

ACTIVITY BASED COSTING (ABC) AS AN APPROACH TO OPTIMIZE PURCHASING PERFORMANCE IN HOSPITALITY INDUSTRY

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Abstract

ABC (Activity Based Costing) system has proved success in both products and services. The researchers propose using a new model through the application of ABC approach that can be implemented in purchasing department as one of the most dynamic departments in service sector to optimize purchasing activities performance. The researchers propose purchasing measures, targeting customers' loyalty ensuring the continuous flow of supplies. The researchers used the questionnaire as a tool of data collection method for verifying the hypothesis of the research. Data obtained was analyzed by using Statistical Package for Social Sciences (SPSS).

The results of the research based on limited survey that have been distributed to number of hotels in Great Cairo region. Our research was targeting three hundred purchasing manager and staff through five star hotels. It is recognized that further research is necessary to establish the exact nature of the causal linkages between proposed performance measures and strategic intent in order to gain insights into practice elsewhere.

Key Words: *Hospitality-Purchasing component-ABC-Performance measurements*

JEL Classification: M00

RESEARCH PROBLEMS

The problems that face purchasing as a part of the supply chain process are diversified to Quality, Cost, and Quantity. The following two questions will clarify the main research problems that are based upon this research:

- How to optimize the purchasing performance in hospitality industry through proposed ABC model?
- Is it valid to use the proposed measures for improving the purchasing performance in Egyptian hotels?

RESEARCH OBJECTIVES

- To optimize the purchasing performance in hospitality industry through a proposed ABC model.
- To validate the proposed measures for improving the purchasing performance in Egyptian hotels.

RESEARCH HYPOTHESES

- The proposed ABC model enhances the purchasing performance in hospitality industry.
- The proposed measures are valid for improving the purchasing performance in Egyptian hotels.

INTRODUCTION

Activity Based Costing (ABC) is considered as one of the most important innovations in cost calculation and managerial accounting (Groot, T., 1999). ABC is a managerial accounting approach which assesses the cost of activities without the influence of other variables which result in relevant and timely information provided to management. ABC represents a tool to evaluate operating costs and finds out methods of analyzing the underlying activities of existing cost (Bescos, et al., 2002).

ABC system is also established to provide accurate information on the cost of resource demands by individual products, services, and customers, calculating first indirect and support expenses of activities and processes and then expenses of

products, services and customers. By this way, managers will have a clearer picture of the economics of their operations (Peter B.B. Turney, 2008). Moreover, ABC has proved a high degree of popularity in both theoretical and practical approach by seeking to help in business decisions providing flexible and up-to-date decision support system on handling the problem of increasing overhead and consequently providing strategic information (Byrne S, Stower E., Torry P., 2009).

ABC is a costing system assigns the cost of each activity along with resources to all products and services in each stage of production, marketing, sales process and delivery (Yanren X., et al., 2008). ABC covers also non-production costs, which are not linked to production or which result from operation, such as distribution and sales. Therefore, cost driver measurements of ABC such as on-time deliveries or inventory turnover improves operational control & cost control and decision-making. It gives basic information for the budgeting process (Innes and Mitchell, 1997). Moreover, it helps management accountants in decision-making processes reassigning activity costs across business processes and identifying relationships more accurately. In other words, the core of ABC system is the concept of activity (Yanren X., et al., 2008).

ABC system as a strategic tool has benefits and effect on companies' performance that encouraged numerous empirical studies on ABC system to the extent that it becomes one of the most-researched management accounting areas. It is also considered that it gives more precise information about products & services cost than any other traditional cost systems (Krumwiede and Roth 1997).

ABC IN SERVICE INDUSTRIES

The need for reliable consistent strategic performance information is the main rationale for a service company to apply ABC system as this information is the main drive for company's profitability and competitiveness (Debor E. L. and Eragbhe, E., 2005). ABC is also considered a very useful decision making tool for economic analysis in service sectors, especially in the areas of planning and control. Cooper and Kaplan (1992) asserted that service firms can benefit from using ABC as they have the same set of issues as manufactures as the analysis of operating expenses and the performance of service activities that demand resources. They further noted that it is also an effective tool in service firms for tracing cost to services produced and implementing total quality thinking in service firms. It also motivates management and helps in analyzing activities and determining their value to the customers (Pavlatos, et al., 2009).

ADVANTAGES OF APPLYING ABC IN HOSPITALITY INDUSTRY

Reducing the quantity of activities with increasing the performance efficiency of other remaining activities will help in maintaining production and accordingly revenues and lessening the demand for indirect and support resources. Otherwise, it can reduce the excess capacity available in the next budgeting cycle (Peter B.B. Turney, 2008). The application of ABC system in hotels helps managers to better assess operational efficiency, establishes more meaningful comparisons of financial performance with other hotels, and optimizes the mix of service offered to customers (King, et al., 1994), (Askarany, et al., 2007).

ABC MODEL IN PURCHASE DEPARTMENT

ABC is considered an important subject in today's management accounting literature. Although much attention was paid to ABC effect on process improvement, customer profitability analysis, and product design, less attention was paid to purchasing (Roehm, et al., 1992). Though logistics cover both inbound and outbound relationships and material flows, purchasing is mostly responsible for inbound flows into an organization. Purchasing was perceived primarily as a service function. In this case, its role & objective was not only to meet the needs of the manufacturing function or other internal functions, for which it was buying, but also to have long-term relationships with suppliers and to understand the needs of the end customer (Van Weele A.J., 2005).

Purchasing is to get the right product or service to the right place at the right time in the right quantity, in the right condition or quality, and from the right supplier at the right price. Typically, purchasing was seen as an activity of strategic importance. It involved following a series of prescribed steps, which start from researching the best suppliers, writing up a purchase order, contacting suppliers for pricing, and following up on a supplier who failed to deliver...etc. In other words, the role of purchasing in the supply chain is an integration of business processes from end user through original suppliers that provide products, services, and information that add value to customers (Leenders M., et al., 2002).

PROPOSED MODEL

This research paper focuses on an important sector of hospitality service which is purchasing and will apply the ABC system on the purchasing department main activities introducing a new model that can be tested and widely implemented in the hotels purchasing departments. In this paper, an ABC model was developed for the determination of procurement strategies to minimize the total costs that associated with the purchasing activities

The researchers started by the analysis of purchase activity pools as the first step of designing the model. Then the researchers identified the sub activities to be under each activity pool. The following step was to determine the Cost-Activity Classification for each activity pool that every activity in service organization can be classified into four areas, (1) Unit Activities, (performed on units of products), (2) Batch Activities, (performed on batches of products rather than individual product unit), (3) Product Activities (benefit all units of a product) and finally (4) Facility and Organizational Activities, (facilities activities are incurred only to support the ongoing facility operations). The last step was to construct the proposed performance measures for each of the activities of the purchasing process (Clarke P., Mullins T. 2001), (Cooper R., and Kaplan R. S., 1997).

Table 1: Activity Based Costing Model

ACTIVITY POOLS	Activities	Cost-Activity Classification	Measures
Purchase order process	Setting reorder point, Filling the purchase orders, Follow up on the purchase order, Check on the accuracy of the order.	Batch level	Order entry accuracy, Warehouse picking accuracy, No. of purchase order, Forecast and planning accuracy, % of perfect order
Supplier Relationship Management	Supplier selection process, Evaluating supplier performance, keep supplier File, Giving supplier a grade (mark), Controlling and approving supplier's record, On time receiving of orders of purchases, Comparing prices among different suppliers, Supply alternatives selection, Enhance the relation between suppliers and management, Suppliers relationship controls, Consulting with suppliers about new orders, Negotiations about suppliers contracts, Ordering procedures, Reporting of errors in purchases orders, Follow up on the in progress purchase orders, Information	Product sustaining level	Adherence to plan, Lead time, Shipment time, Speed of executing the order, Background of suppliers, Invoice accuracy, Speed of feedback, Results of the controls, Response to claims, Payment accuracy, Payments facility, % of repetitiveness, Performance compliance, Delivery schedule

Cost/Unit Purchased	exchange between the hotel and the supplier (feedback), Establishing alliances with suppliers, Increase the efficiency of the exchange theory, Make proper and reasonable adjustments of claims, Be prepared to consider the special needs of the buyer's organization.		
	<ul style="list-style-type: none"> Ensuring an efficient bid process, Preparation of large volume orders., Selecting the appropriate costing method for the purchases., Keep prices in line with cost., Exchange terms 	Unit level	Material cost per unit Comparison of costs among suppliers Reviewing industry average for costing method used Monetary rate fluctuation
Quality	<ul style="list-style-type: none"> Entering purchases to the required examinations, Preparation of appropriate warehouse that suits nature of products., Positioning the products, Receive and handle materials, Rejection procedures, Technical support, Packaging 	Facility sustaining level Product sustaining level	% of defected products., Results of examination of products quality, Inspection rate, % of standardization, Specification compliance, Number of rejected items, Presence of technical assistance, Product research and development and \or Design

METHODOLOGY

A questionnaire was designed and directed to purchasing managers and employees in 5 star hotels located in Great Cairo Egypt, to pick up information on the effect of the proposed performance measures on the purchasing activities in hospitality industry. Judgmental sample included 30 hotels covering luxurious five star hotels, and 350 questionnaires with hotel top, middle, first line managers and employees were distributed. Our responds were 248, and 35 questionnaires were excluded for non validity, to reach approximately 213 valid questionnaires that were returned with respondent rate of 60.86 % which is statistically acceptable for data analysis. Data obtained was analyzed by using Statistical Package for Social Sciences (SPSS). Frequencies and percentages were made for all the questions, a combination of different techniques were used including descriptive statistics, discriminate analysis and factor analysis. Secondary data was collected from relevant textbooks, journals, and online data bases.

STATISTICAL ANALYSIS

The aim of the questionnaire developed in this paper is to prove that the proposed ABC model enhances the purchasing performance in hospitality industry and that the proposed measures are valid for improving the purchasing activities in Egyptian hotels. In order to examine the previous two objectives the researchers produced four indicators. Purchasing Order Process Indicator (POPI), Supplier Relationship Management Indicator (SRMI), Cost Per Unit Purchased Indicator (CPUPI), and Quality Indicator (QI). Each indicator consisted of variables that measure the validity of the construct.

Table 2: Descriptive Statistics

Cluster Analysis

In order to clarify the dependent variable in this study the researchers used the Cluster analysis. Cluster analysis classifies objects "respondents". The objects in this sample are divided into two clusters average and high. The average cluster consisted of 59 objects with a cluster

Cost Pools	CV	Mean	Standard Deviation
Supplier relationship management	13.17	3.8048	0.50100
Quality	13.31	3.9888	0.53098
Cost/ Unit purchased	15.35	4.1355	0.63521
Purchase Order Process	15.96	4.1474	0.66208

center of 3.49, and the high cluster consisted of 154 objects with a cluster center of 4.22. For descriptive purposes the researchers calculated the Coefficient of Variation (CV) for the sample. Table (2) shows the ranking of the latent constructs in order of their importance. It is noticed that the lower the Coefficient of Variation (CV) indicates more coherent results.

Reliability and Validity Tests

Testing the reliability of all the latent construct, the four indicators and their measurement showed that they are reliable. The Cronbach's Alpha for all the latent constructs and measurements is 0.910. Also, for the Purchasing Order Process Indicator (POPI) is 0.870, the Supplier Relationship Management Indicator (SRMI) is 0.893, the Cost Per Unit Purchased Indicator (CPUPI) is 0.873, and Quality Indicator (QI) is 0.847. Furthermore, the Cronbach's Alpha for all the measurements showed to be more than 0.7. This means that the results of the test are reliable as Cronbach's Alpha suggested.

Factor Analysis

A Factor Analysis (FA) have been conducted to test the validity which is the degree to which a measure accurately represent what it is supposed to. In order to ensure that the data matrix for each indicator has adequate correlations to justify the application of factor analysis, two conditions have been met.

Table 3: Measure of Sampling Adequacy and the Bartlett test

First, Measure of Sampling Adequacy (MSA) which is a measure to quantify the degree of intercorrelations among the variables and the appropriateness of factor analysis. For all indicators the MSA is 0.779 which is interpreted as

Indicator	(POPI)	(SRMI)	(CPUPI)	(QI)	
Measure of Sampling Adequacy	0.820	0.808	0.800	0.710	
Bartlett's Test of Sphericity	Approx. Chi Square	545.293	1856.230	535.485	825.473
	df	10	91	6	28
	Sig.	.000	.000	.000	.000

middling, and for each indicator it recorded 0.820, 0.808, 0.800 for the Purchasing Order Process Indicator (POPI), the Supplier Relationship Management Indicator (SRMI), and the Cost Per Unit Purchased Indicator (CPUPI) respectively, which can be interpreted as meritorious. For the Quality Indicator (QI) it recorded 0.710 which can be interpreted as middling. Also, all the variables recorded values exceeding 0.50.

Second, Bartlett test of sphericity which proved that there is statistical significant correlation 0.000 for all the indicators, for each of the four indicators separately and for all the variables. Table (3) above shows the Measure of Sampling Adequacy and the Bartlett test of sphericity for the four indicators.

Table 4: Group Statistics

Discriminant Analysis:

The researchers used the Discriminant analysis as the dependent variable "measurements" are represented by two categories of performance. Table 4 shows the mean and standard deviation of the two clusters.

Canonical Correlation:

The canonical correlation shows that there is a strong correlation between the dependent and independent variables. 82% of the changes in the dependent variables are due to changes in the purchasing activity.

Cluster Number	Cluster Number of Case	Mean	Standard Deviation
1	Purchasing from 1 to 5	3.4407	0.46945
	Suppliers from 1 to 14	3.3596	0.39525
	Cost from 1 to 4	3.6186	0.70612
	Quality from 1 to 8	3.5339	0.46703
2	Purchasing from 1 to 5	4.4182	0.50739
	Suppliers from 1 to 14	3.9754	0.42759
	Cost from 1 to 4	4.3377	0.47532
	Quality from 1 to 8	4.1634	0.44449
Total	Purchasing from 1 to 5	4.1474	0.66208
	Suppliers from 1 to 14	3.8048	0.50100
	Cost from 1 to 4	4.1385	0.63521
	Quality from 1 to 8	3.9888	0.53098

Standardized Canonical Discrimination Function Coefficient

A standardized canonical discrimination function coefficient has been conducted using the four indicators introduced previously

$$ABC = 0.662 \text{ purchase} + 0.232 \text{ Supplier} + 0.555 \text{ Cost} + 0.568 \text{ quality}$$

From all mentioned above it is noticed that all the latent constructs and measurements are valid according to the validity test.

CONCLUSION

The researchers verified the first hypothesis by constructing the proposed model for improving the purchasing activities in the hospitality industry.

The second hypothesis was verified by the statistical analysis as presented in the statistical analysis section.

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