

## **Cost Drivers and Company Activities (Relevant to AAT Examination Paper 3: Management Accounting)**

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Organizations require different types of supporting activities (administration, purchasing, marketing, logistics, etc.) to co-ordinate their products services. The accounting for different types of supporting overhead costs, as well as for material and labour costs, is important. Design and classification of cost drivers for accounting organizational and operational activities are usually the first cost accounting tasks to be handled.

### **Cost drivers**

A cost driver is the unit of an activity that drives the change of cost in production or servicing. It refers to any activity that causes a cost to be incurred. In traditional costing, the cost driver used to allocate overhead costs to cost objects relates to quantity of output.

There are usually two main types of supporting cost. The first is a **resource driver**, which is the contribution of the quantity of resources used to cost an activity, such as one kilogram of flour for bread production and one operator hour for manufacturing work. Examples of an overhead cost and resource cost driver are electricity costs and the number of machine hours. The second is an **activity driver**, which is the cost incurred by the activities required to complete a specific task. With changes in business structures, technology and related cost structures, output quantity is not the only cost driver. Examples of overhead costs and activity cost drivers are inspection costs and the number of inspections or the hours of inspection or production runs. These have no direct relationship with production volume, but they directly affect production costs through the activity measured.

In general the cost driver for short-term overhead costs may be the volume of output or activity. For long-term overhead costs, the cost drivers will not be related to volume of output or activity. Further investigation of these organizational activities and operational activities is required in order to examine the nature of the cost before designing the cost driver.

### **Organizational activities**

There are two types of **organizational activities** for studying overhead cost: structural and executional. **Structural cost drivers** relate to business strategic choices about an organization's underlying economic structure, such as scale and scope of operations, use of technology and complexity of products. **Executional cost drivers** relate to the execution of the business activities, such as utilization of employees, provision of quality service, and product design and manufacturing.

The structural and executional activities determine the nature and number of the daily activities performed in the company. If a company decides to manufacture more than

one product at a plant, this structural choice will produce a need for scheduling, a product-level activity. Similarly, providing a plant layout defines the nature and extent of the materials handling activity. Although organizational activities determine operational activities, analysis of operational activities and cost drivers can be used to suggest strategic choices of organizational activities and cost drivers. For instance, the number of material moves as a measure of the materials moving activity by individual products suggests that resource spending can be reduced if the plant layout is redesigned to reduce the number of moves required.

Examples of some structural and executional activities with cost drivers are listed by category in Table 1 below.

**Table 1**  
**Organizational activities and cost drivers**

<b>Structural activities</b>	<b>Structural cost drivers</b>
Plant construction	Number of plants, scale, degree of work centralization
Employee grouping	Number and type of work units
Complexity	Number of product lines, number of unique processes, number of unique parts, degree of complexity
Process selection and use	Types of process, experience of usage
<b>Executional activities</b>	<b>Executional cost drivers</b>
Employee utilization	Degree of involvement
Quality service provision	Quality management approach
Operation of plant layout	Plant layout efficiency
Product design and manufacturing	Product configuration

As illustrated in Table 1, a company activity can commonly be driven by more than one cost driver. For instance, the number of plants, scale and degree of centralization all affect the cost of plant construction. Companies that have a commitment to a high degree of centralization may build larger plants, so that there are more physical concentration and more control. Similarly, complexity may be driven by the number of different products, number of specific processes and number of specific parts.

**Organizational drivers** are factors that affect a company's long-term cost structure. This is understood by considering the various drivers shown in Table 1. The **structural drivers** are the drivers of scale, scope, experience and complexity. For instance, economies and diseconomies of scale are well-known economic phenomena. An interesting characteristic of structural cost drivers is that more is not always better. Moreover, the efficiency level of a structural cost driver can change. For instance, changes in technology can affect the scale driver by changing the optimal size of a plant. In the baking industry, baking technology has eliminated economies of scale (in the form of mass baking) as a competitive advantage. Much smaller scale plants can now achieve the same level of efficiency once produced only by larger baking factories. Use of a nearby bakery is common in local districts.

Of more recent interest and emphasis are **executional drivers**. Considerable managerial effort is now exercised to improving how things are done in a company. Continuous improvement and its various dimensions (employee empowerment, total quality management, process value analysis, life-cycle assessment, etc.) are what executional efficiency is about. Staff costs decrease as the degree of employee involvement and empowerment increases. Employee involvement relates to a broader area of organizational culture, degree of participation, and commitment to the objective of continuous improvement.

### Operational activities

**Operational activities** are daily work activities done as a result of the structure and process adopted by the company. Examples are receiving incoming components, moving components, setting equipment, testing products, shipping finished goods, and servicing products after sales. Operational cost drivers refer to factors that drive the costs of operational activities. They include factors such as the volume of materials received, number of moves, number of products, number of sales orders, and number of returned goods. In fact, operational activities and related cost drivers are the focus of activity-based costing. Possible operational activities and their drivers are listed in Table 2.

**Table 2**  
**Operational activities and cost drivers**

Unit-level activities	Unit-level cost drivers
Grinding materials	Grinding machine hours
Component assembly	Labour assembly hours
Drilling holes	Drilling machine hours
Materials use	Material weight
Electricity use	Number of kilowatt-hours
Batch-level activities	Batch-level cost drivers
Equipment set up	Number of setups
Finished products moved in batch	Number of moves
Manufacturing products inspected in batches	Inspection hours
Reworking products	Number of detective units
Product-level activities	Product-level cost drivers
Product design and/or redesign	Number of change orders
Product line scheduling	Number of different products
Product testing	Number of procedures

Take the example of a bakery. When making a birthday cake, the overhead costs of electricity and packaging materials can be counted at the **unit level**. Similarly, the overhead costs of electricity and packaging materials are counted at the **batch level** cost when baking of bread in batches is the usual practice. In a large baking plant, the cost of product line scheduling is grouped under the **product level**.

For bread production in a local bakery, processing is accounted at the **batch level** and machine operation is adopted. For instance, every batch is scheduled to produce 500 bags of one-pound loaves. Each batch composes 100kg flour and 30kg other ingredients. The overhead costs based on activities can be:

	\$
Mixing costs (0.5 machine hour @\$40)	20
Kneading costs (0.5 machine hour @\$80)	40
Shaping costs (0.5 machine hour @\$60)	30
Baking costs (0.5 machine hour @\$40)	20
Slicing costs (0.5 machine hour @\$50)	25
Total overhead costs at batch level:	<u>135</u>

### **Concluding remark**

Examination and analysis of company cost activities are important in classifying overhead costs into those based on organizational activities based or those based on operational activities. Organizational activities are company related in the long-term, while operational activities are product related. Operational activities can be further classified into three levels: unit, batch and product. Overhead cost allocation and apportionment can then be worked out systematically. To conclude, a clear conceptual view is needed for correct classification and measurement of overhead costs.

### **References**

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- MacArthur, J.B. and Stranahan, H.A. 1998, "Cost driver analysis in hospitals: A simultaneous equations approach", *Journal of Management Accounting Research* (10): 279-312.