ACTIVITY BASED COSTING

In the late 1980's a considerable amount of attention was being paid by the elite of the Accountancy Profession, notably in Europe, to the shortcomings of the traditional product (goods or services) costing methods.
Firms were producing wider and more diverse product ranges, and the input of labour to the production process was declining compared to the start of the century, when most product costing methods, currently in use in the 1980's were developed.

In the original methodology, Machine Hours and Direct Labour costs were the two main drivers. These were apportioned to product costs computations, usually in terms of the volume of the products that were produced. This was ok when product ranges were simple and confined to limited numbers, and Labour was a major input. Now however ranges are wide and diverse as firms become more global and segmentation orientated, and internal services, rather than direct labour, drive the costs of a firm.

The adherence to the old methods, because they were simple to understand and because few in the firm were in a position to challenge, reports distorted product costs, particularly where the firm produces a diverse range of products some with high, and others with low volumes of production and consumption.
This was manifest by the over-costing of high volume products and the under-costing of those with low volumes.
Thus, the higher volume products would subsidise the low.
Leading to the higher volume items consistently showing shrinking margins, whilst the margins of the low-volume ones appear to grow.

This creates a dangerous trap that too many firms fall into.
Thus incorrect product mix decisions are made at the expense of the high volume products in the range. Decisions are taken to expand the low-volume parts of the range, resulting in a growth of overhead costs and a decline in long-run profitability. AND Strategically this often lures the unwary into dangerous Product Range extension (*i.e. the firm flies in the face of one of the "22 Immutable Laws of Marketing" a'la Reise and Trout*).

The answer suggested to this phenomenon, mainly by the authors Cooper and Kaplan[i] was to apportion costs according to the extent to which Products (Goods or Services) actually 'consumed' the time, activities, and costs of the various divisions of the firm which 'serviced' their production (for 'Services Businesses' read operations). This they termed Activity Based Costing (ABC).
An ABC system involves the following stages in the process of arriving at the cost of a product.

1. Identify the major activities which take place in an organisation,
2. Determine the cost driver for each major activity (e.g. Peoples' time, Capital tied up, area of the warehouse etc etc.),
3. Create a cost centre / cost pool for each major activity,
4. Trace the costs of activities to products (goods or services) according to the products demand for or consumption of these activities (Using the extent to which the cost drivers are consumed as a measure of this demand).

(*see the example illustrated below, and the workbook graphics and work – through*)

To illustrate with a simple situation:-
Assume a company produces two products ‘H’ and ‘L’. Both of these are produced on the same equipment, and both use the same processes. The products differ by the volumes in which they are sold, and therefore the volumes in which they are produced. Product ‘H’ is the high volume product and product ‘L’ is the low volume item.
Details of product inputs and outputs and the costs of activities involved are as follows:-

	Machine hours Per unit	Direct Labour hours Per unit	Annual Output units	Total Machine hours	Total Direct Labour hours	No. Of purchase orders	No. of ‘set-ups’
Product ‘L’	2	4	1,000	2,000	4,000	80	40
Product ‘H’	2	4	10,000	20,000	40,000	160	60
				22,000	44,000	240	100

The cost of these activities is as follows:-

	£
Volume related	110,000.
Purchase related	120,000
Set-up related	210,000
Total =	440,000

A Traditional volume based costing system would handle it this way:-

Cost centre allocated costs $440,000
Overhead rate per machine hour £20 (£440,000/22,000 hrs)
Overhead rate per direct labour hour £10 (£440,000/44,000 hrs)
Cost per unit of ‘L’ = £40 (2 machines hrs @£20 or 4 DLH’s)
Cost per unit of ‘H’= £40 (at £10 per hour)
Thus total cost allocated to product ‘L’ = £40,000 (1000 X £40)
And total cost allocated to product ‘H’= £400,000 (10,000 X £40)

An ‘Activity Based Costing system would handle it this way:-

	Activities		
	Volume related	Purchasing related	Set-up related
Costs traced to activities	**£110,000**	**£120,000**	**£210,000**
Consumption of activities	22,000 machine hrs.	240 purchase orders	100 set-ups
Cost per unit of consumption	£5 per machine hr.	£550 per order	£2,100 per set-up
Thus cost traced to the product =			
‘L’	£10,000 (2000 X £5)	£40,000 (80 X £500)	£84,000 (40 X £2,100)
‘H’	£100,000 (20,000 X £5)	£80,000 (160 X £500)	£126,000 (60 X £2,100)

Thus cost per unit under ABC =
Product ‘L’ £134 (£10,000 + £40,000 + £84,000) / 1,000 units
Product ‘H’ £30.60 (£100,000 + 80,000 + £126,000) / 10,000 units
Quite a difference??

ABC systems recognise that some activities are unrelated to the volume of the product, by using cost drivers that are independent of volume.
Activities are divided into three major categories at the product level these are:-

- Unit level
- Batch-related

And

- Product sustaining –

Product costs are accumulated by these three categories.
Facility-sustaining expenses (Head Office, PR etc) are incurred to support the entire firm, and are therefore a common and joint activity – thus they should not be assigned to the product’s cost.

ABC systems are models of resource consumption in the firm, not spending.
They attempt to measure the total organisational resources required to produce a Good, or perform a Service (i.e. the ‘Product’).

It is important to stress that ABC systems are designed to identify priorities for managerial attention, and NOT to provide the basis of decisions relevant to costs, on their own.

ABC has attracted a considerable amount of interest in the elite parts of the Accountancy Profession, because it not only provides the basis on which product costs can be calculated with more accuracy, but it also provides a mechanism for managing overhead costs in general. By collecting and reporting on the significant activities in which a business engages, it is possible to understand and manage costs more effectively. Perhaps it is in the area of cost management, rather than product costing per se, where Activity Based Costing may have its greatest potential.

Yet even today, more than ten years after the system was first developed, few firms go to the extent of employing this approach to establishing more realistic costings for their products.

RECOMMENDED READING

For a detailed description of activity-based costing systems, including case studies relating to three UK companies that have implemented ABC, you should refer to Innes and Mitchell (1990), Cooper (1990a,c,d;1991) has also written a series of articles discussing some of the practical issues relating to the implementation and operation of ABC. For a discussion of the criticisms of activity-based costing see Piper and Walley (1990, 1991) and also Cooper's (1990e) reply to these criticisms. Finally you should refer to Kaplan (1990) for a discussion of activity-based profitability and analysis and a comparison of resource consumption and spending models.

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