that to prevent an ABC system from becoming too expensive to operate, it is probably necessary to keep the cost pools and cost drivers down to a fairly small and manageable number.

Practice Questions

A high-technology company manufactures a range of products, that includes product A and product B. Product A is made in standard batch sizes of 300 units, and product B is made in standard batch sizes of 100 units. Direct production costs and other cost information is as follows.

	Product A	*Product B*
Production run (size)	300 units	100 units
Direct materials cost per unit	$27.50	$40
Direct labour time per unit	0.25 hours	0.5 hours
Direct labour cost per hour	$10	$10
Number of set-ups per batch	5	2
Machine hours per unit	0.5 hours	0.5 hours

Overhead costs are as follows.

	Total annual costs	*Annual volume of activity*
Set-up costs	$1,500,000	2,500 set-ups
Handling costs	$1,000,000	1,000 batches (production runs)
Other production overheads	$2,000,000	200,000 machine hours

A system of ABC is used. Set-up costs are charged to products on the basis of a cost per set-up, and handling costs are charged on the basis of a cost per batch/production run. Other production overheads are absorbed on a machine hour basis.

Required

Using ABC methodology, calculate the cost per unit of product A and the cost per unit of product B.

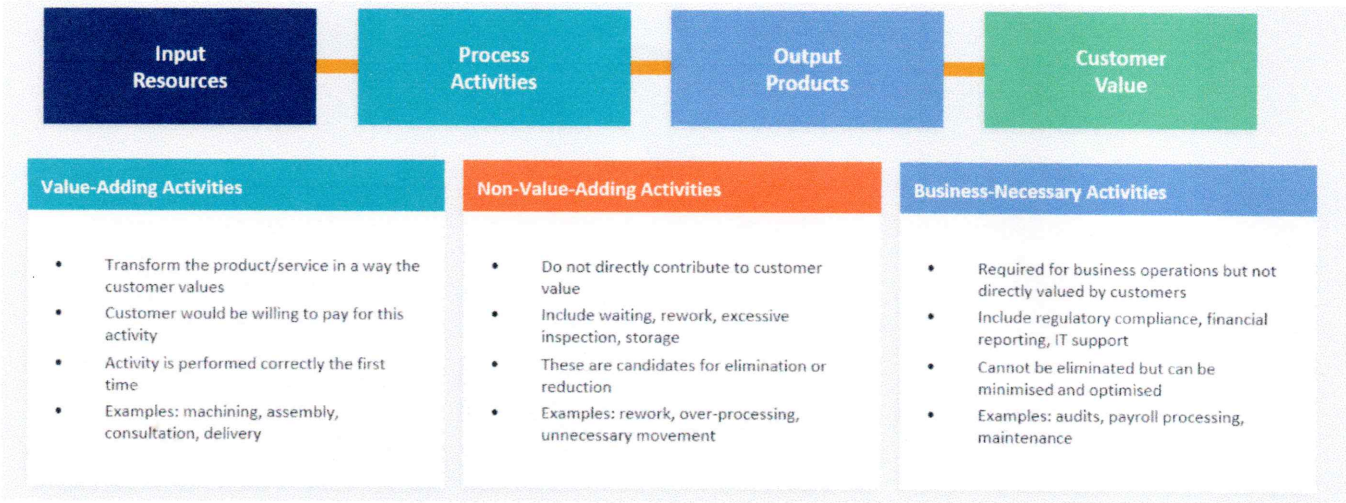
Solution

Overhead item	*Annual cost*	*Activity level*	*O'hd recovery rate*
Set-up costs	$1,500,000	2,500 set-ups	$600 per set-up
Handling costs	$1,000,000	1,000 batches	$1,000 per batch
Other	$2,000,000	200,000 machine hours	$10 per m/c hour

		A		*B*
Batch size		300 units		100 units
		$		$
Direct materials	(300 □ $27.50)	8,250	(100 □ $40)	4,000
Direct labour	(300 □ 0.25 □ $10)	750	(100 □ 0.5 □ $10)	500
Set-up cost	(5 □ $600)	3,000	(2 □ $600)	1,200
Handling cost		1,000		1,000
Other overheads	(300 □ 0.5 □ $10)	1,500	(100 □ 0.5 □ $10)	500
Full production cost		14,500		7,200
Cost per unit		$48.33		$72.00

Process Analysis

Process analysis examines how work flows through an organisation — identifying inefficiencies, bottlenecks, and non-value-adding steps that inflate cost without improving the customer experience.



Costing Methods in the Service Sector

Services differ from products in four key ways: Intangibility · Inseparability · Variability · Perishability. These characteristics require adapted costing approaches.

Key Costing Methods for Services

Job Costing:	Each service job (e.g., legal case, audit engagement) is costed individually. Direct costs (staff time, expenses) plus allocated overhead form the total job cost. Widely used in professional services.
Activity-Based Costing:	Overhead allocated using activity drivers. Particularly effective for banks, hospitals, and logistics where support activities vary significantly by transaction type.
Time-Driven ABC (TDABC):	Uses time as the universal driver. Cost per minute of capacity × time required = cost assigned. Simple, scalable, and easily updated as transaction complexity changes.
Standard Costing:	Pre-determined standard costs set for each service unit or transaction. Variances between standard and actual costs identify efficiency gains or losses. Useful in high-volume, standardised services.

Service Costing Challenges

- No physical product to attach costs to difficult to define the cost 'object'
- High proportion of fixed overhead (staff, premises) that must be meaningfully allocated
- Output variability: two 'identical' services may require vastly different resources
- Difficulty measuring activity volumes for cost driver assignment
- Joint cost attribution where a single resource serves multiple service lines
- Customer co-production: customer involvement affects the cost of delivery