AN APPROACH AND ANALYSIS TO THE STRATEGIC MODEL OF ACTIVITY-BASED COSTING IN CONSTRUCTION

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ABSTRACT

This dissertation explores Activity-Based Costing (ABC) in the Indian construction industry. Escalating over the past two decades, various management accounting techniques have been introduced in order to enhance this adaptation in fundamental areas of the organisation. As an alternative costing system to traditional volume-based costing, Activity-Based Costing (ABC) has been one of these initiatives. Finally a detailed comparison over the users and non-users of ABC is concluded, their advantages and disadvantages are listed out based on the experience of the users of ABC technique.
1. Introduction

Organizations have been under increasing pressure to adapt to the changing business environment. Escalating over the past two decades, various management accounting techniques have been introduced in order to enhance this adaptation in fundamental areas of the organization. As an alternative costing system to traditional volume-based costing, Activity-Based Costing (ABC) has been one of these initiatives.

ABC has been a contentious issue in the management accounting literature ever since its promotion by Kaplan and Cooper in the 1980’s. This has stimulated a debate as to whether the costing system provides advantages over traditional systems when applied in practice.

1.1 Purpose

As a result of the inconclusive evidence in the previous literature, the following dissertation investigates the use of ABC in South India. In particular, the purpose is to identify differences in organizational characteristics between a group of firms with more than 500 employees using ABC and not using ABC. Furthermore, differences in performance between ABC users and non-users are investigated. It is hoped that such research is able to shed light on ABC in the South Indian firm environment.

2. Methodology of ABC Technique

The Process flowchart of ABC method is shown in the Figure 2.1

![Figure 2.1 ABC Model](image)

Like traditional cost accounting, ABC is a cost allocation methodology. Unlike traditional cost accounting, however, ABC operates on the premise that activities incur costs through the consumption of resources, while customer demand for products and services causes activities to be performed. Figure 2.1 illustrates how ABC traces costs from an organization’s general ledger to the work it performs, and then to its products, services, and customers (i.e., cost objects). Resource drivers determine the degree to which a resource is consumed by each activity, while activity drivers determine how products, services, and customers consume those same activity costs. Examples of resource drivers are the percent of time employees spent on each activity or the square feet dedicated to particular activities. Examples of activity drivers are the number of services or products generated or customers served. Drivers are often determined by a survey of organization workers or managers who have subject matter expertise. Active and honest participation from employees in such surveys is critical to producing ABC information that truly reflects how an organization consumes its resources at both the activity and cost object levels.

3. Activity Based Costing
ABC systems calculate the costs of individual activities and assign costs to cost objects such as product and services on the basis of activities undertaken to produce each product or service. The following are the steps in activity based cost allocation:

1. Identification of the main activities
2. Creation of cost pool
3. Determination of the activity cost drivers
4. Calculation of the activity cost driver rate
   \[ \text{Activity cost driver rate} = \frac{\text{Total cost of activity}}{\text{Cost drivers}} \]
5. Charging the costs of activities to product

4. Survey Interpretations

4.1 Perceived Advantages

The literature has identified various advantages that are suggested as being realised subsequent to the adoption of ABC. Despite the arguments against the existence of these benefits, many of the papers that suggest contrary outcomes of ABC adoption do not specifically examine those companies who have experienced an adoption. For example, Datar and Gupta (1994) found no increase in accuracy from ABC adoption, using a model for determining measurement errors. In comparison, survey based studies that have specifically explored whether ABC improves accuracy have found different conclusions to this model approach (Clarke & Mullins, 2001). Evidence has also suggested that companies who have not adopted ABC do not perceive that advantages can be realised from ABC adoption due to a lack of understanding of the system (Clarke & Mullins, 2001). Companies adopting ABC are more likely to have explored the costs and benefits before the adoption decision, or may believe that these benefits have been experienced. Conversely, firms still using traditional costing systems may have concluded that these benefits do not exist, and therefore that there is no advantage to adoption. Consequently, a difference is generally apparent between the perceived advantages of ABC by non-users and users of the system (Clarke & Mullins, 2001). This leads to the following hypothesis:

\[ \text{Hypothesis 1 (H1): ABC users will associate higher perceived benefits with ABC than non-users.} \]

4.2 Complexity

The literature has suggested that a positive relationship exists between firm complexity and ABC. However, the use of ABC in smaller organisations generates questions regarding this relationship, as it is generally believed that these firms do not have the same complexity or subsequent need for advanced techniques (Cinquini et al., 1999). However, complexity can still be evident in smaller firms and similarly, larger firms may not have high levels of complexity. This poses the following hypothesis:

\[ \text{Hypothesis 2 (H2): ABC users will have greater levels of complexity than non-users.} \]

4.3 Satisfaction

It is apparent that satisfaction with the costing system used is related to an ABC adoption. The direction of this relationship, however, is more difficult to determine. Although evidence has shown that firms have a higher satisfaction with their costing system after adoption, it is also evident that a reason for non-adoption may be a high satisfaction with the costing system employed. However, it is likely that non-adopting firms will be composed of companies who have considered or are considering adoption. These firms will potentially be experiencing lower satisfaction, prompting the exploration into ABC. From this suggestion, the following hypothesis is developed:

\[ \text{Hypothesis 3 (H3): ABC users will report higher levels of satisfaction with their organisations costing system than non-users.} \]

4.4 Influence of Adoption

The above variables, as indicated by the literature, lead to an ABC adoption. Although causality is difficult to show, the evidence is intuitively suggestive of an embracing hypothesis as follows:
Hypothesis 4 (H4): Perceived advantages, complexity and satisfaction will influence an ABC adoption.

4.5 Strategic Orientation

The literature relating to the strategic focus of companies adopting ABC has been conflicting. The association between ABC and a cost leadership strategy is implied due to the nature of ABC, and the enhancement of cost understanding that it can bring. This cost focussed nature is reinforced by the literature exploring advantages of ABC, ultimately suggesting that costs can be more accurate, and potentially reduced with the use of ABC, allowing more competitive pricing opportunities (Ittner et al., 2002). However, the literature also suggests an association between ABC and differentiation type strategies, due to innovation and marketing improvement possibilities that result from information provided by the ABC system. The literature is also suggestive of the quality improvement abilities of ABC (Ittner et al., 2002), consistent with differentiation type strategies. This generates the following hypothesis:

Hypothesis 5 (H5): ABC users will not employ a particular strategy.

4.6 Support

The existence of top management support or a member of the organisation who is willing to promote the adoption attempt is believed to be key for an ABC adoption. Other functions in the organisation, however, may not be able to exercise the same power in relation to the ABC initiative. These other functions, therefore, potentially play a more participatory role, rather than a promotional one. This leads to the creation of the following hypothesis:

Hypothesis 6 (H6): The support of top management will be higher than other functions during the design and implementation of ABC.

4.7 Performance

Conclusions from research exploring the relationship between the adoption of ABC and firm performance have been mixed. However, the literature identifying the numerous benefits that are realisable with an ABC adoption is suggestive that some overall improvement in performance may result. Thus the following hypothesis is created:

Hypothesis 7 (H7): ABC users will have greater levels of performance than non-users

5. Merits and Demerits

5.1 Pros and Cons Of Traditional Costing

An advantage of using traditional-based costing is that it aligns with Generally Accepted Accounting Principles, or GAAP. Easy implementation for companies that provide one product also is a plus. However, traditional costing is an outdated costing system in many companies because those manufacturing companies now use machines and computers for much of their production. Computers and machines make the system outdated because it often uses direct labor hours to calculate cost. Cost is not appropriately assigned because direct labor hours is not the best cost driver to use. Traditional costing negates other cost drivers that may contribute to the cost of an item. Another disadvantage of solely using the traditional costing system is that it can lead to bad management decisions because it excludes certain nonmanufacturing costs.

5.2 Pros and Cons of Activity- Based Costing

Greater costing accuracy is the primary benefit of activity-based costing. Companies assign cost only to the products that require the activity for production. This method eliminates allocating irrelevant costs to a product. Other advantages of activity-based costing include an easy interpretation of cost for internal management, the ability to enable benchmarking and a greater understanding of overhead costs. Implementing an activity-based costing system within a company requires substantial resources. This can prove a disadvantage for companies with limited funds. Another disadvantage of using activity-based costing is that it is easily misinterpreted by some users.
Conclusion

Thus a detailed discussion in relation to vital factors influencing ABC costing technique is made. The merits and de-merits over the traditional volume based technique and Activity Based Costing are discussed. As a result, ABC is proved to be more advantageous than traditional costing method, in all major projects where there is a need of investing huge funds.

References