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Current Trends of Application of Activity Based Costing (ABC): A Review

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Abstract

Activity-based costing (ABC) is a method for determining true costs. Though ABC is a relatively recent innovation in cost accounting, it is rapidly being adopted by companies across many industries, within government and other organizations like institutions, finance or service sectors. In the light of current practices, this paper emphasizes to understand the need and importance of ABC costing in the organizations. This is coupled with management methods, an extensive range of uses, empowering utilization of ABC information for a wide variety of company functions and operations such as process analysis, strategy support and time-based accounting, monitoring wastage and quality along with productivity management.

Index terms— activity based costing, value added activity, cost drivers.

1 Introduction

n recent years, companies have reduced their dependency on traditional accounting systems by developing activity-based cost management systems. Traditional costing systems have a tendency to assign indirect costs based on something easy to identify (such as direct labor hours). This method of assigning costs can be very inaccurate because there is no actual relationship between the cost pool and the cost driver. This can make indirect costs allocation inaccurate. Initially, managers viewed the ABC approach as a more accurate way of calculating product costs. But ABC has emerged as a tremendously useful guide to management action that can translate directly into The interest of manufacturer's in the ABC system grown significantly under the rapid growth of some markets especially in the manufacturing area, the increasingly growing indirect costs under the use of automated systems and the need for more accurate cost information to better manage the business and gain competitive advantages. Activity-based costing is a process where costs are assigned due to the cause and effect relationship between costs and the activities that drive these costs. Moreover, the ABC approach is broadly applicable across the spectrum of company functions and not just in the factory.

ABC reveals the links between performing particular activities and the demands those activities make on the organization's resources, so it can give managers a clear picture of how products, brands, customers, facilities, regions, or distribution channels both generate revenues and consume resources. The profitability picture that emerges from the ABC analysis helps managers focus their attention and energy on improving activities.

Productivity is critical for the long-term competitiveness and profitability of organizations. It can be effectively raised if it is managed holistically and systematically. Productivity measurement is a prerequisite for improving productivity. As Peter Drucker, who is widely regarded as the pioneer of modern management theory, said: "Without productivity objectives, a business does not have direction. Without productivity measurement, a business does not have control."

Measurement plays a very important role in the management of productivity. It helps to determine if your organization is progressing well. It also provides information on how effectively and efficiently the organization manages its resources.

An integrated approach to productivity measurement:

? Provides a comprehensive picture of the organization's performance. ? Highlights the relationships among different ratios and units, and allows the organization to analyze the factors contributing to its productivity performance. ? Helps diagnose problem areas and suggest appropriate corrective actions. ? Enables the organization to monitor its performance over time and against the performance of other organizations.

2 a) Resources and Various Cost Drivers

An activity is a specific task or action of work done. It can be a single action or an aggregation of several actions. For example: moving inventory from workstation 'A' to workstation 'B'. B is an activity that may require only one action. Production set-up is an activity that may include several actions.

3 i. Activity Driver

The best single quantitative measure of the frequency and intensity of the demand placed on an activity by cost objects or other activity. It is used to ii. Activity Work Performed by people, equipment, technologies or facilities. Activities are usually described by the 'action-verb-adjective-noun' grammar convention. Activities may occur in a linked sequence and activity-to-activity assignments may exist.

iii. Cost Object Any product, service, customer, contract, project, process or other work unit for which a separate cost measurement is desired. iv. Resource A resource is an economic element needed or consumed in performing activities. For example: Salaries and supplies are resources needed or used in performing manufacturing activities.

4 v. Resource Driver

The best single quantitative measure of the frequency and intensity of the demand placed on a resource by other resources, activities, or cost objects. It is used to assign resource costs to activities, and cost objects, or to other resources.

5 vi. Resources Economic

Elements that are applied or used in the performance of activities or directly support cost object. They include people, materials, supplies, equipment, technologies and facilities.

6 b) Explanations to Resources and Various Cost Drivers

A cost driver is a factor that causes or relates to a change in the cost of an activity. Because cost drivers cause or relate to cost changes, measured or quantified amounts of cost drivers are excellent bases for assigning resource costs to activities and for assigning the cost of activities to cost objects. A cost driver is either a resource consumption cost driver or an activity consumption cost driver.

A resource consumption cost driver is a measure of the amount of resources consumed by an activity. It is the cost driver for assigning a resource cost consumed by or related to an activity to a particular activity or cost pool. Examples of resource consumption cost drivers are the number of items in a purchase or sales order, changes in product design, size of factory buildings, and machine hours.

An activity consumption cost driver measures the amount of an activity performed for a cost object. It is used to assign activity cost pool costs to cost objects. Examples of activity consumption cost drivers are the number of machine hours in the manufacturing of product X, or the number of batches used to manufacture Product Y.

Value-added activity: Value-added activities change the form, fit or function of a product or service. These are things for which the customer is willing to pay. Non-Value-added activity: Activities that do not add value to the process are called non-value added activities. These activities do not help create conformance to the customer's specifications, and are something for which the customer would be unwilling to pay for.

The difference of value added activities and non value added activities are tabulated in table 1.

7 Aims and Objectives of Study

With ABC, an organization can soundly estimate the cost elements of entire products and services. That may help inform a company's decision to either. Identify and eliminate those products and services that are unprofitable and lower the prices of those that are overpriced. Or identify and eliminate production or service processes that are ineffective and allocate processing concepts that lead to the very same product at a better yield. In a business organization, the ABC methodology assigns an organization's resource costs through activities to the products and services provided to its customers. ABC is generally used as a tool for understanding product and customer cost and profitability based on the production or performing processes. As such, ABC has predominantly been used to support strategic decisions such as pricing, outsourcing, identification and measurement of process improvement initiatives.

8 4

Value added activities essentially change the product or service and the customer is willing to pay for them.

In essence it is something the customer is not willing to pay for.

9 5

Providing worth or merit to an activity as defined by the customer.

No merit or worth to an activity as defined by the customer.

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11 D

Therefore, a study has been carried out to apply this technique in order to derive maximum advantage in a manufacturing setup. The basic intents are as follows:

? To study the ABC technique in comparision with traditional form of costing.

12 P oint Value Added Activity Non Value Added Activity

? To remove the distortions caused by traditional

? That is because activity-based management takes the best attributes of absorption-based. ? To determine the cost variables.

? To devise the methodology for optimization of cost.

13 III.

14 Literature Review

The selection of the right cost calculation method is of critical importance when it comes to determining the real product profitability as well as clients and other calculation objects. Traditional cost calculation methods often provide false information. The literature offers many examples of big companies that have given up traditional methods and applied a new method: Activity-Based Costing (ABC). They discovered that many products that are manufactured generate losses and not profits. Managers, based on incorrect calculations, mistakenly believed in the profitability of each product.

ABC contends that this approach captures the economics of the production process more closely than traditional unit-based cost systems, thereby providing more "accurate" cost data as said by **??**ooper and Kaplan (1988) [1].

Cooper (1991) [2] further suggested that ABC approach measures the costs of objects by first assigning resource costs to the activities performed by the organization, and then using causal cost drivers to assign activity costs to products, services, or customers that benefit from or create demand for these activities.

Similarly, Carol fi (1996) [3] explained that ABC advocates claim of activity-based costing systems providing detailed information on the value-added and non-value-added activities performed by the organization, the costs associated with these activities, and the drivers of activity costs. This information allows managers to reduce costs by designing products and processes that consume fewer activity resources, increasing the efficiency of existing activities, eliminating activities that do not add value to customers, and improving coordination with customers and suppliers. The increased information about activities and cost drivers is also expected to enhance quality improvement initiatives by identifying the activities caused by poor quality and the drivers of these problems.

Many non-value-added activities such as counting, checking, and moving increase the duration of a process or are driven by the amount of time a product takes in an activity. By identifying activities that cause non-value-added time, ABC can assist in justifying investments in cycle time reduction and provide the detailed information needed to minimize delays as said by Borthick (1995) [4]. Hutton et al. (1996) [5] examined the role of activity based costing (ABC) in a logistics management environment. Drawing upon literature from the areas of management accounting, logistics management, and production management, the authors argue that logistics concepts reveal that many cost reduction programs carried out in an ABC environment are inappropriate. The use of logistics techniques will reduce complexity; this has significant consequences for ABC systems and organisational structures.

Krumwiede (1998) [6] suggested that the critical success factors change at different stages of implementation for information innovations such as ABC. Using mostly contextual and organizational factors found to be associated with ABC success in prior studies, this study tests how these factors affect ten stages of the ABC implementation process. Based on a survey of U.S. manufacturing firms, different factors become important as higher stages of ABC implementation are reached. Evidence is also found that the direction and level of importance for many factors varies by stage. For instance, a high quality information system may lead to rejecting ABC before adoption or abandoning it after implementation has started, but it also appears to enable reaching the highest implementation stage. Studies that combine ABC firms from several implementation stages to test certain success factors may distort their significance levels or reject other factors that are only important for certain stages.

The essential conditions for activity based costing (ABC) and for costs proportional with output volume (CVO), such as variable material and component costs, to measure economic costs defined as incremental costs by Bromwich & Hong (1999) [7]. Without this property these costing systems may give incorrect signals in decision making, such as in pricing, in altering the product portfolio, in make or buy and outsourcing decisions and in cost management.

Marinus & Bouwman (2002) [8] investigated the improvement in financial performance that is associated with the use of Activity-Based Costing (ABC), and the conditions under which such improvement is achieved. Internal auditors furnish information regarding company financial performance, extent of ABC usage, and enabling conditions. Confirmatory factor analysis and structural equation modeling are used to investigate the relationship between ABC and financial performance.

Michael et al. (1998) [9] described conditions under which both conventional costing and linear activity-based costing can yield poor approximations to actual expenditures. The results for linear activity-based costing shows that linear activity-based costing may not Y 2013 ear ( ) D of ABC usage and a comparison of the results of the two surveys. Adoption rates were found to be similar, with NZ companies showing slightly lower rates of implementation of ABC than UK companies William et al. (2003) [10]. However, once they had implemented the method, NZ companies demonstrated greater commitment to ABC across more areas of the firm than UK companies. Strong correlations were found in the costing systems in direct and indirect costing. different uses of ABC by industry sector, but there were contrasting perceptions on the success and importance of some ABC applications. Innes et al. (2000) [11] reviewed the results of two UK surveys of activity-based costing (ABC) in the UK's largest companies. These provide an opportunity to assess the changes which have occurred in the ABC adoption status of companies over a recent five year period. For the ABC users, some comparative information is provided on the nature of the ABC systems in use, their designers, the uses to which they have been putting and the levels of success and importance which participants attribute to them.

According to Agliati (2002) [12] the basic feature of the costing systems in a multinational enterprise can be analyzed with respect to four aspects: the structure of the industrial product cost, the methodology adopted to trace costs into the cost pools, the allocation methods followed to post costs to the reporting subjects, and the methodologies devised to support comparisons between service and support costs.

Roztocki (2001) [13] examineed the use of the Integrated ABC-and-EVA Information System for the management of new technology projects. The advantages of integrating the Activity-Based Costing system with the Economic Value Added financial performance measure and the positive impacts of this integration on project costing. Further, Kerr & Larson (2002) [14] present that ISO 900 and Activity Based Costing (ABC) are two useful tools for logisticians. Both of these tools can support efforts to improve customer service and/or reduce total costs. They investigated whether these two techniques are implements together as complements, are kept separate, or are considered competitors for scarce resources (money, time and talent). They revealed that relatively few firms are using both ISO and ABC. They suggests that practicing logisticians view ISO and ABC as separate initiatives. While the quality systems group led the charge to ISO registration, Finance and accounting implemented the ABC model. Bjornenak & Mitchell (2002) [15] analysed the activity based costing literature which has been accumulated in the UK and USA accounting journals over the fourteen year period since the first articles on ABC emerged. This evidence is used both longitudinally and cross sectionally to gain insights into how ABC started, how it has been communicated, how it has been researched, how it is constituted, how it has generated attention and how it has developed and changed. Roztocki & Weistroffer (2005) [16] propose a framework for evaluating information technology investments, integrating value chain analysis with activity-based costing and fuzzy logic. The proposed method should be particularly useful for businesses in emerging economies, where an uncertain economic environment is often combined with a lack of dependable, historical accounting data. [17] presented the theory and practice of cost management. The initial developments in activity-based costing, and issues in activity-based costing implementations such as factors influencing its success, degree of interest and adoption, and its relationship with firm value along with case studies are reviewed. The strategic cost management issues such as customer profitability analysis in a value-chain analytic and life cycle costing framework are reviewed. Out of the 53 firms, 26 respondent firms are using activity-based costing for product pricing and operational feedback in Corporate India. The examination of responses conditional on ABCM-adoption revealed that the firms which have adopted ABCM were significantly more successful in capturing accurate cost information for value chain analysis and supply chain analysis as compared to the firms which had not adopted ABC. To have detailed information on value-added and non-value added activities followed by the need to be competitive in the industry in terms of price, quality and performance is the major motivation for the introduction of the activitybased costing in Corporate India.

A lot of practitioners explain that ABC systems are expensive to implement, time consuming and hard to adjust. For instance, [18] described the ABC system of Hendee Enterprises, a Houston-based manufacturer of awnings. They explain that the ABC software took three days to calculate costs for the company's 150 activities, 10,000 orders and 45,000 line items. McChlery et al. (2007) [19] stated that financial pressures facing UK universities have increased the demand for good financial management information. The government wants higher education institutions to adopt standardized full economic costing. This article describes an activity-based management (ABM) model which has been successfully used to cost institutions' activities down to appropriate levels of focus, linking the activities to income streams and arriving at a form of value added. The model is extremely flexible Y 2013 ear ( ) D allowing information to be collected for different levels of focus: faculty, department, programme, module/project or support unit.

Feridun & Al-Khadash (2006) [20] investigated the link between the practice of Activity Based Costing (ABC), Just-in-Time (JIT), and Total Quality Management (TQM) as strategic initiatives and the improvement in corporate financial performance of 56 industrial shareholding companies in Jordan. Analysis shows that 26.8%

of the companies under consideration use at least one of the strategic initiatives. The awareness level of the importance of using the strategic initiatives is found to be significantly high among the financial managers, but such awareness is not reflected in the implementation of these initiatives. Furthermore, strong leads to improvement in financial performance of the companies under consideration. Askarany et al. (2007) [21] presented that for past two decades, it has been argued that traditional management accounting practices have failed to cope with the requirements of technological changes in manufacturing practices. It has been claimed that traditional management accounting techniques are unable to satisfy the users of such techniques in terms of providing them with timely and detailed information. In response to this issue and to overcome the shortcomings of traditional management accounting techniques, activity based-costing (ABC) was introduced in 1980s. The level of implementation of ABC is still lower than those of traditional management accounting techniques.

Askarany & Yazdifar (2007) [22] used the results of two survey studies to explore the most important contextual factors influencing the implementation of activity based-costing across firms. Using the results of above surveys, they examines the level of association between attributes of innovation and the diffusion of activity based-costing. The findings suggest that the relatively low implementation of ABC across firms implies that decision makers remain unconvinced that whether ABC's advantages over traditional accounting techniques are high enough to pursue them to implement ABC in practice. In other words, they suggest that one of the main influential factors significant to the implementation of ABC links to its attributes in terms of its relative advantage over traditional techniques; its complexity; its compatibility; the observability of its results and its trialibility.

Venieris & Cohen (2005) [23] claimed that ABC is most suitable for companies employing flexibility in manufacturing, as it is a vehicle for more accurately depicting cost causation when the level of overheads increases. Furthermore, the benefits of flexibility in production can only be visible when sophisticated cost accounting systems, such as ABC, are implemented. Manoj [24] stated that difficult time has its own merits. This is as truer for an individual as much it is for an organization. During this time the entire organization gets an opportunity to display its resilience through its innovative skills and creative abilities which otherwise would decay in dark anonymity in the brightness of prosperity. Anand et al. (2005) [25] have given a study of activity-based cost management practices being followed by the corporate India. The aim is to understand whether corporate India practices cost management in a value-chain analytic framework. A nationwide survey has been conducted to capture the issues in the design and applications of contemporary cost and performance management tools. The examination of responses conditional on ABC-adoption revealed that the firms who have adopted ABC were significantly more successful in capturing accurate cost information for value chain analysis and supply chain analysis vis-a-vis the firms who had not adopted ABC.

Kaplan and Anderson (2007) [26] described a Time-Driven Activity-Based Costing (TDABC) approach to overhead allocation. This is in integration with a Lean environment in order to help provide accurate product unit costs. Actually, the TDABC requires less accounting transactions than the common ABC allocation method and still turns out an accurate computation of product unit costs, which suggests that it can coincide more with the lean accounting approach to waste elimination. Askarany, et al. (2007) [27] present that even though academics, management accountants and ABC adopters comment on how advantageous the ABC is, its rate of implementation is still low compared to that of the traditional costing allocation method.

Dimitropoulos (2007) [28] described that the costing systems in recent years have shown a significant development and activity-based costing (ABC) specifically has been considered as a major contribution to cost management, particularly in service businesses. The sport sector is composed to a great extent of service functions, yet considerably less have been reported of the use of activity based costing to support cost management in sport organizations. Since the power of information becomes continuously crucial for the implementation of effective business administration, the traditional methods of cost measurement proved insufficient on this issue, leading to the invention of ABC.

According to **??**ruggeman Charles & Hansen (2008) [30] stated that, with regards to the current competitive environment and product diversity, there should be no doubt that accurate product-cost information is critical for decision makers in organisations. ABC is a more accurate product-costing system than traditional volume-based costing systems especially when organisations are facing higher product diversity. Baykasoglu & Kaplanoglu (2008) [31] present that many industries are trying to make better use of SCM by implementing a variety of different techniques such as just-in-time (JIT), total quality management (TQM), lean production (LP), computer generated enterprise resource planning schedule (ERP), Kaizen and activity-based costing (ABC). Among recently developed techniques (such as above), ABC can be considered as one the most talked about techniques for improving SCM and performance in organizations. As narrated by Qian and Ben-Arieh (2008) [32] the role of cost estimation for products and services has become more critical now a days. Before the modern business management times, accounting was being just used to record the costs of products and/or services. However, the important role of cost estimation and cost information appeared after the arrival of modern business management techniques. This is because traditional cost accounting systems were not able to satisfy the needs of modern business management.

Sharma and Gupta (2010) [33] represented that in the present scenario of cut-throat competition, both on price and quality, increasing consumer demands and product differentiation, the traditional costing system has become obsolete and even have led to strategic failures in many organizations when various costs especially the overheads, are incorrectly allocated to product lines. In the historical development of concepts and techniques

of cost it accounts that have shifted the attention of management practitioners toward alternative methods of costs allocation. Exploresing the past, current, and future trends of cost accounting in Indian companies, they highlights the distinctive features of Activity-based costing vis-ii-vis conventional costing methods and the Activity-based costing implementation process. It shows that Activity-based costing is a definite improvement over the traditional methods on the premise that the costs are collected on the basis of activities rather than products and it can effectively contribute to the top managerial decision-making process. They examined the feasibility of hybrid methods of costing and its use by Indian companies. Finally, they establishes that in spite of superiority of Activity based costing over other costing methods, awareness about it and its implementation is still low in India as compared to the developed countries.

Lutilsky and Dragija (2012) [34] presented possibilities and constraints for implementation of the Activity Based Costing (ABC) method, as a full costing method, at European universities. They investigated the current practice and trends in developing the cost allocation method at universities in the European Union. They analyzed trends and current movements at universities in the EU countries and the major problems in setting the ABC method at a university. By using this information, they proposed guidelines for the develop-ment of a full costing system at the University of Zagreb that is based on the following parameters: categories of costs, main activities, cost objects and cost drivers. They show that despite public demands for efficient managing within universities, still, a very small percentage of universities have implemented full costing systems. The most important obstacles for that are: resistance to change, non-reliable data in current account systems, lack of management will and legal barriers. Furthermore, they explains that one of the challenges involved in implementing full costing systems seems to be the fact that universities are still income oriented than cost oriented. Nevertheless, positive trends in implementing a full costing method, respectively the ABC method, are obvious. They highlighted universities in Portugal and Liverpool as universities that have successfully implemented the ABC method as well as all drivers, barriers and benefits that came out from that implementation. [35] described that in the modern economic environment, the Public Sector aims at the continuous improvement of quality of the provided services. Thus, detailed information with regard to the cost of services is essential along with capable management to take advantage of this information. They studied that the basic beginnings, the processes of activity-based costing and the costing method can be applied in the Public Sector, where the need for precise cost estimating information increases continuously. In results they referred to the structure of a Greek Prefecture, with all the organized divisions and departments. At first, the new method of cost accounting is analyzed. Thereafter, the advantages of this method were pointed and then, follow the application in a specific Department of the prefecture where the results were delivered to the Administration of department under review, for the decision making. The case study was conducted using the Activity-Based Methodology in order to calculate the true cost of individual operations and to measure the profitability of particular transport lines. The case study analysis showed the possible effects of the application of the Activity-Based Costing for an urban mass transport company as well as the limitations of using the ABC methodology in the service industry. Their emphasis is with regards to the application of the ABC methodology, the primary limitation of the accuracy of the conclusions is the quality of the non-financial information which had to be gathered throughout the implementation process. A basic limitation of the accurate data acquisition is the nature of the fare system of the transport company which does not allow the identification of the route that is taken by an individual passenger. The study illustrates the technique of ABC in urban mass transport and provides a real company example of information outputs of the ABC system. The users indicated that, the ABC model is very useful for profitability reporting and profit management. Also, the paper shows specific application of the Activity-Based Methodology in conditions of urban mass transport companies with regional specifics. [37] stated that in today's competitive environment, profitability analysis is not just about looking at the profit and loss statement. It is more about knowing which of your customers are making you money and which are losing you money. This paper considers how activity-based costing approach may complement a customer relationship management effort. The model presented in this paper combines the principles of activity-based costing with performance measurement. Applying this model helps managers understand the true costs of providing products and services, and the factors that drive these costs, while addressing other concerns such as customer satisfaction. This approach has the potential to integrate all business processes around the requirements of significant profitable customers, a fact that most of the previous researches fail to acknowledge. [38] shows that within Romanian companies' contemporary practices, tools and techniques are still widely adopted than recently developed ones. Romanian practitioners seem to be satisfied with the existing cost systems; the adoption rates of ABC are low and vary between 6% and 12%; while the majority heard about the method but never considered implementing it. Resistance and lack of interest and support from the management, high implementation costs and complicated work processes were considered to be the main challenges identified within companies coming from industries like manufacturing, services or trade.

15 Vazakidis et al. (2010)

16 Shafiee et al. (2012)

17 Jinga et al. (2010)

Cannavacciuolo (2012) [39] presented a model based on activity based costing and analytic hierarchy process to assess the impact of individual competencies on value creation and its application to a case study of a small manufacturing firm. The model is designed to support managers to deal with the following concrete situation: suppose that a company has decided to acquire a new type of equipment/technology to improve a process and deliver a superior performance to its customers, and suppose that this change requires in turn the acquisition of one or more individual competencies. The model will support managers to answer to these questions: what is the cost of acquiring the new competence compared with the value generated by the improved process? Is it preferable to develop the competence internally or to acquire it on the market? In general, we argue that the proposed method can support managers to lay out a systematic description of the problematic link between individual competencies, organizational capabilities and critical market performances. Through the development and application of an analytical tool, this work intends to contribute to bridge the literature on the evaluation of individual competencies with the strategic interpretation of production competencies as organizational distinctive assets for value creation and as sources of sustained competitive advantage.

Dejnega (2011) [40] presented a literature review of the method Time Driven Activity Based Costing, like an instrument to better assignment of costs to activities and their comparison with antecedent method Activity Based Costing. Paper shows the implementation of this method in the condition of manufacturing corporations, distribution centres, agriculture, but also in the field of services, especially in the hospitality. The article is trying to point out the benefits of this method for whole range of companies without difference to branch classification, determine base presumptions for implementation, but also disclose some drawbacks in the application of this new method in the practice with help of case studies, which have been published until this time. The aim of paper is to find out the base principles of method Time Driven Activity Based Costing in its right application.

Terungwa (2012) [41] looked at the practicability of implementing time-driven activity-based costing system (TD-ABC) in small service businesses in Benue State and analyzes profitability of its varying customers. This research is carried out to establish if the application of TD-ABC in small scale service oriented businesses in Makurdi metropolis of Benue State will enhance their performance in terms of profitability. Regarding the goal of this study, the research design is an application research by case study. The researcher randomly selected out of the identified small scale service businesses one Restaurant and studied it using questionnaires, interviews to get data for this work. The result showed that using TD-ABC system, in comparison with their existing method provides more data on cost and profitability of customers served. The conclusion was that managers of small service businesses can make use of time equations in TD-ABC to calculate necessary time for activities engaged in delivering a unit of service. The recommendation is that small service businesses should implement TD-ABC to enhance their cost accumulation process and pricing of services, hence increase their profitability. Ringelstein (2009) [42] stated that the aim of using an Excel Spreadsheet as a teaching instrument for an Activity-Based Costing assessment task is to motivate students and to provide them with the opportunity to learn computing skills as well as cost accounting techniques. The assessment task is designed to encapsulate the skills required to create a complex spreadsheet using various commands.

Students work individually on the assessment task using a framework provided to assist them to construct the various layers within the activity-based cost model. The use of computer technology assists students to gain a personal understanding of the issues, and to develop a specific set of skills that are useful for management accountants. This task encourages students to learn and develop critical analytical skills. Furthermore, this paper describes and explains an approach to integrating VB macros into key stages of learning progression.

The ABC aims to analyze the effects of classical (volume-based) and activity based budgeting approaches on target costing practices via a hypothetical application. Also, it is assumed that preferring activity based budgeting rather than the classical one will increase the probability of success of target costing practices. The underlying logical base of this assumption is that in target costing, the specific properties of any product and the required resources to produce it are determined before the production begins, but in classical costing not "Bengu (2010) [43]".

18 Monroy et al. (2012) [44] illustrated that

Choosing an appropriate accounting system for manufacturing has always been a challenge for managers. In this article they attempted to compare three accounting systems designed since 1980 to address problems of traditional accounting system. In the first place they present a short overview on background and definition of three accounting systems: Activity based costing, Time-Driven Activity Based costing and Lean Accounting. Comparisons are made based on the three basic roles of information generated by accounting systems: financial reporting, decision making, and operational control and improvement. The analysis reveals how decisions are made over the value stream in the companies using Lean Accounting while decisions under the ABC Accounting system are taken at individual product level, and finally show how TD-ABC covers both product and process levels for decision making. In addition, they shows the importance of nonfinancial measures for operational

control and improvement under the Lean Accounting and TD-ABC methods whereas ABC relies mostly on financial measures in this context. [45] stated that expenses of indirect resources are allocated to the different activities via resource drivers. Besides, activity drivers represent the consumption of activities by the different cost object. According to Bogdanoiu (2009) [46] it can be said that ABC models the causal relationships between products and the resources used in their production and traces the cost of products to the activities through the use of appropriate cost drivers.

19 Bruggeman et al. (2010)

Wegmann (2009) [47] analysed the management accounting applications which try to improve the Activity-based Costing method. In the first part, he described them using the Strategic Management Accounting stream. Then, present the main features of these applications. In the second part, examined in details two of these features: The widening of the analysis perimeter and the relevant level of details to analyse the costs. Then, analysed several proposals: Customer Profitability Analysis (CPA), Interorganizational Cost Management (IOCM), Resource Consumption Accounting (RCA) and Time-driven ABC (TDABC). Finally, described an experience observed in the IT supply European division of an international group.

Popesko (2010) [48] presented the detailed consequences of putting in place an Activity-Based Costing system and its structure within the manufacturing industry. He has conducted a number of ABC system applications in manufacturing industries in order to gather the data and information necessary to define application and allocation principles. He determines the methodology of building an ABC system, looking at the essential steps necessary to construct a system in an organization. The other thing which he describes is cost allocation methodology, which is performed within separate stages of implementation. The main thing is the methodological steps within ABC implantation, which include a feasibility study and review, activity and cost object definition, assigning costs to activities, defining the appropriate cost drivers for individual activities, determining the output measures for individual activities, calculating the primary rates of individual activities, assigning the costs of support activities to primary activities, and calculating the costs of defined cost objects. Popesko and Novak (2008) [49] suggested that Porter model could prove useful as a framework for an activity structure especially suited to manufacturing industries. Porter classified the full value chain as nine interrelated primary and secondary activities. These activities are then further delineated into primary activities that add value to the product from a customer point of view, and support or secondary activities, which ensure the efficient performance of the primary activities. Even though Porter's model has received criticism for its tight focus on operational activities and for neglecting innovation and service processes, its foundation proves very suitable for the construction of a company costing system. The activities identified might also be collated within aggregate processes, which could relate to specific cost objects.

In today's intense global competition, supply chain management (SCM) is as a vital tool for helping managers to improve productivity, profitability and the performance of their organisations. In doing so, SCM requires more accurate cost data regarding all activities and processes within the organisations. Activity-based costing (ABC) can significantly contribute to global supply chain management as it is suggested to fulfil the above requirements by providing more accurate, detailed and up-to-date information on all activities and processes in organisations. Contributing to the SCM and ABC literature, current study identifies different types of improvements which ABC can offer to SCM and the performance of the organisations, and it also examines the extent of association between business size as well as business industry. To improve SCM and organisation's performance by increasing the adoption of ABC in organisations, one of the main implications of the findings is that the adoption of ABC in smaller firms needs more attention compared with the larger firms regardless of their industries (manufacturing versus nonmanufacturing firms). However, when the decision is made to implement ABC, non-manufacturing firms (rather than manufactur-ing firms) need more attention to proceed with a higher level of adoption of ABC as explained by Askarany et al. (2009) [50].

Wegmann (2010) [51] additionally analysed the strategic management accounting concept with an instrumental point of view. He tried to show in what extend the ABC developments could be included in a strategic approach of the management accounting and to test if the ABC is a relevant tool to drive the strategy. He explains that the ABC method seems to be a relevant strategic management accounting tool. Its features should permit a refined analysis of the organizational architecture so that the link between the operational and strategic management could be understand. Then he test this hypothesis using a "state of the art" approach.

More recently, Alcouffe et al. (2010) [52] have developed a typology of environmental cost drivers. [53] portrays the Activity-based Costing and Management methods applied in France. They analyze the origins of the methods and their diffusion. Then they present the French situation. Finally, propose a case study that takes place in a French bank. They shows that the ABC and ABM methods are as developed in France as in the Anglo-Saxon countries and that the methods are strategically oriented. [54] detailed that in France, like in the USA, ABC was considered as a remedy for the crisis of management accounting. Now, the level of diffusion in France is as important as in Anglo-Saxon countries. Not surprisingly, the ABC method is more developed in western countries than in China. Chinese scholars began to do researches on ABC in the 1990s and at the beginnings of the 21st century, we can observe some ABC implementations in Chinese manufacturing enterprises and then in the service industries. He finds a similarity between the Chinese and French situations. In France,

he observed some resistances to the Anglo-Saxon way of manage firms and at the beginnings, a tool like ABC has been strongly criticised.

Segovia1 and Khataie (2011) [55] presented that the ultimate reason for firms to adopt Activity-Based Costing and Management (ABC/M) is to improve their financial performance by managing their cost in such a manner that they control them and thus can reduce them. There is a significant difference between cost control and cost reduction. Companies can reduce their costs without necessarily controlling them. Cost control generally leads to intelligent cost reductions, e.g. lean companies. He states that in today's global and competitive business environment, cost control has become a decisive variable in the firm's financial success. The main objective is to shed some light as to whether, how, when, and where telecommunication companies can adopt ABC/M as a means for an effective cost management. It provides evidence as to whether or not ABC/M does have a positive effect on the firm's financial performance. Gamal et al. (2012) [56] presented that in today's global market, a change in strategic and manufacturing practices to a more customer focused system such as the lean manufacturing/lean management system becomes crucial to help companies achieve a good competitive position. At the same time, the current traditional costing system is almost outdated with respect to lean manufacturing systems. The development of a lean accounting system may have resolved the problems faced by lean firms due to their traditional costing systems. However, the suggested lean accounting Value Stream Costing (VSC) tool proposes another dilemma with respect to the conditions required for its effective implementation especially when it comes to the necessity of eliminating shared resources. His study sets a framework that integrates Activity-Based Costing (ABC) in a lean Y 2013 ear ( ) D environment in a condition where shared resources are still present. He has conducted a case study on one factory of a multinational manufacturing company operating in Egypt which has recently moved to lean manufacturing. The suggested ABC framework is used to compute the product unit cost for one of the factory products. Within the implementation of the suggested framework different approaches to product costing in lean firms has been compared. The findings of the study gives positive implications of the use of ABC, in the studied factory given a condition of shared resources, which helps the Company's studied factory to achieve a good competitive position.

However, a recent study by Stratton et al. (2009) [57] showed that the use of ABC as a costing tool is still relevant among its adopters. Even managers of non ABC firms desire the implementation of ABC and consider it an ideal costing tool. He mentioned that such desirability and consideration of ABC projects an expected increase in ABC adoption in the future too.According to Narong (2009) [58] Activity-Based Costing (ABC) is an approach that assigns costs in an objective way through the "cost and effect relationships" in which each activity cost is identified and assigned to each product or service only if such product or service utilizes the activity. The application of ABC has lead to computing more accurate and reliable product unit costs. This motivates managers to depend on their accurate costs not only to take better short term decisions but also better long term strategic ones that affect product design and product processing activities.

Askarany et al. (2012) [59] contributed to the analysis of the factors influencing the adoption of ABC by assessing the contribution of the characteristics of an innovation on adoption. Specifically, they applies innovation diffusion theory to examine the impact of five characteristics of an innovation, and organisation size, industry and location on the decision to adopt activitybased costing (ABC). The best model specification arises when organisations that have adopted ABC are compared with those that have rejected it. The results reveal that organisations are more likely to adopt ABC when they attach a high level of importance to the relative advantages offered by innovations, are large.

According to Swenson & Everaert (2012) [60] the target costing emphasizes cost reduction at the product design stage of the product development cycle, before most product costs are committed or "locked in." Their active learning simulation demonstrates how a management theory is relevant to a business improvement initiative (target costing). As a part of the target costing simulation, student participants work in teams to address a business issue that cuts across functional boundaries. In addition to the accounting function, a target costing initiative requires participation from sales, marketing, and design engineering. Therefore, the simulation begins with the students learning how to build and develop an activity-based product cost for a model truck. In his study the some students are divided into teams and are instructed to reduce the truck's cost through a re-design exercise, subject to certain customer requirements and quality constraints. Half of the teams are assigned a specific cost reduction target, and the other half instructed to reduce costs "as much as possible." Students then strive to reduce the cost of the truck's design by eliminating unnecessary parts, by using less expensive parts, and by using less part variety. As the student teams evaluate potential new designs, they actually use detailed activity cost information from the product costing system to guide their design decisions.

20 IV.

21 Discussion

From the review of literatures it is evident that ABC can be used every type of organization; be it a industry, finance, institution or service sector. The salient findings from the survey, the following inferences as a point of discussion can be made: increasing the adoption of ABC in organisations, one of the main implications of the findings is that the adoption of ABC in smaller firms needs more attention compared with the larger firms regardless of their industries (manufacturing versus nonmanufacturing firms). However, when the decision is

made to implement ABC, non-manufacturing firms (rather than manufacturing firms) need more attention to proceed with a higher level of adoption of ABC. ? The ultimate reason for firms to adopt Activity-Based Costing and Management (ABC/M) is to improve their financial performance by managing their cost in such a manner that they control them and thus can reduce them.

V.

22 Conclusion

This paper revealed that the model of activity based costing can be used in every type of organization. It has been successfully implemented and used by many large companies like industries, institutions, or public sector. Based on the literature survey we found that: ? The activity-based costing implementation revealed numerous organizational changes, which resulted from the process of implementation, such as closer connection between management accounting and other operational functions. ABC and any other costing system are not static; it can be established, therefore, like organizations change and business conditions, ABC needs to be updated and maintained. Finally, in transferring its clear picture, ABC has ability to make champions of individuals of specific goods or services. ? Activity-Based Management methods have a broad range of uses, permitting the empowering utilization of ABC information for a wide variety of company functions and operations such as process analysis, strategy support and time-based accounting, monitoring wastage, as well as quality and productivity management. ? ABC provides information for strategic decisions, such as product mix and sourcing decisions that is consistent with the long-run nature of these decisions.

? ABC allows product designers to understand the impact of different designs on cost and flexibility and modify their designs accordingly. ? ABC supports the continuous improvement process by allowing management to gain new insights into activity performance, by focusing attention on the sources of demand for activities and by permitting management to create a behavioral incentive to improve one or more aspects of manufacturing. ? ABC is a tool for managing complexity in manufacturing. ABC provides activity-based information to help managers understand and eliminate complexity. It is also a communication tool between production and marketing and product design that helps minimize product changes which create unnecessary complexity. ? The ABC designer can use the rules of ABC design to simplify the system without sacrificing the accuracy of product cost. A well designed ABC system will also have no more detail than that required by the manufacturing environment. [1]

Figure 1:

[1] © 2013 Global Journals Inc. (US)

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Non Value Added activity

Figure 2: Table 1 :

? Activity Based Costing (ABC) provides more accurate cost data as compared to traditional based costing system. So provide detailed information on the value-added and non-value-added activities performed by the organization.
? Traditional costing system has led to strategic failures in many organizations when various costs especially the overheads, are incorrectly allocated

2013 to product lines. ? Costing method can be applied where the need for precise
Y cost estimating information increases ? Activity-Based Costing approach may
ear complement continuously.

a customer relationship management effort. The principle of activity-based costing reflect the performance of the company, thus enable to do cost effective business with competitors. In other words, it works as a yardstick of benchmark business performance.
? Applying this model helps managers understand the true costs of providing products and services, and the factors that drive these costs, while addressing other concerns such as customer satisfaction.
? The implementation of ABC is not only in the condition of manufacturing corporations, distribution centres, agriculture, but also in the field of services,

(especially in the hospitality. ? By using TD-ABC system, in comparison existing
)

method provides more data on cost and profitability of customers served. The managers of small service businesses can make use of time equations in TD-ABC to calculate necessary time for activities engaged in delivering a unit of service. The

[Note: Drecommendation is that]

Figure 3:

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