CHAPTER 42

Easy as ABC?

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42.1. INTRODUCTION

Activity-based costing (ABC) is being accorded ever-increasing recognition and interest. Leading firms in the United States and Europe (e.g., General Motors, Hughes Aircraft, General Dynamics, General Electronics, Siemens, Hewlett Packard, John Deere, and PPG) have reported successful implementation of the method (1). ABC is applicable not only in industrial firms but also in service organizations (2). The method is associated mainly with Kaplan and Cooper of Harvard University. They presented the method in a series of articles and field studies and reported its implementation in various industrial enterprises. Today, ABC is perceived as the leading costing method in both industry and service organizations. The method has enjoyed aggressive marketing and computer packages have even been developed (e.g., Easy ABC) that can be adapted and installed for use in small- and medium-size firms. The method has won widespread support in the professional literature; the leading journals have published at least one article dealing with the various facets of implementing ABC in almost every issue. Implementing ABC would appear to be a managerial imperative; e.g., the prestigious British monthly *Accountancy* published an article titled "ABC: A Need, Not an Option" (3).

The criticism leveled at the method in the professional literature should not be ignored. The criticism is largely in the form of the claim that ABC is in fact little different from traditional costing. The critics claim that ABC is nothing but an improved form of absorption costing and there is no justification in presenting it as a panacea for all the costing ills of the modern manufacturing environment (4).

In any case, understanding the principles of ABC and examining its suitability to the business organizational environment are management challenges of today. It should be remembered that ABC developed out of the need for a radical change in the costing systems in organizations. Thus the question is not whether the system needs to be changed but rather whether ABC is the answer.

42.2 LOSS OF RELEVANCE OF TRADITIONAL COSTING METHODS

It is generally agreed today that traditional costing methods are no longer relevant (5). Still, we should briefly consider what led to the loss of relevancy of costing methods that were in use for generations, some of which are still being taught in business schools throughout the world. The two principal factors that led to loss of relevancy are (*1*) the changes that took place in the manufacturing processes and cost structure and (*2*) the broadening range of products.

The traditional costing methods were developed in the 1920s and suited the manufacturing environment of that time: mass production of a limited number of goods, exploiting economies of scale and learning processes. Direct labor cost was the most significant cost factor. Indirect costs were relatively few, and their allocation to the products on the basis of direct labor cost

(or another volume variable such as machine time) was a reasonable approximation. In the manufacturing environment of the time, traditional costing enabled the breakdown and classification of business results by products, one at a time. It was possible to make decisions regarding a given product, without relating to all the others (6).

We have chosen to illustrate the changes that have occurred in the modern manufacturing environment with the help of representative data on the Siemens group of companies in Germany. The data in Table 42.1 show a number of characteristics (relevant to costing) of a firm at the forefront of the modern manufacturing environment.

1. *A Change in the Cost Structure.* The indirect costs constitute 50% to 75% of the total. The weight of direct labor cost is less than 10% of total cost.

2. *Growth of Indirect Costs.* Most of the growth of indirect costs is in manufacturing support costs (R&D, engineering, planning, production control, and quality control). At Siemens, e.g., manufacturing support costs grew at a cumulative 117% over 6 years. The increase in manufacturing support costs often expresses the cost of manufacturing complexity. The cost of complexity grew with the broadening of the range of products. On the other hand, manufacturing's traditional fixed indirect costs (such as depreciation, energy and lighting, rent, and municipal taxes) increased over the same period by a cumulative rate of only 34%.

3. *Broadening the Range of Products.* Manufacturing today is adapted to the needs and tastes of the customers. Broadening the range of products presents a challenge to costing: Is it managerially justified and is it objectively feasible to determine the cost of each and every product? To determine the separate cost of each product, it is necessary to break down the indirect costs to the level of the individual product. The more complex the manufacturing processes and the more communal resources they consume, the less the objective feasibility to determine the cost of the individual product, which in any case has no significance.

The root of the problem in traditional costing is in the area of allocating the indirect costs. Naive allocation of the indirect costs on the basis of work hours is no longer suitable in the modern manufacturing environment. We have seen that in many firms the indirect costs are several times higher than the direct labor costs. In a field study carried out at one of Hewlett Packard's plants during the years 1985–1986, a loading rate of 600% to 1600% was found, i.e., for every dollar of direct labor costs 6 to 16 dollars of indirect costs were loaded (7). Allocating indirect costs on the basis of direct labor costs leads in effect to indirect costs being cut off from the factors that create them. This distorted allocation blurs the problem of the cost of complexity and the necessity for focused manufacture. In many cases, it has been found that there exists a "black box"—a reservoir of indirect costs that are loaded onto the direct costs of the products. Without an understanding and analysis of the sources of the indirect costs, effective management is impossible (8). Moreover, the high loading rates causes middle management to concentrate on registering and controlling direct labor costs. In many firms, it happens that shifting work hours from project to project has a significant impact on the profitability of each project. A paradoxical situation is thus created in which the lower the weight of labor costs, the higher its costing importance, because it is the key to allocating indirect costs.

The dynamic development of financial accounting and the transition to ongoing quarterly reporting have further aggravated the process of declining relevancy. In the financial system, the emphasis is on financial accounting. The management information system is perceived as an auxiliary tool derived from financial accounting. These processes have led to the creation of a

TABLE 42.1. Example of a Firm in a Modern Manufacturing Environment, Siemens[a]

Location	Regensburg	Bad Neustadt	Augsburg
Products	Electrical in-house devices	Electric Motors	Printed Circuits
Type of production	Mass and batch	Batch and contract	Batch and contract
Annual sales (DM millions)	230	300	150
Cost structure (%)			
Direct materials	25	43	20
Direct labor	9	9	4
Indirect costs	66	48	76
Number of products	20,000	10,000	3,000

[a] From ref. 1.

management culture of "management by numbers" (financial accounting data), accompanied by a departure from the shop floor and concentration on short-term accounting measures.

In the early 1980s, the Japanese just-in-time (JIT) concept of management was adopted by Western firms, together with the concept of total quality management (TQM). The process of assimilating these changes was carried out mainly by managers with manufacturing orientation. For the most part, the accountants and finance department people were not involved in the processes of change and even turned a blind eye to them. The result was a still greater loss of relevancy. Production managers today rely on data and measures that are not provided by the costing and accounting systems (9). It may be expected that management in organizations will begin to demand that the costing system be adapted to the manufacturing environment relevant to the organization. The challenge facing managerial accounting today is to make the transition from reporting on costs for the purpose of cost accounting to cost management.

42.3 THE PRINCIPLES OF ACTIVITY-BASED COSTING

General

The basic precept of activity-based costing is that costs cannot be managed, activities can be managed. Activity-based costing derives in fact from the broader managerial concept of activity-based management (ABM). Activity is the exploitation of time and resources for the purpose of creating output. The activities may be classified according to a number of criteria:

Direct manufacturing activity (primary activity) and manufacturing support activity (secondary activity).

Repetitive activity, as opposed to one-time activity.

Automatic activity, as opposed to managed activity.

A function is an aggregate of activities with a common goal. A business process is a network of related and independent activities linked by the outputs they exchange. A task is the way the activity is performed. Take, for example, the preparation of a proposal for a customer. Preparing the proposal is the task. The manufacturing or process proposal is the activity. The business activity is selling the product. The function is marketing. These definitions enable us to map the activities of the firm and to understand the interrelationships among them.

The implementation of ABC consists of four main steps: (*1*) identifying and mapping the activities, (*2*) defining the cost drivers, (*3*) accumulating costs associated with a common activity in activity pools, and (*4*) allocating costs from activity pools to the products on the basis of use of the activities. The first two steps are at the management level and not at the level of the organization's financial and accounting bodies. Proper analysis of the activities and cost drivers will likely lead to significant managerial benefit, beyond the improvement in costing reporting. Table 42.2 gives several examples (sampled from various departments in a firm) that demonstrate schematically the relationship between activity and cost driver.

In defining cost drivers, a distinction must be made between activity cost drivers and cost level drivers. Let us suppose, for example, that in a certain firm quality control is carried out upon completion of every manufacturing batch. The quality control activity costs for the year totaled $300,000. During the course of the year 1,500 batches were inspected. The obvious inference is that the cost driver is the number of manufacturing batches. Each manufacturing lot

TABLE 42.2. Activities and Cost Drivers

Department	Activity	Cost Driver
Materials store	Receipt and initial handling of incoming raw materials	Number of purchasing orders and number of suppliers
Salaries department	Preparing salaries and reporting forms	Number of employees
Marketing and finance	Determining customer credit policy	Number of new customers
Manufacturing	Setup costs	Number of manufacturing batches

should be allocated a cost of $200 (300,000/1,500). However, the number of lots is an activity cost driver. We must also consider the technological cost drivers, such as worker motivation, skill of the workers, supervision and training, control over the production processes, maintenance of equipment and machinery, and rate of production. The costs should not be simply allocated technically. Proper definition of the cost drivers enables management to tackle the sources of costs and to evaluate the interrelationships between costs and activities in the different departments of the firm (10).

The Hierarchical Structure of Indirect Costs

Mapping the costs and defining the cost drivers enables sorting of the indirect costs into a hierarchical structure. The sorting is determined by the cost drivers.

1. Indirect costs defined at the level of the unit (variable indirect costs): auxiliary materials, fuel, and energy.
2. Indirect costs defined at the level of the batch: setup costs, allocation of materials and preparation of kits, quality control (if it is carried out upon completion of the manufacture of each batch).
3. Indirect costs defined at the level of the product: preparation of the technical specification, service, and product support.
4. Indirect costs defined at the level of the manufacturing process: engineering and planning costs.
5. Indirect costs at the overall firm level: cost not related to production, thus there is no economic logic in allocating them to the products.

Numerical Example

The following example is taken from Cooper (3). We have added data in the interest of a more complete presentation. The purpose of the example is to evaluate the significance of the hierarchical cost structure. A certain plant manufactures four products; the relevant data on these products are given in Table 42.3. As we can see from the table, products A and B are inexpensive compared with C and D, and the production volumes of B and D are 10 times those of A and C. The traditional approach is to allocate the indirect costs to the products by the volume parameter of direct work or machine hours (Table 42.4). For the sake of simplicity, we assume that the number of direct work hours is equal to the number of machine hours. Thus allocation on the basis of direct work hours and allocation on the basis of machine hours will give identical results. The analysis indicates that the firm's leading products (B and D) yield but minimal profit margins. The sales of product D, for example, which constitute 66.39% of the firm's sales revenue, constitute only 12.06% of the profits. Most of the profit is in fact derived from the low-volume products, that is products A and C. The conclusion seems to be to promote products A and C at the expense of products B and D. It may also be rationalized that it is difficult to make a profit in the competitive market of products B and D. The firm's comparative advantage is, in fact, in its low-volume products, which give higher profit margins.

TABLE 42.3. Example Data[a]

Item	Product A	Product B	Product C	Product D
Direct cost	110	110	330	300
Volume of production (in units)	Low	High	Low	High
	10	100	10	100
Cumulative work and machine hours	5	50	15	135
Number of manufacturing batches during the period	1	3	1	3
Market price	175	135	500	425

[a] Total indirect costs before allocation to products: $9924.

TABLE 42.4. Implementation of Traditional Costing Methods

A. Determining the Loading Rate

Total indirect costs to the firm for the period	NIS 9,924
Total direct hours	220
Loading rate	45.11

B. Determining Total Cost and Calculating Profit Margins

Item	Product A	Product B	Product C	Product D
Cost				
Direct	110.00	110.00	330.00	330.00
Indirect	22.56	22.56	67.67	67.67
Total	132.56	132.56	397.67	397.67
Selling Price	175.00	135.00	500.00	400.00
Gross profit	42.44	2.44	102.32	2.32
Percent profit	24.25	1.81	20.46	0.58

C. Analysis of Profit–Loss Statement at the Level of the Product

Item	Product A	Product B	Product C	Product D	Total
Revenue	1,750.00	13,500.00	5,000.00	40,000.00	60,250.00
Costs	1,326.00	13,256.00	3,977.00	39,767.00	58,326.00
Gross profit	424.00	244.00	1,023.00	232.00	1,924.00
Contribution to revenue (%)	2.90	22.41	8.30	66.39	100.00
Contribution to profit (%)	22.07	12.68	53.19	12.06	100.00

Are these conclusions correct or just a costing–accounting illusion? To give an informed answer to this question, we must first analyze the activities that give rise to the indirect costs and their cost drivers. Table 42.5 demonstrates the four steps involved in implementing ABC. Implementation of ABC leads to results that are quite different from the results obtained under traditional costing analysis. Products A and B are the focus of the firm's losses, and product D (whose profitability was questionable according to traditional costing) is found to contribute 90% of the firm's overall profit. Experience thus shows that implementing ABC leads to results that are different (sometimes extremely so) from those obtained under traditional costing. It is usually found that traditional costing leads to undercosting of products with low direct costs and products manufactured in small, one-time batches. Traditional costing inflates the cost of the leading products (large-scale production products with relatively high direct costs). The distortions of traditional costing are likely to seduce managers into focusing on small-scale manufacturing small products at the expense of leading products. Table 42.6 gives a comparative summary of the example and illustrates the differences between traditional costing and ABC.

42.4 EVALUATION

The example presented above is impressive, highlighting as it does the distortions of traditional costing. The error of the traditional methods of allocation is in relating the indirect costs to products according to volume parameters (work hours, machine hours, or relative revenue). The traditional methods completely ignore the complexity costs of manufacturing, to the detriment of the firm's leading products. ABC information is a must in developing profitable new products. ABC reveals which types of activities give the best results in terms of cost, quality, and time and which are likely to be competitive in new markets. At the same time, the principal limitations of ABC, demonstrated in our example, must be taken into account.

We must distinguish between determining the cost of a product for the purpose of accounting, or "justifying costs" (particularly for regulated products, or cost-plus products), and determining cost for the purpose of decision making. ABC is undoubtedly preferable to the traditional costing methods for determining cost for accounting reporting purposes. The question is whether the cost data provided by the ABC method are sufficiently reliable for decision

TABLE 42.5. Implementing ABC

A. Defining Activities and Cost Drivers

Identifying Activities	Activity Costs Pool (Dollars)	Cost Driver
At the unit level		
Machine maintenance	3,300.00	Machine hours
Direct personnel management	2,200.00	Direct labor hours
Raw materials management	264.00	Cost of raw materials
Subtotal	5,764.00	
At the structure level		
Setup costs	960.00	Number of batches
Planning and allocation of materials	1,200.00	Number of batches
Subtotal	2,160.00	
At the product level		
Product planning and support	2,000.00	Number of products
Total indirect costs	9,924.00	

B. Allocation of Indirect Costs on the Basis of Cost Drivers

Loading Rates	Indirect Costs at the Unit Level (1)	Indirect Costs at the Structure Level (2)	Indirect Costs at the Product Level (3)
Total	5,764.00	2,160.00	2,000.00
Cost driver base	220.00	8.00	4.00
Subtotal	26.20	270.00	500.00

Allocation	Product A	Product B	Product C	Product D
At the unit level				
Direct hours	5	50	15	150
Rate (1)	26.20	26.20	26.20	26.20
Allocation	131.00	1,310.00	393.00	3,930.00
At the structure level				
Number of setups	1	3	1	3
Rate (2)	270.00	270.00	270.00	270.00
Allocation	270.00	810.00	270.00	810.00
At the product level				
Rate (3)	500.00	500.00	500.00	500.00
Total indirect	901.00	2,620.00	1,163.00	5,240.00
Indirect per unit	90.10	26.20	116.30	52.40

C. Determining the Overall Cost and Calculating Profit Margins

Item	Product A	Product B	Product C	Product D
Cost (per unit)				
Direct cost	110.00	110.00	330.00	330.00
Indirect	90.10	26.20	116.30	52.40
Total	200.10	136.20	446.30	382.40
Market price	175.00	135.00	500.00	400.00
Profit (loss) per unit	(25.1)	(1.20)	53.70	17.60

D. Analysis of Profit–Loss Statement at the Product Level

Item	Product A	Product B	Product C	Product D	Total
Revenue	1,750.00	13,500.00	5,000.00	40,000.00	60,250.00
Costs	2,002.00	13,620.00	4,464.00	38,240.00	58,326.00
Gross profit	(252.00)	(120.00)	536.00	1,760.00	1,924.00
Contribution to revenue (%)	2.90	22.41	8.30	66.39	100.00
Contribution to profit (%)	(13.10)	(6.24)	27.84	91.50	100.00

TABLE 42.6. Comparative Summary

	Product Characteristics		Traditional Costing		Activity-Based Costing	
Product	Direct Cost	Scale of Production	Unit Cost	Overall Profit	Unit Cost	Overall Profit (Loss)
A	Low	Low	132.56	42.44	200.10	(25.10)
B	Low	High	132.56	2.44	136.20	(1.20)
C	High	Low	397.67	102.32	446.30	53.70
D	High	High	397.67	2.32	382.40	17.60

making, concerning the manufacturing mix, giving work out to subcontractors (make or buy decisions), or investment in equipment. It should be noted that Cooper (11) emphasized that the ABC systems were developed to focus the attention of management on the way resources are used and not to provide relevant costs to decision makers. The example presented above contains four structural problems:

1. The example completely ignores the existence of joint expenditures and inputs.
2. The example completely ignores the existence of parallel factors of production and bottlenecks on the shop floor.
3. The example assumed continuity, i.e., a linear, univariate relationship between volume of activity and the cost at all the levels.
4. The example assumed that the output manufactured approximates the normal output.

These four problems will be briefly reviewed.

Ignoring the possible existence of joint costs and inputs enabled the technical possibility of breaking down the profit–loss statement to the level of the product. However, the question is whether it is possible to use the cost data (and the profit data) obtained for each product individually and in isolation from the rest of the products. We will illustrate this question, using the example data. The example indicates that each of the two products A and B causes a loss. If this is true, should we not stop their production? Clearly, we cannot answer this question without making a comprehensive examination of the effect of the decision on the firm's profitability. In other words, breaking down costs to the level of the product is of no significance insofar as decision making is concerned (unless we assume the firm has no joint expenditures and inputs).

No less serious is ignoring bottlenecks in production. If there is no internal constraint, i.e., the firm can supply all the demand for all the products, then all the products should be manufactured, because each product increases the contribution (and, therefore, the profit). If an internal constraint exists, i.e., the demand is greater than the production capacity, the optimal product mix must be determined. The cost data in Table 42.6 are not relevant, because they do not reflect the intensity of use of the parallel resources (the bottleneck). If a parallel constraint exists, all the firm's decisions must be subordinated to it. The optimal product mix will be determined not by the costing cost of each product separately but by the contribution to the unit of constraint (12).

The firms that actually implemented ABC reported "noise" caused by lack of continuity (lumpiness). In our example, the analysis of the indirect cost patterns led to the fact that the indirect costs to be attributed to each setup is $270. Does this mean that adding a setup means an additional $270 and subtracting a setup means saving $270? In many cases it is found that a moderate change in the scope of activities has no effect on the level of costs. In our example, it is reasonable to assume that at the cost level of $2160 (or at a relatively low marginal increment), nine setups could also have been carried out. This phenomenon has been well known in costing for many decades and is resolved by using a flexible budget. In any case, it may be claimed that the data supplied by the ABC system will not be sufficiently reliable for decision making on relatively small changes in the scope of activity.

It must be remembered that ABC is an absorption costing system. One of the main difficulties in implementing absorption costing is that it does not neutralize the effect of changes in the level of activity and is likely to bring about extreme swings in manufacturing costs and reported accounting profits. In any case, the data provided by an absorption costing system are of lesser

importance insofar as short-range decision making is concerned. Indeed, a research study carried out at Tel Aviv University showed that ABC is not able to forecast profits when the manufacturing volume changes from one period to the next and is, therefore, unsuitable for decision making (13).

An integrated system of contribution costing and management by constraints will lead, in such cases, to preferable decisions. In our opinion, several important conclusions may be drawn from the example given above. First, the accounting–costing of a product is not a univariate defined concept. Only the product's direct cost may be defined. The overall cost is a nondefined and economically meaningless concept. In particular, we must free ourselves of the obsession with the second place to the right of the decimal point. Many accountants tend to view the cost data of a product defined down to the last cent (a level of accuracy of two digits to the right of the decimal point) as a stable costing anchor. However, as Kaplan put it, the problem is that the two digits to the left of the decimal point are inaccurate in order of magnitude. An examination of the data in Table 42.6 will verify this claim.

Second, activity-based costing should be viewed as an expression of the concept of activity-based management. The main point of the concept is the mapping of the activities and defining the cost drivers. These steps are essential in the transition from a culture of arbitrary allocation of indirect costs to effective management of the product support costs. A review of the literature on successful implementation of ABC in industrial firms shows that these firms first carried out an in-depth analysis of activities and cost drivers. The change in the costing system was accompanied by essential changes in the perception of production management in these firms. Finally, care must be taken to avoid allowing the perception to degenerate from a management tool into a technical method of allocating indirect costs.

42.5 TOWARD ACTIVITY-BASED BUDGETING

We have already seen how ABC is an expression of a managerial concept of ABM. So far, we have extrapolated the costing of products from this managerial concept. It is possible and desirable to use activity-based management for preparing the budget, too. Activity-based budgeting (ABB) leads to significant improvement in the budgeting of service departments. The problem in budgeting service departments is that, apparently, in the absence of a simple linear relationship between the costs of the service department and the manufacturing costs, there is no economic basis on which to prepare the budget. Thus service department budgets usually reflect the level of expenditures of previous years, adjusted for inflation, with a deduction of a cutback -efficiency coefficient. Activity-based management enables managers to understand the cost structure in service departments and the reciprocal relations between activities performed outside the departments and the costs accruing in the department.

Mapping of the activities and analysis of the cost drivers enable preparation of an activities–expenditures matrix in the service department. The expenditures matrix is the basis for preparing the budget. An example of an activities–expenditures matrix, based on Morrow and Connolly (10), for the order department of an industrial firm is given in Table 42.7. The basis for the matrix is the previous output data. The analysis enables management to determine better the department's budget, separating the rigid component from the flexible component. The rigid

TABLE 42.7. Example of an Activities–Expenditures Matrix (in thousands of dollars)

Item	Number of Customers	Number of Orders	Number of Export Orders	Number Shipments	Preparation of Price Lists and Brochures	Management of the Department	Total
Managers' salaries					50	150	200
Clerks' salaries	150	400	350	200	100		1200
Overtime			50	75			125
Office expenses		40	60	20	200		320
Postage and telephone	40	60	120	80			300
Others	15	20	10	10	20	50	125
Total	205	520	590	385	370	200	2270
Scope of cost driving activity	650	2400	600	6000			
Cost per unit of activity	0.32	0.22	0.98	0.06	370	200	

component includes those costs arising from the department's very existence and that are not affected by the scope of activity. In our example, the rigid component includes the costs of managing the department ($200,000) and the cost of printing the price lists and brochures ($370,000). The flexible component is planned on the basis of four cost drivers: number of customers, number of anticipated orders, number of export orders, and expected number of shipments.

An activity-based budget highlights the interrelationships and the cost–cost factor relations of the various activities outside the service department. The reader will no doubt note the problem of lack of continuity (lumpiness) previously discussed. In our example we see that the cost of each incoming order is $22. Clearly, this is an average figure that does not reflect the marginal cost of each additional order. The emphasis should be placed on understanding the manner in which the resources are used, not on a technical analysis of the costs, which is in any case meaningless.

42.6 PRELIMINARY LESSONS TO BE LEARNED FROM IMPLEMENTING ABC

There are three sources of information concerning the preliminary lessons to be learned from implementing the method. First, there are case analyses of firms that have successfully implemented the transition to ABC. The case analyses are, of course, at the level of the individual firm, and it is sometimes difficult to extrapolate from them to other firms (14). Second, general surveys have been carried out on all the firms in the economy (firms that have implemented the method and firms that have not done so). Third, surveys have been carried out on firms known in advance to have successfully implemented the method. The two salient findings of the general surveys are as follows (15):

1. The phenomenon of "follow the leader" or "me too" occurs. Because ABC is considered to be an advanced method, many managers report its implementation or the intention to implement it. The percentage of those reporting implementation sometimes reaches 33% of the respondents. At the same time, the percentage of those who understand the principles of the method and who map the activities and define the cost drivers is only about 11%.
2. Even though it is presented and marketed as a simple method, it is perceived as a complex method requiring radical change in the organization. Many managers are reluctant to implement ABC without the backing of external consultants.

An important survey carried out on 10 leading UK industrial firms is the source of several interesting preliminary lessons concerning implementation of the method. These lessons are summarized in Table 42.8 (16). The data of Table 42.8 show the relatively high weight given to production managers in the process of implementing ABC. The monetary cost of implementa-

TABLE 42.8. Implementation of ABC—Lessons to Be Learned

The preparation and follow-up team	Average of 5.3 members; production managers were included in the team
Cost of implementation	Average was £48,500 (0.023%) of annual sales
Running in costs	Negligible
Defining cost drivers	Defined by production managers, usually by time use
Number of cost drivers	Range was 7–30; adjusted average, 13.5; average for firms that sought the aid of external consultants, 8.5
The contribution of external consultants	Additional cost of £38,000; a quick beginning and reliable evaluation; no significant contribution to shortening the process of implementation
Integrating the accounting system	The trend is toward integration, which is not achieved until implementation of the ABC system has been completed
Time needed to complete implementation	20–42 weeks

tion in itself is not high. Implementation requires a considerable effort on the part of the organization as a whole.

42.7 CONCLUSION

Activity-based costing derives from the broader managerial concept of activity-based management, the emphasis being on the managerial facets of mapping activities and defining cost drivers. The purpose of ABC is to focus managerial attention on the manner in which resources are consumed by the various activities in the organization. The method effectively identifies the cost of manufacturing complexity arising from broadening the range of products and from nonfocused management. The method is likely to lead to improvement in the decision-making process by identifying strategic relations between the indirect costs and the factors that cause them.

Caution must be exercised in the straightforward implementation of ABC for the purpose of determining product cost. The data supplied by the ABC system cannot serve as the sole relevant data for decision making.

An interesting and important development of ABC is for activity-based budget preparation. Although the subject is still in its infancy, it is likely, in our opinion, to lead to improvement in the method of budget preparation, particularly in relation to service departments.

Implementing an ABC system requires a substantial organizational effort. The emphasis in implementing the methods must be placed on identifying the activities and defining the cost drivers. Thus implementation requires the joint effort of production managers, industrial and management engineers, and the firm's accounting team.

In our opinion, ABC suffers from a number of basic deficiencies:

ABC uses the logic of allocation, thus carrying on the basic deficiency of traditional costing.

ABC uses the measures "cost of product" and "profit per product," whereas today we must take the broader views of "system cost" and "system profit."

ABC is likely to cause difficulties and managerial failures in short-term decision making and in tactical decision making.

The only use of ABC that can be made is strategic; however, the possibility that it might be preferable to conduct ad hoc research for the purpose of strategic decision making must be considered.

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