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REVIEW ARTICLE

Cost Accounting Techniques Adopted by Manufacturing and Service Industry within the Last Decade

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Abstract

The purpose of this study is to review the literature on cost accounting techniques being practiced by manufacturing and service industry within the last decade. Virtually all techniques that are appropriate for manufacturing companies are also appropriate for service companies. However, the most common techniques in manufacturing companies include Just in Time (JIT), Activity Based Costing (ABC), Target Costing, Life Cycle Costing, Throughput Accounting and Kaizen costing while Activity Based Costing is the most commonly used technique in Service sector. However, Activity Based Costing, Budgetary, Control, Cost Volume profit analysis, and standard costing are common to both manufacturing and service sectors. In contrast to the postulations of many academic authors that the traditional techniques have lost relevance and should be discontinued, this review shows that traditional techniques including the heavily criticized Standard Costing, Absorption Costing and Marginal Costing were still used frequently by many companies within the last decade. The modern costing techniques used frequently within last decades include; Just in Time principle, Activity Based Costing, Target Costing, Life Cycle Costing , Kaizen Costing and Throughput Accounting. The usage of the techniques depends on the situation on the ground, that is, the level of technological advancement, the size of the company, organizational culture and stage of the product.

Introduction

The information system that provides both financial and non-financial information relating to the cost of acquiring or using the resources of the organization is a long standing and inevitable part and parcel of every business. Managers use cost accounting information to make decisions related to strategy formulation, research and development, budgeting, production planning, and pricing, among others.

The advent of the industrialization era marked the development of most cost accounting techniques. The business cycle witnessed another metamorphic stage in the era as manufacturing activities became the order of the day and displaced agricultural businesses. As observed by Waweru [1] the industrialization era was characterized by separation of owners from management, hiring of workers on long term basis and emergence and rapid growth of railway with subsequent new measures such as cost per ton per mile, cost per passage per mile and ratio of operation expenses to revenue.

The development of cost accounting and management control practices in U.S. corporations has been traced to the great importance of cost and management control information to support the growth of large transportation, production, and distribution enterprises during the 1850-1925 periods [1]. Kaplan [2] also notes that the demand for information for internal planning and control which became inevitable in the first halve of the 19th century, when firms, such as textile mills and railroads, had to devise internal administrative procedures to coordinate the multiple processes involved in the performance of the basic activity (the conversion of raw materials into finished goods by textile mills, the transportation of passengers and freight by the railroads).

However, Kaplan [2] posits that cost accounting practice in the late 19th century did not include the allocation of fixed costs to products or to periods but rather, the practice of measuring and allocating overhead costs to products was started by scientific management. The proponents of scientific management championed by Fredrick Taylor were engineers who, by detailed job analyses and time and motion studies, determined "scientific" standards for the amount of labor and material required to produce a given unit of output. These standards were used to provide a basis for paying workers on a piecework basis, and to determine bonuses for workers who were highly productive [2].

Most of the cost accounting techniques in practice up to 1925 were developed by field based researchers (industrialists, managers and engineers) such as DuPont Corporation, General Motor, US railroads, and General Electric Corporation. Toyota Company is not left behind as the evolution of Just in Time system has been widely credited to the company [3]. However, some of the early techniques now referred to as traditional techniques such as Standard Costing, Absorption Costing and Marginal Costing have been heavily criticized of loss of relevance [4].

One of the few academic contributors to the emerging cost accounting literature in the 20th century is J. Maurice Clark at the University of Chicago, who provides an extensive discussion of the nature of overhead costs and their use in managerial decisions. Many cost concepts that are widely used today, such as escapable or avoidable overhead, sunk costs, incremental or differential costs, and the relevant time period for determining whether a cost is fixed or variable, can be found in Clark(1963)'s book [2].

According to Johnson (1975, the innovations in cost accounting theories and practices up to 1925 were being used to improve the efficiency of enterprises actively engaged in the mass production of standard products with relatively high direct labour cost. Cost information was used to assess operating efficiencies, to aid in pricing decisions, and to control and motivate workers' performance. The emphasis was on job and factory efficiency, not on the commercial success of the overall corporation [4].

Most cost accounting techniques that are currently in use were developed in the 19 century; by 1925 most of the techniques have been developed and the subsequent years' experience dearth of innovation in the field [2]. Those techniques that were developed in the industrial era, which are now regarded as traditional techniques include Standard Costing, Variance Analysis, Absorption Costing, and marginal costing among others. Within the last three decades, the traditional costing techniques have received a lot of criticisms from various authors. The critics championed by Johnson and Kaplan [2] claim that management accounting has lost its relevance due to the innovations and dynamism of business environments [4].

The criticism of "relevance loss" of accounting information due to the usage of traditional techniques has given birth to new cost accounting techniques such as Activity Based Costing, Target Costing, Life Cycle Costing, Just in Time System, Back flush Accounting and Throughput Accounting among others. Since the arrival of the new cot and management accounting techniques in about 3 decades ago, it is worthwhile to know the extent at which the new techniques are being used and also to know if the conventional techniques are still in vogue despite the criticisms. Furthermore, since costing information is useful for all business be it manufacturing and services in as much they generate revenue and incur costs; this study shall also review the techniques adopted by manufacturing and service companies within the last decade. The rest of this paper is divided into objectives, Materials and Methods, Discussion and Conclusion.

Objectives

The objective of the study is to evaluate the cost accounting techniques that are being used in manufacturing and service industries within the last decade.

Theory and Cost Accounting Techniques

Contingency Theory

Contingency theory is an approach to the study of organizational behavior in which explanations are given as to how contingent factors such as technology, culture and the external environment influence the design and function of organizations [5]. The essence of contingency theory is that best practices depend on the contingencies of the situation. Contingency theory is often called the "it all depends" theory, because when you ask a contingency theorist for an answer, the typical response is that it all depends. The term contingency as used in contingency theory is similar to its use in direct practice. A contingency is a relationship between two phenomena. If one phenomenon exists, then a conclusion can be drawn about another phenomenon.

Contingency theory has been applied in accounting in several ways and by several authors. Hofstede [6] found that, economic, technological and sociological considerations had a significant impact on the functioning of budgeting systems. Shank [7] also applied contingency principles in investigating the use of managerial accounting systems and information in a strategic way and Banker, Datar and Kemerer [8] looked at the impact of structural factors and found that firms which implemented just-in-time (JIT) or other team-work programs were more likely to provide information regarding performance to shop-floor workers. Sheild, Chow Kato and Nakagtuvu [9] state that the difference in accounting practice between the US and Japan has been attributed to difference in underlying goal and educational training and career paths of the cost accountants. While US uses direct labour for allocating manufacturing overheads, Japan uses it for a motivational purpose, Japanese firms believe that allocation of direct labour costs distorts the product cost, but they still use it because of the incentives it provides to increase labour efficiency and to implement technology that will replace labour. Most of the US accountants are trained in the universities and their career path is accounting while most of the accountants in Japan are trained in other disciplines apart from accounting, but are rotated in many functional areas of the organization including accounting for about 10 to 15 years. After that, some of them are sent for in house training in accounting that would prepare them to spend several more years in accounting section. After a lot of experience in the accounting department, they are usually transferred from accounting section and end up as general managers [9].

Cost Accounting Techniques

Traditional Cost accounting techniques include Standard Costing, Absorption Costing and Marginal Costing among other [10]. However, the traditional techniques have been severely criticized for not being relevant in today's business environment. The newer techniques suggested by various advocates of the modern techniques include; Activity Based Costing (ABC), Target Costing, Life Cycle Costing, Just in Time System, Throughput Accounting/costing, Back Flush Costing and Kaizen costing among others.

Standard Costing

According to CIMA terminology, standard costing is a 'control technique that reports variances by comparing actual costs to pre-set standards so facilitating action through management by exception'. It refers to the technique which uses standards for costs and revenues for the purpose of control through variance analysis. Standards are established for each cost element on a scientific basis for an immediate future period, and actual are compared against the standard. Variances from standards are analysed, reasons established and corrective action taken to stop recurrence of inefficient operation [11-14]. According to Küçüksavaş [15], standard costing aims to provide the cost information relating to controlling costs, providing convenience and quickness to compute production costs, preparing business budgets, pricing products, and measuring the performance of division managers. According to [16,17] standard costing is especially used in production industries where the same products are permanently produced such as Petroleum refinery, pharmaceuticals and chemistry industries, automotive, canned vegetable and fruit, and fast food restaurant industries. Even though standard costing is widely used in the manufacturing sector, its applicability non- manufacturing sectors also cannot be overemphasized. Hilton [17] posits that standard costing is also used in many service industries, and nonprofit organizations.

However, this technique has been heavily criticized of loss of relevance by academic scholars. For instance, Johnson and Kaplan [4] posit that standard costing should be abandoned because of its unsuitability for today's highly global and competitive world. As observed by Drury (2009), the usefulness of standard costing is questionable in the modern business that we have in this 21st century because of its changing cost structure, inconsistency with modern management approaches, over-emphasizing the importance of direct labour, and delay in feedback reporting.

According to ICAN [18], despite the changes in the business environment that nearly renders standards costing totally irrelevant, the technique still retain some advantages:

Absorption Costing

Absorption costing also known as the full costing method is a costing system which treats all costs of production as a product cost regardless of whether they are variable or fixed costs. Absorption costing principles must be used when preparing financial statements for external purpose (Hoare, nd). Absorption costing is suitable for determining the price of the product as it ensures that all costs are covered, it shows correct profit calculation, conforms with matching and accrual concepts of accounting, and hence, recognized for the purpose of preparing external reports and for stock valuation. However, ICAN [18] states that "traditional absorption costing is probably of limited value in a manufacturing environment where production process are highly automated, and production overhead costs is a much more significant element of cost than direct labour".

Marginal Costing

Marginal costing also known as variable costing and direct costing may be defined as the technique of presenting cost data where in variable costs and fixed costs are shown separately for managerial decision- making. It is a principal costing technique used in decision-making because it allows management attention to be focused on the changes which result from the decision under consideration [19]. It is a useful technique for short-term decisions such as Make or Buy, Accepting or Rejecting a Special Order, Deleting a line of business or segment and outsourcing among others.

Just in Time System

The introduction of Just in Time system as a recognized technique/philosophy/way of working is generally associated with the Toyota motor company. Just in Time (JIT) also known as the Toyota production system (TPS), is a methodology aimed primarily at reducing flow times within production as well as response times from suppliers and to customers. Following its origin and development in Japan, largely in the 1960s and 1970s and particularly at Toyota, [3], JIT migrated to Western industry in the 1980s, where its features were put into effect in many manufacturing companies-as is attested to in several books [20,21].Within Toyota, Taiichi Ohno is most commonly credited as the father/originator of this way of working. Some companies who adopted the technique after Toyota have given it several nomenclatures such as short-cycle manufacturing (SCM)by Motorola [22].Continuous-Flow Manufacturing (CFM) by IBM [23,24] and Demand-Flow manufacturing by Institute of Technology in Colorado [25].

But the wide use of the term ***JIT manufacturing*** throughout the 1980s faded fast in the 1990s, as the new term ***lean manufacturing*** became popular [26]. As just one testament to the commonality of the two terms, *Toyota production system (TPS)* has been and is widely used as a synonym for both JIT and lean manufacturing [27].

JIT production is a system of cutting inventory that has been used for many years. The application of JIT approaches has been successful in developed countries and large businesses [28]. As observed by Omar and Zulkipli [29], in a just-in-time (JIT) system, the manufacturer must deliver the products in small quantities to minimize the buyer's holding costs at the warehouse and accept the supply of small quantities of raw materials to minimize its own holding cost. JIT concept is built based on the concept of pull production, which eliminates the total inventory [30]. JIT philosophy is based on the simple idea that wherever possible, no activity should take place in a system until there is a need for it [31].

Duclos, Siha and Luminus [32] posit that JIT principle is not only meant for the manufacturing companies, but also applicable in service companies such as Banks, Insurance Companies, Hotels, Auditing firms, etc. Canel, Rosen and Anderson [33] also argue that JIT is applicable in service companies the same way it is applicable in manufacturing companies. "Just in time approach focuses on process and not on product. So as it is applicable to manufacturing companies, it is also applicable to service industry" [33].

Activity Based Costing

The ABC method was conceived in the mid-80 by Robin Cooper (a professor of Management in the area of designing and practicing of costing systems) and Robert Kaplan (a professor of Management Accounting at Harvard University). It was developed mainly to correct misleading overhead allocations. At first, It was a response to the inaccurate standard costing American methods. The ABC method was designed in the United-States during the 80's. It is a refined cost system which enables classifying more costs as direct, to expend the number of indirect-cost pools and to identify cost drivers. ABC favours better cost allocation using smaller cost pools called activities. Using cost drivers, the costs of these activities are the basis for assigning costs to other cost objects such as products or services [34].

According to CIMA [11,12] Activity Based Costing is an approach to the costing of final output by monitoring the activities and tracing consumption of resources to the activities. Resources are assigned to activities, and activities to cost objects based on consumption estimates. The latter utilises cost drivers to attach activity costs to outputs [11]. A development of the principles of activity based costing (ABC) is activity based management (ABM). The concept of ABC was first defined in the late 1980s by Robert Kaplan and William Burns [18]. CIMA [14] posit that Activity Based Costing/Management eliminates the activities that do not add value to customers and the organization; and it minimizes or avoids distortions on product costs that might occur from arbitrary allocation of overhead costs. However, the implementation of ABC is expensive and time-consuming (Rojas and Media, nd).

The US originated and manufacturing based technique, ABC innovation has diffused from US to France, Japan and many countries and it has also been adopted by service companies [35]. Nevertheless, many practitioners explain that ABC systems are expensive to implement, time consuming and hard to adjust. For instance, Kaplan and Anderson [2] describe 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.

Target Costing

CIMA [11] traces the origin of Target Costing to the response of the Japanese manufacturing industry in the 1970s to the challenges posed by consumer demand for more diversity and shorter product life cycles. Companies also began to recognize that most of the cost of products was committed at the design stage. Target costing developed as a multidisciplinary approach to managing costs from the earliest stages and was complemented by techniques such as process re-engineering and total quality management [11]. It involves setting a target cost by subtracting a desired profit margin from a competitive market price. It primarily aims at assisting management to run a business profitably in a very competitive market

Though the tool was developed in a manufacturing company, its suitability in service sector has also been proved. "Target costing is as relevant to the service sector as the manufacturing sector. Key issues are similar in both: the needs of the market need to be identified and understood as well as its customers and users; and financial performance at a given cost or price (which does not exceed the target cost when resources are limited) needs to be ensured [2]. Its benefits include the improved understanding of products and services which make it possible to identify issues in the early stage of development where actions can be taken, focus on the final users of the products and services, its multidisciplinary relevance and involvement of staff from all areas in the cost analysis and reduction of the cost before they are locked in.

Life Cycle Costing

Life Cycle Costing, sometimes called ''whole life costing" or ''Whole Life Cycle Costing" attempts to identify the total cost associated with the ownership of an asset so that the decisions made at the initial acquisition have the effect of locking in certain costs in the future [18]. Life-cycle costing or LCC is a tool widely used by companies and/or governments which evaluates the costs of an asset throughout its life-cycle (European Commission nd). The benefits of Life cycle costing includes; improved evaluation of options, improved management awareness about the consequences of decision, improved forecasting and improved understanding of the tradeoff between performance of an asset and its cost while non availability of data and the fact that it is difficult and time consuming are parts of its problems [18].

Life Cycle Costing is applicable where initial capital outflows or the purchase of physical assets is large; the decision to serve and retain customers can also be a capital budgeting decision. A credit card company or an insurance company for example, incur initial costs due to paperwork, checking credit worthiness, opening policies for new customers and it takes some times before these initial costs are recouped [2].

Throughput Accounting

CIMA [11] official terminology, describe throughput accounting as 'A technique where the primary goal is to maximise throughput while simultaneously maintaining or decreasing inventory and operating costs.' Throughput accounting has a very direct relationship with decision making and performance management. It begins by focusing on what an organisation's purpose is-its goal and seeks to help organisations attain their purpose by increasing their 'goal units'. Throughput accounting is the rate at which an entity achieves its goals, measured in goal units. In non- profit entities, the goal of the entity could be measured in terms of non-financial goal, but for profit making company, the goal is profit [18]. Throughput accounting is an important development in modern accounting that allows managers to understand the contribution of constrained resources to overall profitability. It also refocuses away from cost accounting's reliance on efficiencies. According to ICAN [18], TA improves profit performance through better analytical decisions based on three critical monetary variables, namely throughput, inventory and operating expense. It is sometimes referred to as throughput contribution and is similar to the concept of 'contribution' in marginal costing i.e. sales revenue less 'variable' costs.

Back Flush Accounting

Back flush Costing which is also called Delayed or Post Deduct Costing is one of the simplest methods of cost accumulation that is used by companies that have adopted the JIT system. However, the JIT is not just a technique or techniques for accumulating costs and has a broader philosophy that focuses on continuous simplification and reduction of loss and waste in all levels of the institution's activities and one of the goals of this system is zero ending inventories. The new costing system which is connected with the aim of responding to the requirements of the JIT production system is called back flush costing [36]. Backflushing is a theoretically elegant solution to the complexities of assigning costs to products and relieving inventory, but it is difficult to implement.

Kaizen Costing

Kaizen means improvement, continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers. Kaizen is a Japanese philosophy for process improvement that can be traced to the meaning of the Japanese words 'Kai' and 'Zen', which translate roughly into 'to break apart and investigate' and 'to improve upon the existing situation' [38].

The Kaizen method and technique are valuable instruments that can be used to increase productivity, obtain competitive advantage and to raise the overall business performance in a tough competitive market like the one in the Europe [37,38]. The Kaizen Method has been particularly distinguished as the best methods of performance improvement within companies since the implementation costs were minimal. The Kaizen management is dedicated to the improvement of productivity, efficiency, quality and in general of business. The Kaizen method acknowledged as method of improvements applied to key processes will generate the majority of the company's profit, while constituting a secure way to obtain the clients loyalty and fidelity [37].

Empirical Review

The empirical studies carried out by earlier authors as regards the cost and management accounting techniques adopted in practice are discussed below:

Cost Accounting Techniques Adopted by Manufacturing Companies

The findings of earlier authors from the studies carried out in manufacturing companies are discussed below:

Sulaiman et. al. [39] conducted a study on Strategic Cost Management Accounting Instruments And Their Usage In Albanian Companies. According to the findings of the study the most used Strategic Cost Management (SCM) instruments were: benchmarking strategic pricing, customer accounting, and target costing in their order of intensity. These instruments were the most used instrument by the Albanian manufacturing companies and the reason behind this selection of instruments were primarily related to implementation costs and the usage of the non-financial information, rather than the cost drivers, that can be a very important factor in determining the product price. This study shows that in recent years the Albanian business have successfully adapted to the new economic and technological changes by adopting strategic cost managements instruments to hold or improve their competitive advantage in the market.

The study carried out by Saaydah and Khatatneh [40] on the adoption of some recent cost management tools and their perceived effects on the performance of Jordan manufacturing companies shows that few modern techniques have been adopted so far. The authors used 30 companies which represent 25% of the targeted population and confirm a reasonable level of awareness and adoption of Just-in-Time Manufacturing, Balanced Score Card, and JIT inventory, Activity Based Costing, Target Costing and Kaizen Costing in their order of intensity. Their findings also reveal that the tool that faces the greatest difficulty in terms of adoption is

Target Costing followed by Activity Based Costing.

Badem, Ergin, & Dury [17] investigated the relevance of standard costing in a study titled: Is Standard Costing Still Used? Evidence from Turkish Automotive Industry. The objective of their study is to find out the use of standard costing in the automotive industry, the leading manufacturing sector of Turkey. Three survey methods were used in order to obtain the data - electronic questionnaires, telephone and face-to face interviews .The questionnaire was sent to all of the thirteen primary and 300 supplier companies in the automotive industry in Turkey. The findings show an average usage rate of 77 percent for standard costing. It is concluded that the standard costing is still used in the automotive industry in Turkey, despite a general belief by some academicians who argue that the standard costing is out of date. The majority of non-users are local small supplier firms. The findings of the study are similar to the findings of Sulaiman, Ahmad and Alwi [39] in Malaysia and Marie, Cheffi, Louis and Rao [41] in Dubai.

Karanja, Mwangi and Nyaanga [42] also conducted a study on Adoption of Modern Management Accounting Techniques in Small and Medium (SMEs) in Developing Countries: A Case Study of SMEs in Kenya. Their study shows that modern costing techniques such as target costing, Activity based costing (ABC), Just in Time method (JIT) as well as other non-conventional methods were adopted as an attempt to enhance enterprise efficiency and innovation for better planning and improved product/service pricing. The findings showed that SMEs in Kenya have intuitively adopted varying management accounting techniques. From the sample, the majority of the SMEs are faced with constraints of capital management.

Mazumder [43] carried out a study on Application of Management Accounting Techniques in Decision Making in the Manufacturing Business Firms in Bangladesh. The author evaluated the status of use of both modern and traditional management accounting techniques in 35 companies which comprises 15 public sector companies, 15 private sector companies and 5 multinational firms. 105 respondents from the 35 companies rated the techniques; 30 of them opine that the management accounting techniques are moderately satisfactory, 45 of them state they are not satisfactory, 15 of them consider the techniques satisfactory while 15 considered them not satisfactory at all. They found out those modern techniques such as Activity Based Costing, Just in Time, Total Quality Management, Process Reengineering and Theory of constraints are not used in public and private sector manufacturing enterprises, but a few multinational corporations use the modern techniques particularly Just- in- Time system and Total Quality Management.

However, their study indicates that the traditional techniques such as Financial Statement Analysis, Standard Costing, Cash Flow Analysis are widely used followed by Cost Volume Profit Analysis, Marginal Costing, Fund Flow etc. His finding lends credence to the findings of Wijewardena and De Zoysa [44] whose study reveals that Australian Manufacturing companies place more emphasis on Cost control tools such as budgeting, Standard Costing and Variance Analysis at the manufacturing stage while their Japanese counterparts devote more attention to cost planning and cost reduction tools based on target costing at product planning and design stage.

Askarany [45] carried out a study on Technological Innovation, Activity Based Costing and Satisfaction. He used questionnaire to survey all 200 manufacturing firms registered with Australian Plastic Industry. The results of the study show that cost and management accounting changes lag behind technological changes in manufacturing practices. The findings show a significant relationship between technological change in manufacturing practice and the diffusion of ABC but no significant association between the diffusion of ABC and the level of satisfaction with implemented management accounting techniques. In other words, there was no perceived difference between the responses of firms employing ABC and those which do not in terms of the level of satisfaction.

Dugdale, Jones and Green [46] carried out a study on Contemporary Management Accounting Practices in UK manufacturing and found out that the old techniques are still being used alongside the contemporary techniques. The study, which involves interviewing 41 UK manufacturing companies reveals that almost all the techniques developed since the late nineteenth century, and evident in the historical literature, are still in use today. The old techniques still being practiced in the UK include the heavily criticized standard costing, Absorption costing and Marginal costing. The contemporary techniques include activity-based costing and throughput accounting among others. They conclude that old methods have not died, they are still taught, examined and used. Their study lends credence to the findings of

Traditional cost accounting practices are still being used in all manufacturing environments in the US, but a significant portion of world-class manufacturers supplement their internal management accounting system with non-traditional management accounting techniques. The two traditional measures of performance-Standard Costing/Variance analysis and Budgeting and two modern techniques Target costing and Just in Time were widely used by Japanese companies in Malaysia. However, Ahmad, Mehra and Plether [47] found out that the need for traditional performance measures; Indirect labour productivity, direct labour productivity, Variance, Labour efficiency and machine efficiency is decreasing as manufacturers increase their emphasis on JIT practices.

Cost Accounting Techniques Adopted by Service Companies

Ashfaq, Younas, Usman and Hanif [48] investigated the traditional and contemporary management accounting practices and their Role and Usage across Business Life Cycle Stages in Pakistani Financial Sector. The data for the study were gotten via structured questionnaire from 90 targeted service listed companies comprising; Banks, Insurance companies, Telecommunication companies and Computer Service companies. Descriptive statistics were used for the analysis and the findings shows that 69% of respondent companies belong from growth stage and 24.4% are located in maturity stage. The results also indicate that management accounting practices for instance costing practices; budgeting practices & decision making practices are widely used especially traditional management accounting practices in the service sector of Pakistan. However, in terms of performance evaluation practices, all the non-financial measures related to employees, customers and operation or innovation have a lower level of usage in Pakistani service sector irrespective of the business life cycle stage. Their findings reveal further that financial companies which are sub sector of the service sector are more sophisticated by utilizing management accounting practices than other services companies. They concluded that management accounting practices are more complicated as the companies move from growth to maturity stage and that traditional management accounting practices still have the highest level in financial sector of Pakistan based on its importance & usage.

A study of Mnagement Accounting Practices between manufacturing and service industries in Bangladesh was carried out by Yeshmin and Fowzia [49] in order to examine the use of the management accounting techniques in discharging managerial functions. The authors survey 151 organizations from manufacturing and service industries with a structured questionnaire by using 5 point Likert scale. They identified 14 management accounting techniques which include; Cash flow Statement Analysis, Budgetary Analysis, Financial Statement Analysis, Variance Analysis, Total Quality Management (TQM), Cost Volume Profit Analysis (CVP), Fund Flow Statement, Target Costing, Responsibility Accounting, Variable Costing, Activities Based Costing (ABC) Management by Exemption (MBE), Balance Score card, Theory of Constraints. Their findings reveal that five management accounting techniques comprising financial statement analysis, budgetary control, CVP analysis, variance analysis and fund flow analysis are common to both industries and are used frequently in managerial functions. Three factors were identified and used to determine the variability's of the usage level in managerial functions. The study reveals that the usage level of management accounting techniques is very frequent in manufacturing industry (73.343%) in comparison with the service industry (54.396%). They concluded that most of the organizations are favoring quantitative techniques.

The study carried out by Van der Poll and Ndwiga [50] on the role of Management Accounting in Creating and Sustaining a Competitive Advantage in the Banking Industry used a sample of 40 respondents from Equity Bank - A leading commercial bank in Kenya. The study shows that modern management accounting provides skills and techniques that play a vital role in the planning, developing, implementing and evaluation of strategic competitive policies that result in a competitive advantage. This study further reveals that the rapid growth and competitiveness of Equity Bank, Kenya can be attributed to the application of innovative management accounting practices. The study found that management accounting practices provide both internal and external competitive strategies that enable business organisations to create and sustain a competitive advantage

Dodmingd [51] studied the Application of Activity Based Cost and Management to Support Competitive Strategy in the Banking Sector of South African economy. This research investigated the effect of activity-based cost management (ABC/M) on organizational strategies, specifically in the context of cost effective supply of products and services within the banking environments. The results confirm that ABC/M has the capability to support corporate strategies through the supply of more accurate information that is used to design, develop and provide cost-effective products and services, resulting in the creation and sustainability of competitive advantages. The empirical results demonstrated that ABC/M information supports business strategy in areas such as cost visibility, activity analysis, process reengineering, accurate cost information, improved pricing on products and services, reliable management reporting for proactive decision-making, life-cycle costing of products and service and profitability. All these enhanced the management's capability in strategic planning, resulting in proactive decision making.

Charafa and Rahmounib [52] also carried out a study on using important performance analysis to evaluate the satisfaction of Activity-Based Costing adopters in Morocco. They examined the satisfaction of the users of Activity-Based Costing (ABC) in Moroccan companies. They employed survey method to study two types of companies: Activity Based costing (ABC) adopters and non -ABC adopters. The results suggest that the ABC adopters were more efficient and more satisfied with their cost system but they did not fully benefit from the contributions of the ABC system. Their study contributes to explaining how companies can use IPA to analyze their ABC systems to improve resource allocation and for better decision-making.

Critiques of the Literature

A critical look at the literature shows that both the traditional and modern costing techniques are being used in practice. For instance, Ashfaq [48]' study on the role and usage of traditional and contemporary management accounting techniques gives us a good insight of relevance of both traditional and contemporary techniques. The study of shows that ABC supports competitive strategy in many areas, likewise Charafa and Rahmounib [52] did a good job on the satisfaction of ABC by its adopters.

Table 1: Summary of the literature

Study	Objective	Findings and Conclusion
Strategic Cost Management Accounting Instruments And Their Usage In Albanian Companies.	To test the use of benchmarking, strategic pricing, customer accounting, Competitive position monitoring, strategic costing, environmental accounting, life cycle costing and targeting costing etc. in Albania	According to the findings of the study the most used Strategic Cost Management (SCM) instruments were: benchmarking strategic pricing, customer accounting, and target costing.
Using Important Performance Analysis to Evaluate the Satisfaction of ABC Adopters in Morocco. Charafa and Rahmounib [52]	To evaluate the satisfaction of ABC adopters in Morocco	ABC adopters are satisfied with the costing system but they have not fully benefited from the contribution of ABC.
The traditional Versus contemporary management accounting practices and their Role and Usage across Business Life Cycle Stages in Pakistani Financial Sector Ashfaq, Younas, Usman and Hanif [48]	To evaluate the role and usage of traditional and contemporary management Accounting practices across business life cycle stages	Management accounting practices, particularly, the traditional management accounting practices such as costing practices, budgeting practices are widely used
The adoption of some recent cost management tools and their perceived effects on the performance of Jordan manufacturing companies. Saaydah and Khatatneh [40]	To find out the adoption status of recent cost management tools and their perceived benefits	The is a reasonable level of awareness and adoption of Just –in-Time Manufacturing , and JIT inventory, Activity Based Costing, Target Costing and Kaizen Costing in their order of intensity.
The role of Management Accounting in Creating and Sustaining a Competitive Advantage in the Banking Industry. Van der Poll and Ndwiga [50]	To evaluate the role of Management accounting in creating and sustaining competitive advantage.	Modern management accounting provides skills and techniques that play a vital role in the planning, developing, implementing and evaluation of strategic competitive policies that result in a competitive advantage.
Is Standard Costing Still Used? Evidence from Turkish Automotive Industry. Badem, Ergin, & Dury [17]	The objective of their study is to find out the use of standard costing in the automotive industry, the leading manufacturing sector of Turkey.	The findings show an average usage rate of 77 percent for standard costing. It is concluded that the standard costing is still used in the automotive industry in Turkey, despite a general belief by some academicians who argue that the standard costing is out of date.
Adoption of Modern Management Accounting Techniques in Small and Medium (SMEs) in Developing Countries: A Case Study of SMEs in Kenya. Karanja, Mwangi and Nyaanga [42]	To find out the adoption rate of modern costing techniques in SMEs in Developing counties.	modern costing techniques such as target costing, Activity based costing (ABC), Just in Time method (JIT) as well as other non conventional methods were adopted as an attempt to enhance enterprise efficiency and innovation for better planning and improved product/service pricing.
Management Accounting Practices between manufacturing and service industries in Bangladesh. Yeshmin and Fowzia [49]	To examine the use of the management accounting techniques in discharging managerial functions.	Five management accounting techniques comprising financial statement analysis, budgetary control, CVP analysis, variance analysis and fund flow analysis are common to both industries and are used frequently in managerial functions.
Application of Activity Based Cost and Management to Support Competitive Strategy in the Banking Sector of South Africa. Ddmingd [51]	To know the applicability of Activity Based Cost and Management to Support Competitive Strategy in the Banking Sector	ABC/M information, supports business strategy in areas such as cost visibility, activity analysis, process reengineering, accurate cost information, improved pricing on products and services, reliable management reporting for proactive decision-making, life-cycle costing of products and service and profitability
Application of Management Accounting Techniques in Decision Making in the Manufacturing Business Firms in Bangladesh. Mazumder [43]	To find out the applicability of Management Accounting Techniques in decision making	They found out those modern techniques are not used in public and private sector manufacturing enterprises but a few multinational corporations use them
Technological Innovation, Activity Based Costing and Satisfaction. Askarany [45]. Australia	To find out Technological Innovation and the satisfaction of ABC by its Adopters	Cost and management accounting changes lag behind technological changes in manufacturing practices. There was no perceived difference between the responses of firms employing ABC and those which do not in terms of the level of satisfaction.
Contemporary Management Accounting Practices in UK manufacturing. Dugdale, Jones and Green [46]	To find out the Management Accounting Practices in UK	The old techniques are still being used alongside the contemporary techniques

However, a larger sample could have given more reliable results. Most of the studies are current studies which are based on the perceptions of the respondents. There is a need for longitudinal studies which look at the situations before and after and with more sophisticated statistical tests.

Discussion and Conclusion

Our objective is to find out the cost accounting techniques that are being used in the field by manufacturing and service industry. Traditional accounting techniques which include Standard Costing, Absorption Costing and Marginal Costing have been heavily criticized for their lack of capability to provide relevant information in the modern business environment that is characterized by advanced technology, stiff competition, globalization, customer satisfaction and lesser demand for labour among others. Nevertheless the criticisms, the empirical evidences show that standard costing, Absorption Costing and Marginal Costing are still being practiced in the field.

The modern techniques proposed with acclaimed benefits over the traditional techniques are Just in Time system, Activity Based Costing, Target Costing, Life Cycle Costing, Throughput Accounting, Back flush Accounting and Kaizen costing etc. The empirical evidences show that most modern costing techniques e.g JIT and Target costing originate in Japan and are more practiced in Japanese manufacturing firms than non- Japanese manufacturing firm while the traditional techniques are practiced more in non-Japanese companies. The empirical evidences reveal that Just in Time(JIT), Activity Based Costing(ABC), Target Costing, Life Cycle Costing, Throughput Accounting and Kaizen costing are the most common modern costing techniques in the manufacturing companies [43, 45,46].

The most used modern costing technique in Service Company is Activity Based Costing [52]. Accounting practices, for instance costing practices; budgeting practices & decision- making practices are widely used in service sector, especially in Pakistan [48]. Activity Based Costing, Budgetary, Control, Cost Volume profit analysis, Standard costing/Variance Analysis are common to manufacturing and service companies. The techniques being used in practice depend on some factors such as culture, technological advancement, Size of the organization and stage of the product.

Recommendations

- Companies should use the costing techniques that are most suitable for their environment. For instance, the level of technological advancement, size of the company, stage of the product and culture.
- There should be naturalistic research for the development of cost and management techniques
- Companies should only adopt those techniques that have practical basis and those techniques that their competitors have successfully adopted.

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