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Using The Modified Time Driven Activity Based Costing Approach for Profitability Analysis and Cost Reduction (A Case Study)

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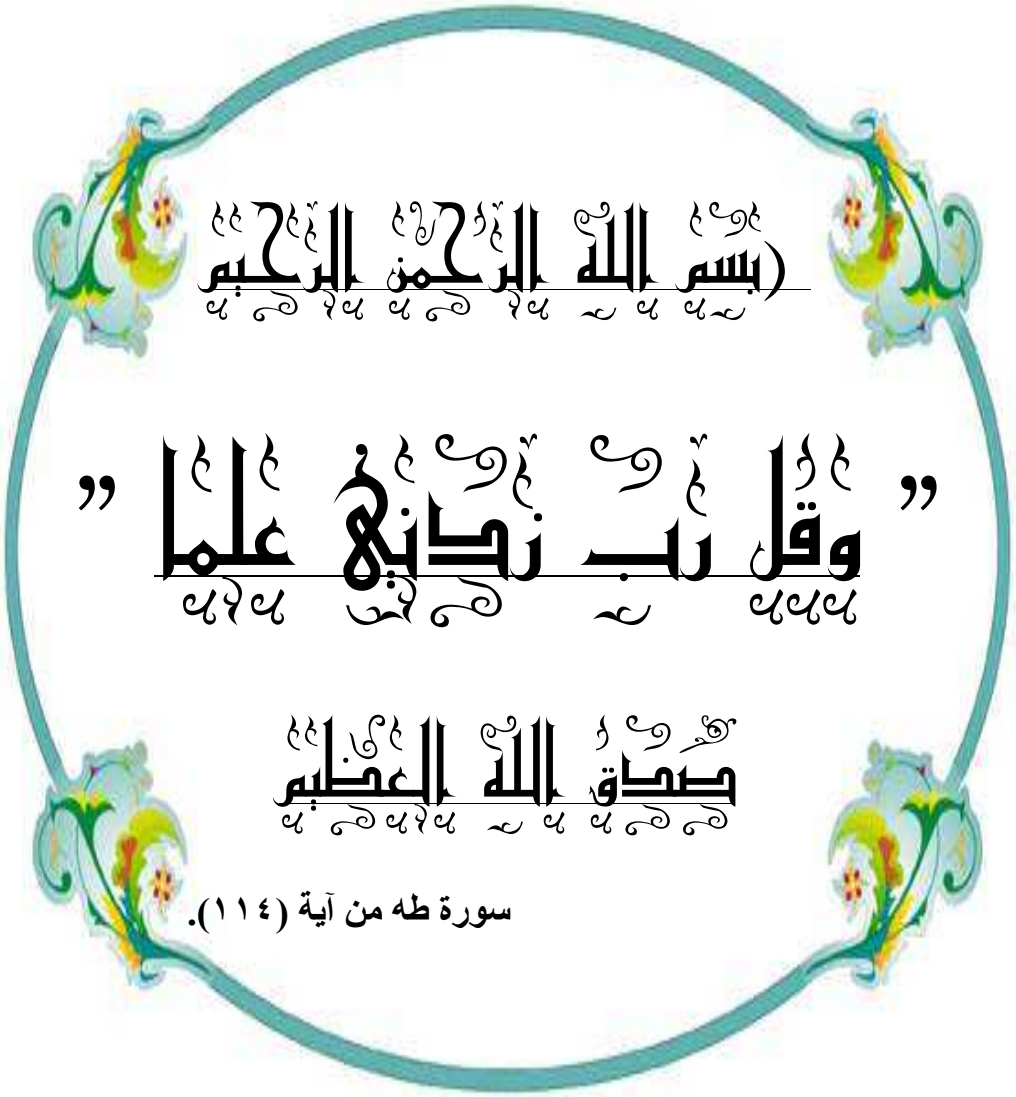
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الدراسات العليا

Abstract

The 21st century has witnessed tremendous changes in business environment which have a great impact on cost accounting systems. One of the major impacts was the transition from traditional costing systems to activity based costing (ABC) system which allocates indirect costs to activities instead of to cost centers before allocating to cost objects. But ABC system has some shortcomings that lead to another transition to a new ABC model called time driven activity based costing system (TDABC). TDABC allocates indirect costs directly to cost objects without the need for allocating it first to activities. TDABC also allocates costs to cost objects assuming that resources work at available capacity which help the company to reveal the unused capacity which in turn helps in using this capacity or reducing its related costs and hence increasing profitability. TDABC also can be updated easily when adding or deleting activities through using time equations which save time and costs related to updating.

This thesis is prepared to discuss TDABC as a new ABC model that help companies to compete in the new business environment.

Dedication

To my parents
For their never ending love, encouragement, and support
Also,
To my lovely wife

To my parent in accounting
Prof. Mohamed Mostafa El Gebali

Also,
To my brothers

To all of them I wish to express my heartfelt appreciation for their devotion and support

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Introduction

***Research problem:**

Tremendous changes in competitive environment from 1930s until now affected cost accounting systems. These changes such as decrease of labor costs, increase in overhead costs, decrease of inventories,….etc. These changes led accountants to change their cost accounting systems to reflect the economic reality. Cost accounting systems have been changed from traditional cost accounting systems to activity based costing (ABC) system in 1980 when overhead costs increased both relatively and absolutely. Allocating overhead costs through bases like labor hours or machine hours as traditional systems do, don't give accurate results. ABC system solved most of the problems of the traditional cost systems by allocating overhead costs to activities and then to cost objects. This allows the organization to calculate the cost of each activity and know value added and non value added activities.

ABC system has many advantages that overcome most of the distortions caused by traditional systems but nothing is free from disadvantages. The process of interviewing and surveying employees to learn about the various activities and the time percentages allocated to these activities is time consuming and costly. Also, employees report time percentages that add up to 100% which means no idle capacity. Another problem in ABC is updating the model by means that adding new activities or deleting existing activities requires reallocating time again and re-interviewing employees in the organization which is time consuming and costly.

All these problems led to developing a new ABC model that overcomes most of the problems of ABC system. This new model, developed by Kaplan and Anderson in 2004, is called time driven activity based costing system. This system allocates costs directly to cost objects without the need to allocating it first to activities. This can be done using an elegant framework requiring only two parameters of estimates neither of which is difficult to obtain. The first is capacity cost rate which can be computed by dividing the costs of resources supplied by the available capacity of resources supplied. The second estimate is the capacity (time) required to complete each activity. TDABC system overcomes most of the problems of conventional ABC system. It reduces the time and cost of running the model by eliminating interviews and surveys to allocate costs to activities. TDABC system assumes that resources work at available capacity instead of theoretical capacity as conventional ABC does which in turn help the company to reveal idle capacity. The cost of this idle capacity can either be

reduced or used for more expansion which led to reducing total costs and increasing the profitability of the organization. TDABC also can be updated easily when adding or deleting activities through using time equations. This research discusses TDABC as a new ABC model that overcomes most of the problems of conventional ABC system and enables companies to reduce costs and increase profitability and hence compete in the new business environment.

***Research objectives:**

The research objectives can be divided into main objective and sub objectives as follows:

The main objective:

The main objective of the research is clarifying how the new model (TDABC) can be used to reduce costs and control profitability of the organization.

Sub objectives:

Besides the main objective of the research, there are two sub objectives that help in achieving the main objective. These objectives are:

1- Clarifying how TDABC system can be updated easier and faster through using the time equations which automatically allocate resource costs to activities and hence saves time and cost related to interviews and surveys which then help the company in controlling profitability.
2- Clarifying how TDABC system can help the company to reveal the unused capacity and its related costs which can then either be reduced or used for more expansion.

***Research questions:**

The research questions also can be divided into main question and sub questions as follows:

The main question:

To what extent the new TDABC model help the company reduce costs and increase profitability?

Sub questions:

1- How the new TDABC model can be updated when adding or deleting activities?
2- How the new TDABC model enables the company to make use of idle capacity?

***Research methodology:**

This study consists of two folds: a theoretical study presented in the first three chapters and a case study extended on the Egypt Company for aluminum presented in chapter four. The theoretical study discusses how the changes in business environment in 21st century affected cost accounting systems. These changes led to the transition from traditional cost accounting systems to ABC system. The study then discusses, in chapter 2, the major problems of ABC system and introduces a new ABC model, called time driven ABC that responds to changes in business environment and overcomes ABC problems. The study also discusses how TDABC can be used to reduce costs and control profitability of the organization. Chapter 3 discusses the main implications of using the TDABC model like creating a profit focused organization and improving the budgeting process. The study also discusses the new applications for the suggested approach. At the end of the theoretical study, the researcher discusses the method of applying the new model in the real life, the problems that may face the company when applying it, and the benefits that the company can achieve when applying it.

On the other hand, the case study discusses how TDABC can be applied in Egypt Company for aluminum and the benefits that the company can achieve from applying it.

***Research limitations:**

The research discusses the TDABC as a new ABC model for allocating costs to cost objects through extending a case study on the spare parts management in Egypt Company for aluminum. This management applies job order costing system. But the research doesn't apply the model on a company that applies ABC system which helps in clarifying the transition from ABC to TDABC overcoming ABC problems.

***Research plan:**

The research is organized into four chapters as follows:

- Ch1: The Implications of the Modified Firms up on Cost Accounting Systems.
- Ch2: The Time Driven Activity Based Costing Model.
- Ch3: The Main Implications of Using the Suggested Approach.
- Ch4: A Case Study.

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Chapter 1
The Implications of the Modified Firms up on Cost Accounting Systems.

Chapter 1: The Implications of the Modified Firms up on the Cost Accounting Systems.

1.1-Introduction:

One of the critical roles of managerial accounting is to eliminate, or at least try to minimize, non value adding activities throughout the value chain. The ultimate goal is to promote value adding activities. Non value adding activities lead to higher production costs, inefficiencies, and hence the loss of profitability Managerial accounting has always been charged with the responsibility to provide more accurate and relevant cost and other information to the managers for decision making (Gupta and Gunasekaran, 2005).

Most of users of information report that current performance measurement systems (PMS), while still somewhat effective, are not satisfactory. The existing performance measures based on financial, operational, and functional efficiency are inadequate for the new business models (Gupta and Gunasekaran, 2005).

While there were no significant improvements in managerial accounting practice from 1930s to 1980s, the last two decades have seen a renewed interest to push the frontiers of knowledge in this area. The old accounting system, which tells us the cost of material and labor, is not applicable. The emphasis has been to include non financial measures in the valuation and performance measurement models and to find control mechanisms for the new economy enterprises and how to make them more responsive to the global opportunities. One of the movements that help in achieving this is movement from cost accounting to cost management. Cost accounting is a hybrid of financial accounting and management accounting. It is concerned with the ascertainment and control of costs. It provides information on company's costs and may be used for both external and internal purposes. When cost accounting is used for external purposes, it measures the cost of production and sales in accordance with generally accepted accounting principles (GAAP). When used for internal purposes, cost accounting information provides the basis for planning, controlling, and decision making. Cost accounting and management accounting are closely related. A basic requirement for management accounting is the existence of a sound costing system to provide data for internal planning, control and decision making purposes. Cost management requires a deeper understanding of the cost structure of the firm; it combines elements from

three older fields: management accounting, production, and strategic planning. Horngren, Foster and Datar (2000) use this term to describe the activities of managers in short run and long run planning, and control of costs. Cost management not only focuses on cost reduction, but also on cost control and management. Thus, it has a broader focus (Hoque, 2003). Notable examples of innovations in cost management area include activity based costing (ABC), activity based management (ABM), balanced scorecards (BSC), just in time (JIT), total quality management (TQM), and theory of constraints (TOC).

However, most of these recent managerial accounting practice developments were for the traditional manufacturing organizations and may have to be significantly modified or even replaced with new techniques to take into consideration the realities of business models for new enterprise environments of the 21st century (Gupta and Gunasekaran, 2005).

The purpose of this chapter is to discuss the major changes in business environment and the impact of these changes up on cost accounting systems. As will be discussed later, cost accounting systems are used for cost management and control, product cost determination, and inventory valuation. The classical model of cost accounting has inventory valuation as its primary driver of financial information. The model, through the use of standard costs, functional overhead cost pools, and full cost construction methods, often based on labor allocation methods, focuses on establishing an accepted value for inventory rather than cost control or product cost determination. Today, because of the magnitude of changes in business environment, the errors of conventional costing are systematic and can affect too many decisions. These widespread changes have fundamentally altered the essential assumptions of conventional cost accounting. These changes such as, decrease of direct labor, increase of overhead costs, decrease of inventory, shortening of product life cycles, the speed of new product development, the complexity of product lines, and so on. All these changes have had a profound impact on the costs of operating a business. Using a conventional cost accounting approach in today's environment may provide distorted information to management, which can result in incorrect decisions (Harold, 1985; Brimson, 2007).

The chapter is organized into three sections as follows**: in the first section**, the researcher discusses the characteristics of a good costing system and then the traditional costing systems**. In the second section,** the changes in business environment, the major advances for managerial