

# Investigating the Effect of Using Activity Based Costing (ABC) on Captive Product Pricing System in Internet Supply Chain Services

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**Abstract-** In this research, the impact of activity-based costing on captive product pricing strategies has been investigated. For a thorough examination, the important indicators of the impact of activity-based costing, which have been mentioned in most studies, have been used and also some examples of research have been reviewed to achieve the ultimate goal of the research. With regard to the use of activity based costing (ABC), and also taking into account the notion of compulsory pricing strategy, it can be concluded that secondary services in Internet supply chain services companies, despite the compulsion or dependence of the customer on secondary services and paying its fixed price, these pricing services are in tight competition among Internet supply chain service providers, and activity-based costing can help in better pricing and lead to competitive pricing for secondary services.

**Keywords:** Internet supply chain Service, Activity Based Costing, ABC, Captive Product Pricing

## 1. Introduction

Management Accounting began its evolution from the mid-1980s. The pioneers of this development were Professor Robert Kaplan and his friends at his college. Kaplan and Cooper, by designing a cost-based activity-based approach in the 80's, have actually had a big contribution to management accounting change. Although the relationship between costs and activities since the 60's was raised by some accounting theorists, including Solomons and Stabos, but with all these interpretations, the main designers of this approach are Kaplan and Desert. These two professors have argued that traditional accounting systems of the industry not only do not meet the needs of management, but in some cases lead to misleading misconduct. The main objective of using the ABC method is to improve the operational costing methodology. The study of statistics and the study of specialized accounting papers has shown that the ABC technique has been successfully applied in many Western manufacturing and service companies [1]. The advancement of information and communication technologies and the globalization of markets and the availability of

customers to a large number of suppliers, companies of the age of e-business has faced very serious challenges in terms of remaining in competition and even maintaining its market share. [2] believes that Internet supply chain service providers are good examples of middleware e-commerce in the new era. The growing demand for high-speed Internet by users, on the one hand, and the efforts of Internet supply chain service providers to provide new ways to reach users on the Internet, promise long-term continuity of Internet supply chain service providers and their customers. But despite the fact that these companies are leading the way in providing new services to customers, their downfall is much higher than other industries, which is one of the competitive pricing grounds for fixed costs for customers. In this research, the impact of activity-based costing on the pricing strategy is compulsory. To better check out the important impact indicators of activity-based costing that have been used in most studies, as well as a few examples of research to reach the ultimate goal of the study, have been reviewed.

## 2. Theoretical foundations

### 2.1. Activity Based Costing

ABC is an allocation method that describes how a contractual method is used to allocate contract costs, such as other allocation methods, but how it works, how it works, and so try It increases the value of accounting in the decision making process [3].

### 2.2. Captive Product Pricing

The use of some goods requires the use of a sub-product, or, in other words, these goods must be used in conjunction with other goods. Film photography with inkjet printers (which the camera or printer consumes without it) are considered as compulsory goods. In this case, the company introduces a low-margin product and puts the main benefit on the product, as the customer is captured by the company's product [4].

### 3. Literature review

One of the first studies in the field of educational service costing was done by [2] in the United Kingdom. Although the achievements of this activity have not been much addressed due to lack of financial standards and costing in scientific circles. But the British government used it as the basis for decision making on allocating funds to these institutions. After this study, the National Committee for the Formulation of Standards for American Educational Institutions, [4], [5], [6] were among those who studied and studied. There were numerous ways in identifying and analyzing university fees [5]. But in general, the interest of writers and academic circles in applying costing methods among educational centers dates back to the mid-1980s. In the meantime, [12] contributed more to others in developing and applying the concepts of costing and identifying the costs of the education sector. These authors believed that the application of management accounting concepts in universities could help them plan, monitor, and allocate optimal financial resources [6]. In 1988, the American Institute of Financial and Audit (CIPFA) was the first practical guide for implementing and operating the system designed financial information for universities in the form of basic standards for costing and calculating the cost of training activities. The manual introduced a set of tools that would identify and classify the costs associated with each faculty, as well as how to allocate common costs based on a logical pattern. The results of these standards were later used by other people, including Perth and Burke, in designing and designing costing and costing methods [7].

The effectiveness of costing methods and the application of management accounting concepts among universities has been largely addressed by [6]. The two authors compared their universities in terms of costing and costing systems by conducting cross-sectional research in the UK over a five-year period (from 1990 to 1995). The results of the study showed that nearly 83% of these universities were not happy with their existing accounting system and were looking for a suitable replacement for it. By 1993, more than 17% of these universities changed their costing system, and 38 were planning to change their system by [8] regarding the use of the ABC system in the education sector, although this system it was first proposed by [8] to calculate the cost of products and services. But due to its capabilities, many organizations still have used the system. One of the first studies on the use of the ABC system in the education sector was carried out by [9] at a local university in the United States. With the introduction of ABC's initial system at the university, they discovered and categorized the unknown cost, which can provide information that is very useful in decision makers. [8] In the UK, universities Several ABCs have used their bills for costing and calculating the cost of their services. In 1994, Tadjar University used this benom for accurate cost identification. Wells College used this Ben to classify and identify his

educational and research activities. The University of Leeds, which had major problems in identifying overhead and seed costs, has used ABC for this purpose. All of these universities, after implementing this method, concluded that ABC's information was helpful in identifying and controlling costs. [8] In 1996, Newman made an ABC item at the University of the Australasia to identify the cost at this university. This study showed that identifying and elaborate costing to the cost objective, in addition to increasing the cost of service cost calculation, creates the opportunity to provide an overview of the effectiveness of activities and costs between the university and other universities. In other words, the cost of education in this country is lower than that of the English. Of course, in terms of technical and operational fields, this is slightly higher due to the need for laboratory facilities [9].

One of the most comprehensive studies around the world in relation to the use of ABC in the education sector was conducted by the Australian Academy of Sciences in 1998 in order to identify and select an appropriate costing and costing method. After examining the available information around the world and obtaining information on the current status of education at Australian universities, the Institute proposed ABC / ABM to calculate the cost of training students. To ensure the efficiency of Bin and to respond to the information they need to manage, they used the Bam among the three universities of the country called the Charlotte Starter University, the University of Mardo, and the Pacific University of Applied Sciences in 1999. More than 10 disciplines have been studied in the technical, business and medical groups for the implementation of this system. In addition, in this study, in order to allocate costs in each of the studied groups, enamel has been applied to this field. So that in the technical groups of the ten most mines in the commercial group of the 8th grade of the ninth, and in the medical group 12 bases of the ninth has been used. It should be noted that in this study, for determining the cost of cost-sharing enamel, the multi-dimensional regression method and correlation coefficient have been used [9].

### 4. Research Method

In each research, the appropriate method for conducting research is always chosen based on the goals of that research. In this research, a descriptive-library method has been used for theoretical approach. To gather information, refer to research published in valid citation databases.

## 5. Activity Based Costing (ABC) System

In the ABC system, causing a causal relationship between the activities required to provide services and the amount of resources used, the cost of doing activities is determined. In this approach, services, activities are consumed and activities are allocated resources, so that these costs are allocated to activities, then allocate the costs assigned to the activities based on the use of resources. (Figure 1). In fact, activity-based costing is the way in which the cost of services or products is taken as the sum of the costs of activities that are performed on their behalf [10] in terms of allocating costs to the ABC system, activity As new items, costs are identified and classified, and overhead costs are assigned to activities based on defined bases called "cost drivers", then activities are considered as research areas and The costs assigned to them (cost areas) are assigned to the final cost target (curriculum units or training courses). Therefore, in this system, in addition to allocating direct costs to its own activities, it increases the accuracy of the allocation of indirect costs (overhead costs) [11], [12] In terms of the process in the ABC system, designing Costs are emphasized by the continuous improvement process. In this way, identification of activities with value added and activities without value is emphasized and attempts to eliminate activities without value added [11], [12].

## 6. Implementation of activity-based costing system models

Identifying product costs in activity-based costing is in fact the beginning of the work, and the information obtained only identifies the actual recovery opportunities. After explaining the theoretical foundations, the structure and design of the activity-based costing system should be implemented. To implement this system there are two main models: Integration model and dedicated model (HV).

### 6.1. Integration model

This model is applicable for a variety of applications such as pricing, operational excellence, business and business improvement. The goals set in these models are one year or more than a year and are more general and long-term. These models require senior managers' support and can be helped by performing methods such as separating tasks, reducing conflicts, team participation, etc.

### 6.2. Exclusive model

This model requires less time, staff and less strategic concepts, and is used for specific cost-based activity-based applications. This model does not require some senior management's support, such as rewards, and decisions are made at the middle and lower levels of the organization [13]. We have followed up the

function-based cost-based pricing of product or service price estimates.

## 7. Applying pricing based on activity in pricing

### 7.1. Integration of activities

Activities are a work or set of tasks that are performed for the output, and each set of activities ultimately forms part of a cost item. Some of the features of the activity are:

- Similar activities that may take place in multiple work areas.
- All human resources in the organization can be classified as activities.
- Activities usually have measurable outputs.
- Activities can use human resources and inhumanity [14].

In the production and trading of any activity that is performed in order to produce, distribute and provide services and has a repetitive nature in performing the above tasks, it is called work or work [13]. In a manufacturing plant with an organization, the number of activities is so high that the use of a separate activity stimulus for each activity is not economically feasible. In order to overcome this problem, it was necessary to integrate a number of activities in each repository. Of course, it should be noted that with the increase in the number of integrated activities, the ability to stimulate activity will be reduced in the allocation of the correct cost of resources spent on activities. The definition of activities varies according to how they are used. In other words, the details of the activities should be defined at a level where decision makers can use their needs to analyze their needs. In strategic management, costs are defined at a higher level, so that operations cover one or more parts.

On the other hand, if the researchers want to examine the goods and services offered at a more detailed level, they should define the activities in more detail. In the cost reduction approach, the definition of activities will be of great importance in analyzes. In this case, emphasis on activity-based analysis will emphasize the improvement of the efficiency of business processes and the definition of the set of activities. To this end, the definition of activities should be carried out at a level that allows understanding the shortcomings as well as achieving the necessary methods to make the necessary improvements. At this level of activities, it should be used at a lower level than other levels of activity-based analysis. Other factors affecting the level of activity definition are the different needs of different parts of the organization. The activities of parts of the organization that deal with customers with high transaction volumes or are constantly engaging in complex negotiations with their customers are less standardized than organizational units with specific daily tasks and activities and should be at higher levels It should also be noted that the definition of activities provided must be clear and vague than ambiguity [14].

### 7.2. Cost of activities report

This step indicates that the combination used to report the resources used by each activity is done. For example, the cost of the resources consumed by the two integrated activities can be reported separately with the accumulated. Choosing the type of report of the resources consumed through each activity do not affect the reported costs for the product and only the details of the report will be affected.

### 7.3. Identification of activity centers

The activity center is part of a separate production process (or a support area) that the management wishes to report separately on the cost of the activities performed. Product costs that are reported through the system are not affected by the selection and selection of the activity boundaries of the product and its only effect on how the product costs reporting. The ability to report costs in terms of the activity center provides better control over the activities of managers [15].

### 7.4. Selection of system resource drivers

Activity-based costing allocates resource costs to the cost repository in each activity center. Each cost repository represents an activity (or a combination of activities carried out at the center). The resource drivers used to allocate costs to the cost repository determines the allocations allocated to each repository as well as the cost of the expenditure [15] The choice of the stimulus depends on two actions: first, it can measure the consumption of resources in the product for a number of activities, and, secondly, it is related to the changes in the activity center (the cause-and-effect relationship) [16].

### 7.5. Selection of activity stimuli

Cost drivers are the characteristic of an event or activity that results in cost incurred [13]. This stage is the last stage of design and after allocating the cost of the resources consumed by the activities carried out in each center to the repository, the cost of the activities can be determined by the stimuli of activity. In traditional systems, cost drivers were considered to be related to volumes, such as output, and direct labor hours, and they were considered as the only cost-trigger factors, but in the activity-based costing method, cost-related activity incentives also had Are important. Selection of activity stimuli is the most important part of the design of the activity-based costing system, and for this purpose the number and type of stimuli used must be determined. The definitions of the agents of activity are compounded by the fact that many activities can achieve more than one activity. This is due to looking at a potential factor in the perspective of time, diversity, and cost savings from scale, categories, weight, capacity, and distance. For example, the definition of the operating agent for

the delivered inventory requires consideration of the following:

- When it comes to delivering the product to the customer.
- Special delivery requirements for any type of product
- Is delivery part of the delivery stage with a special delivery for a customer?
- The amount of product delivered
- Number of deliveries
- Product Weight Delivered - Truck Load Capacity
- Distance to customer

This activity may have several factors, each of which is a reflection of one or more of the above factors, there are no specific factors that are better than the other. [17] state that the regression methods used to determine the cost factor are appropriate, but in most firms, previous observations of agents cannot be extracted for all potential activity factors and regression only serves the limited conditions.

## 8. Conclusion

Based on the results of this study, the type of Internet supply chain service in service companies is largely identifiable by the use of activity-based costing, and in the provision of various services of these companies, the stability of the procedure can be present at a relatively favorable level [19]. The research revealed that it is possible to identify the activities performed in each company to a satisfactory level and the amount of documentation in the company can be effective in costing. By applying various cost-based activity models, as well as combining activities, the cost of the finished product was reduced and the cost reduced. Another point is the captive service pricing. With regard to the review of the use of the activity-based costing system and also the concept derived from the Captive Product Pricing Strategy, it can be concluded that secondary services in Internet supply chain service companies, despite the compulsion Or customer dependence on secondary services and payment of its cost, these services are priced in the tight competition among the Internet supply chain service providers, and activity-based costing can help in better calculating the price and causing To provide competitive prices for secondary services [18].

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