
Activity-Based Costing at Diebold

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Abstract

The primary objective of this paper will be to analyze how Diebold has implemented Activity Based Costing (ABC) into their company. In this paper we will discuss the history of ABC, and analyze the type of companies that ABC is suited for. This paper will also address some of the advantages and disadvantages of using this costing system.

The next phase of this paper will discuss specifically how Diebold has implemented ABC into their company. We will give a brief overview of Diebold, including a discussion of how and when they implemented ABC. In this paper we will discuss some of the factors that played a part in Diebold management's decision to switch to ABC.

1. Introduction

Activity Based Costing (ABC) is a commonly used approach that takes the traditional costing method much further into the process of determining how each facet of a product should be assigned respective costs. It was first developed and clearly defined by Robert Kaplan and Robin Cooper in 1987 as a chapter in their book, "Accounting and Management: A Field Study Perspective". The initial focus of ABC was on the manufacturing industry where proportional technological advances began decreasing the affects of direct labor and material costs to the increase of relative indirect costs. Traditional costing arbitrarily allocated a percentage onto direct costs to cover the indirect costs. Kaplan and Cooper recognized this flaw and argued that this method misallocated certain portions of overhead to products that either drove their cost up or down, in turn, misconstruing management decisions. This revelation was based on the fact that that direct labor and material can be defined very easily as compared to indirect costs of products. Thus, Activity Based Costing was developed to help better allocate "hidden costs" of a product or service, essentially the indirect items such as general and administrative office overhead.

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Examples of this type of overhead include depreciation, management salaries, building and facility amenities such as electric, as well as testing and engineering.

The Activity Based Costing method first developed by Kaplan and Cooper consists of four(4) steps that help define what and how much of each activity actually add cost to the end result. The steps include: Step 1 which is used to identify and classify activities related to the products, Step 2 which is used to estimate the cost of the activities, Step 3 which is used to calculate a cost-driver rate for the activity, and finally Step 4 which assigns activity costs to the products. The first step includes a process of identifying five different hierarchical levels of resources and activities. These levels include unit, batch, product, customer, and facility. To establish the aforementioned levels different approaches can be utilized such as the “top-down approach”, the “interview or participative approach”, or the “recycling approach”. Once the levels of activities are identified, applying costs to the respective items becomes integral in Step 2 of the process. Applying company costs becomes a very tedious and time-consuming item for management to address, however, once accomplished the company has a well-established database to draw from. Dollar amounts can now be applied to the Step 2 items, in turn determining cost-driver rates in Step 3. The cost-driver of an item is the estimated cost of resource consumption per unit of the cost-driver for the respective activity. An example of how a cost-driver can be determined and applied is to consider a building that is 10,000 square feet in sized. If a manager reviews historical averages for the heating bill and determines that the cost to heat per month is \$500, then you divide the square foot by this average and obtain a cost-driver rate of \$0.05 per square foot. This can then be applied to a product for heating costs depending on how much space management determines cost-drivers. Finally Step 4 can be carried out where activity costs are assigned to products and services.

The aforementioned gives a good overview of the steps required to effectively implement ABC into a company. Like any procedure utilized by a company, the pros and cons must be considered. In general, the initial “set-up” costs for the Activity Based Costing system can be very time-consuming and expensive. This is one obvious drawback. Direct cost burdens include the purchase and installation of pricey software and with this follows education costs for management and subordinates. Once the system is in place, it must be monitored and updated to maintain consistency with changing markets and business practices. From a company social environment perspective, change to accounting can be risky, i.e. old methods are hard to sway from and, thus, adversity to change can arise. On the contrary, once the system has been executed it becomes a boilerplate process that exponentially increases management’s decision-making power. It helps reveal areas of costing that may have over-applied or under-applied overhead. This revelation can help improve profitability as well customer relations.

In summary, the installation of an Activity Based Accounting system is more prevalent in larger companies than can sustain the initial overhead drain and the time constraints required to create an effective cost-driver database. Many companies exist that utilize ABC. Some of the more prevalent ones include, Daimler-Chrysler, Hewlett Packard, Alcoa, Inc. and the Federal Aviation Administration. This process should not be overlooked by smaller companies though, if it can improve operations, ultimately improve the bottom line. Smaller businesses tend to use a more streamlined or customized ABC method to help lessen the initial and continuous overhead burden of

applying the process. This method is being recognized as “time-driven ABC” driven by Kaplan and Anderson which helps simplify the process. It is a process that helps minimize the costly implementation of the “full-down” ABC method. Ultimately, the process was introduced to help solve the problems of the old traditional costing approach where managers were making decisions based on inaccurate data. Essentially, the more complex the product or service, the more cognizant management needs to be on how costs are allocated. This is why Diebold has implemented an Activity Based Accounting system that is applied in their ATM division. Management made decisions that were centered on a competitive and ever-changing business environment. Their solution was to implement a process that will ultimately better their short term and long term decisions. The following will take a closer look at the steps and reasoning behind Diebold’s decisions on ABC as well as demonstrate how they apply some of their cost-drivers and what this application does for the decision-making process. Additionally, one will be able to view how Diebold has advantaged and struggled with their implementation, but ultimately, how it has prove effective for their continued success.

2. Body

Activity Based Accounting (ABC) was developed to improve traditional costing systems. These traditional systems had a number of weaknesses: they under and/or overcosted products, they did not trace indirect costs (e.g. supervisor salaries) and it is not well suited to large indirect cost situations where cost management is critical to the success of the company or corporation. ABC first assigns costs to the activities in the production process and then to the goods and services produced based on how much of those goods and services use those activities. ABC is used primarily to establish product costs for decision making purposes, i.e. whether to continue offering a product, but they are not used for inventory valuation for external reporting.

There are four generally accepted steps to determine the costs of goods and services using ABC:

- Identify activities related to the products.
- Estimate costs of activities from Step 1.
- Identify cost drivers for the activities.
- Calculate cost-driver rates for each activity.
- Assign activity costs to products using the cost driver rates.

To properly identify and organize activities, a 5 level hierarchy of resources and activities is used. This hierarchy consists of:

Unit level – where resources acquired and activities performed for individual units are assigned.

Batch level – Group or batch of similar products, product level, those resources or activities needed for production and sales of a specific product or service.

Customer level – Resources or activities needed for a specific customer.

Facility level – The resources or activities used to provide general capacity to produce products or services.

When Diebold, Incorporated, a company long associated with banking infrastructure products and self service financial solutions, sought to produce the next generation of automated teller machines, it became clear that the old method of costing, the

traditional costing approach, would no longer be useful. Diebold had an already established reputation within the banking community in the United States, but now it sought to expand beyond into the worldwide market. It had already sold ATMs in overseas locals, as well as other banking products but, now, it wanted to compete with the ATM manufacturers in other nations (i.e. Fujitsu, Wincor Nixdorf, etc.). In order to accomplish this goal, top managers wanted the ability to produce an ATM with world wide appeal, suing cutting edge technology (to include internet access for customers, touch screen technology, and easily replaceable parts) and they wanted the ability to have “true costs” of the product by unit by selling locale by manufacturing entity. The last part regarding the costing was considerable challenge to an accounting group that was very comfortable and successful using traditional cost methodologies. In parallel to the engineering department, the manufacturing and product sales accounting groups worked together to identify costs activities. They then used the other steps in the ABC costing process to comply with the top management directives for the new Opteva line of ATMs. The new methodology of costing at Diebold soon spread to all the product lines.

At seven key points in the deployment of the new Opteva line of ATM, Diebold managers needed the analysis now inherent in their costing systems to identify true costs by customers. In short, customers wanted the new ATM customized to their own operations, computer networks, and other requirements. This added cost activities to each unit but they were customer specific, i.e. each customer’s requirements were vastly different for each model of the Opteva line. With the utilization of ABC, the analysis of what those modifications for each unit amounted to in total unit cost was comparatively easy to ascertain.

Not long after this, the top management sought to identify which manufacturing entities were producing the units at the least cost. Due to the worldwide nature of the new manufacturing structure for the Opteva line, each manufacturing entities costs per unit by selling locations needed to be assessed and then put into US dollars for comparison. The result was a fair comparison of activities by country that would not have been possible under past costing methods.

The past costing system at Diebold, whether it was used for safe deposit boxes, vaults, vacuum tube systems or order ATM products, all had the same flaw: they were not using all the cost activities required for the manufacturing of the products or assessing those costs to the batch, product and customer hierarchies, it would overcost certain products and undercost others by not taking into account facility hierarchy costs, summarizing these costs to the unit and product only. For example, a facility that produced safe deposit boxes and drive-up window components would have certain facility costs. These costs would be assessed to the majority product, that product which took up the most capacity/space at the facility. This would skew the costs since the product being assessed might not be using the majority of all the facilities costs. At the top management level, this would appear to be a high costing product line when it could have been at parity with the other product manufactured at the facility or less. Similarly, customer specific modifications would not be separately identifying activities but they would be grouped with the normal production costs. Again this would skew the view of the product costs as seen by managers.

The international manufacturing and selling of the products would also have been skewed by the traditional costing method. No consideration for country specific activities would have been taken into account and the results could have been

catastrophic as fair comparisons between manufacturing entities by selling location would not have been possible. Decisions on maintaining manufacturing presences in certain countries or states would have been influenced by this skewed data, resulting in plant closures and possibly more costly production of units. Ultimately, in order to keep pace with its growing world market penetration, Diebold had to change its method of costing to ensure it kept pace with the “true costs” of the product lines it produced and sold.

Some of the results of implementing ABC at Diebold include a great variety of benefits in management reporting/decision support. These benefits included identifying the “true cost” of each manufacturing entity, the value of producing units in various areas of the globe and identifying the processes which made production and selling of the product possible in a micro sense (i.e. what does it take to produce and sell an ATM, what does it take to produce and sell an ATM in Brazil, etc.). Without ABC, these answers would have remained elusive to managers.

In contrast, the ease with which top managers can now see the “true cost” per unit of an ATM or other product came at an incredible man-hour cost. To transition to the ABC costing for the entire manufacturing piece of Diebold’s business, cost thousands of hours in analyst labor hours as well as investments in new enterprise resource planning (ERP) systems. The latter still remains an issue since the ERP system first chosen is now no longer the system of choice and has been slotted for replacement. The Baan ERP system, implemented in 1998 never quite incorporated all facts of the business beyond the manufacturing and sales entities. Service, which remains 42% of Diebold’s total business, was left out. As a result a new system, Oracle11i, was selected and also seems to fall short in its manufacturing and service modules. While modifications are being accomplished to bring manufacturing up to corporate standards by a consulting firm, the service business will remain on a “bolt on” platform, utilizing a separate system to field service inventory accounting, workflow, and service record keeping and dispatch functionality. In short, the transition to ABC has highlighted some of the shortfalls of the current business software suites.

3. Conclusion

Diebold’s approach and implementation, while somewhat unique due to the circumstances driving the change from traditional to Activity Based Accounting (ABC), is based on similar reasoning of other companies. The need to ascertain true costs of products, to better understand their profitability, is the force pushing companies towards ABC or variations of the methodology. In today’s business environment, you must know how profitable your products are, down to the unit level. ABC provides the capability of acquiring this data quickly as well as accurately assessing costs to the products and the functions in the production process. Diebold seized upon a prime moment to introduce and transition to ABC: the launch of a new product line. Once the success of using the new costing method had been proven, Diebold, a company with conservative reputation, was then able to implement ABC throughout the manufacturing portion of its business.

While changing the costing methods was a somewhat expensive proposition, it gave Diebold top managers the capability they desired and provided middle managers

profitability measurements that had not previously enjoyed when examining the manufacturing and selling processes. Diebold's push for results helped bring about a transition that still has some work needed to make it what was originally intended but thus far they are going in the right direction.

AS more and more companies like Diebold change their costing methods, other companies begin to see the value added nature of using a methodology that is more multidimensional than the traditional costing method. As with all accounting, the multidimensional approach is highly favored by business to find out each piece of the profitability puzzle. ABC is compliment to this and will continue to be viewed as such.

References

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