European Journal of Accounting, Auditing and Finance Research
Vol.9, No. 3, pp.42-73, 2021
Print ISSN: 2053-4086(Print),
Online ISSN: 2053-4094(Online)

ANALYTICAL REVIEW OF THE CURRENT AND FUTURE DIRECTIONS OF MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS

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ABSTRACT: *Management accounting and control system practices have changed dramatically throughout the last 200 years. All these changes were in response to rapid technological developments, environmental complexity, changes in organizational structures, managerial style, and many different changes that have emerged throughout the years. The main purpose of this paper is to synthesize the relevant literature to identify the current and future directions of management accounting and control systems practices. This was carried out by following an analytical approach, with the intention of reviewing the literature by emphasizing the developments of management accounting and control system practices throughout the twentieth and twenty- first centuries. Consequently, a conceptual framework that portray the current practices of management accounting was developed. As a result, insights for the future directions of this discipline were indicated. The findings of this study showed that the role and scope of management accounting has changed from cost determination, to creation of value to customers. Thus, the different modern techniques that have emerged in response to the needs of contemporary organizations are described. Furthermore, it articulated that today managerial accountants no longer use a historical view of strategy and operations, but look to predict what the market will do in the future. Consequently, it is anticipated that even the role, education, and practices of management accountants will continue to change in the future. Moving from scorekeeping, determining and allocating costs, to developing their predictive, prescriptive analytical skills. Therefore, it is recommended that more emphasis needs to be placed in developing their personal and technical skills, to obtain a better understanding of contemporary management accounting methods for better support of managerial decision- making.*

KEYWORDS: management accounting, 20th century, 21st century, future developments, analytical techniques

INTRODUCTION

The increasingly competitive environment and technological developments through the 1980s and 1990s, have been the prime stimulus for a range of new directions in management accounting and control system practices (Cyril, et al. 1997). These developments were mainly linked to changes in the way organizations measure and manage costs, and in how they evaluate short and long term performance (Kaplan, et al. 1987). Furthermore, contemporary organizations display flexibility, adaptation and continuous learning, both within and across organizational boundaries. Even there

is considerable evidence that organization practices started to reflect these needs. (Otley, et al 1995, p.S40).

On the other hand, conventional cost and management accounting practices were criticized for their lack of insight change, and their inability to support management accounting innovation in coping with the requirements of a changing environment (Shah Kamal, 2015). Moreover, the academic literature has been critical of conventional management accounting and control systems, particularly for their lack of efficiency, capability to present comprehensive and the latest information, and to assure decision makers and potential users of such information. (Shah Kamal, 2015). For these reasons, management accounting and control systems have evolved throughout the last 200 years, to cope with the emerging needs of contemporary organizations. Even there has been an increasing expectation that management accounting and control systems should be innovative in design, and enable rapid organizational change in response to uncertain environmental circumstances (Otley, 1994; Otley et al, 1995; Otley, 2001; Nixon & Burns, 2005). Thus, the ***general objective*** of this study is to synthesize the relevant literature of the current and future directions of management accounting and control systems. More specifically to:

- Examine the developments of management accounting and control system practices throughout the twentieth century
- Explore the current practices in the twenty- first century
- Anticipate the future directions and concepts of management accounting and control techniques
- Spotlight on the current and future of management accounting education.
- Identify the profile of the management accountant of the future.

Methodology

This study will follow an analytical approach, with the intention of synthesizing the literature for the current practices of management accounting and control. From this, some insights for the future directions of this discipline will be indicated.

Significance of the study

This study is conducted in order to account for the conceptual framework of the current practices of management accounting. Moreover, providing insights into the future directions of this discipline. Therefore, the results generated from this study, will have implications for future research and practices, in the area of management accounting and control systems.

Structure of the paper

This paper is organized into the following seven sections:

-Literature relating to management accounting
-Control system practices
-The developments of the discipline throughout the twentieth century
-Current practices in the twenty first century
-Conceptual framework of the current practices
-Possible future directions of the management accounting discipline

-Conclusion and recommendations

LITERATURE REVIEW

Management Accounting Roots

Historians have demonstrated that accounting reports have been prepared for thousands of years. Bookkeeping records dating back to ancient civilizations, have been found engraved in stone tablets (Johnson, Kaplan, 1987).

Five hundred years ago (1494), Luca Pacioli described the basics for a well-functioning, double-entry bookkeeping system, in his book titled "Summa de Arithmetica, Geometria, Proportioni et Proportionalita ", that had a chapter on double entry bookkeeping. Thus, the demand to record information on commercial transactions, has existed for as long as people traded with each other in market exchanges (Johnson, Kaplan, 1987). But, the demand for management accounting information about transactions occurring within organizations, is a much more recent phenomenon.

Before 19th century, virtually all exchange transactions occurred between an owner/entrepreneur and individuals who were not part of the organization: raw material suppliers, labor paid by piece-work, and customers. There were no "levels of management," nor were there long-term salaried employees of the organization. Transactions occurred in the market, and measures of success were easily obtained *(J.C. Drury, 1992).*

As a consequence of the Industrial Revolution and the ability to achieve benefits through economies of scale, it became efficient for 19th century enterprise owners to commit significant sums of capital to their production processes. In order to gain maximum efficiency from their capital investment, owners hired workers on long term basis (J.C. Drury, 1992).
The long-term viability and success of these managed organizations, revealed the gains that could be earned by managing a hierarchical organization, as opposed to conducting all business through market transactions (Robert S. Kaplan, 1984).Examples of such successful, hierarchal organizations are;

-The textile mills founded in the first half of the 19th century
-The railroads formed around mid-19th century
-The steel companies created in the second half of the 19th century

The emergence of such managed hierarchal organizations, created a new demand for accounting information. Specifically, a demand arose for measures to determine conversion cost (Robert S. Kaplan, 1984). Thus, management accounting developed some measures that focused on conversion costs, and produced summary measures such as cost per hour or cost per pound produced, for each process and for each worker (Kaplan, et al. 1987). However, the goal of this system was to identify the costs for the intermediate and final products of the firm, and to provide a benchmark to measure the efficiency of the conversion process (Kaplan, et al. 1987).

By the middle of the 19th century, great advances in transportation and communication especially the invention of the railroad and the telephone/telegraph provided further opportunities for gain to large hierarchal organizations (J.C. Drury, 1992). These enterprises could now coordinate the acquisition of raw materials, and the distribution of final products over much larger geographical areas, than had previously been possible. But without a corresponding increase in the quantity and quality of management accounting information, these organizations would not have been able to capture the full potential gains from increased scale of operations (J.C. Drury, 1992).

Thus effective management accounting and control systems were necessary to coordinate efficiently, the logistical, conversion, and distribution activities, and to provide summary measures of performance, for decentralized and dispersed managers (Kaplan, et al. 1987). Perhaps the best examples of effective management accounting systems, could be found in the railroad corporations of the mid-19th century. At that time, they were the largest enterprises ever created by man (Johnson, Kaplan, 1987). To oversee their diverse and dispersed operations, new procedures were invented just to control the receipt and disbursement of cash. Moreover, the operating ratio, the ratio of revenues to operating costs, were both developed to measure the profitability of various segments of business, and to evaluate the performance of managers. They also required an information on the effectiveness and efficiency of their purchasing, pricing, and retailing activities. For these activities, measures such as gross margin by department and operating costs-and inventory stock turnover were created (Kaplan, et al. 1987).

These example, reveal that management accounting and control systems were developed for process-type industries, such as textile, steel conversion, transportation, and distribution. Even there were little concerns with measuring the overall "profit" of the enterprise. As these organizations really had only one activity they have to do well: convert raw materials into a single final product, such as cloth or steel, move passengers or freight, or resell purchased goods (Robert S. Kaplan, 1984).

Further advances in the technology of management accounting and control systems, were associated with the ***scientific management movement*** (J.C. Drury, 1992). This movement started in metal fabricating companies, during the last two decades of the 19th century. While the goal of the scientific management engineers, such as Frederick Taylor, was to improve the efficiency and utilization of labor and materials (Johnson, Kaplan, 1987). Accordingly, standard costing techniques were developed, that allowed amount of labor and material required per unit of output. This then supported variance analysis with comparisons between actual and standards, and also supported the budget setting process.

Academic and Research Response

By exploring management accounting roots, it's very important to identify the different academic and research response during that time. Specifically, their response to the needs of the accounting profession, and management accounting discipline in particular. Among these developments are (James R. Martin, 2013);

1817: Payen (France) wrote a book on cost accounting
1818: John Bennett conducted double entry bookkeeping instruction in New York.
1881: Joseph Wharton established the first American collegiate school of business that later became part of the University of Pennsylvania.
1882: The Institute of Accountants & Bookkeepers was formed in New York.
1885: The Society of Incorporated Accountants and Auditors registered under the Companies Act of 1885.
1887: The American Association of Public Accountants (AAPA) was created. Issued certificates based on experience. The comptometer is patented.
1894: The AAPA passes a resolution advancing its first standard-related to the balance sheet.
1896: New York Governor L. P. Morton signs the first CPA bill into law.
The title C.P.A. was to be obtained by professional examination administered by New York University.
1897: The first State Society of CPAs was founded in New York.
1899: Christine Ross becomes the first female CPA.

Developments of Management Accounting through the 20th Century:

MACS Developments in the Early Decades of the 20th Century

The final development in management accounting and control systems, occurred in the early decades of the 20th century, to support the growth of multi-activity, diversified corporations.
The DuPont Powder Company formed in 1903 and General Motors, were the prototype of this new organizational form. However, the managers of DuPont Company, faced the problem of coordinating the diverse activities of a vertically integrated organizations, and of deciding on the most profitable allocation of capital to these different activities (Robert S. Kaplan, 1984). Therefore, the senior managers of DuPont, developed the return on investment (ROI) performance measure. Return on investment provided an overall measure of the commercial success, of each operating unit and of the entire organization (Robert S. Kaplan, 1984). This was followed by the development of discounted cash flow, and capital budgeting techniques.

By 1925, virtually all management accounting practices that are practiced today, have been developed. They consist of;
-Cost accounts for labor, material, and overhead
-Budgets as a tool for managing costs and cash flows
-Flexible budgets
-Sales forecasts
-Standard costs and variance analysis
-Transfer prices
-Divisional performance measures
These practices had evolved to serve the informational and control needs, of the managers of increasingly complex and diverse organizations. But the pace of innovation stopped in the mid-1920s (Robert S. Kaplan, 1984). However, there were little incentive to continue to develop innovative management accounting procedures, because the organizational structure developed by

DuPont, proved to be the model for many corporations for the next half of the twentieth century (Johnson, Kaplan, 1987).

Even without significant innovations in organizational forms, the diversity of products, and complexity of manufacturing processes continued to increase in the decades after 1920s. Thus, the need for accurate product costs, and effective process control, have imposed new demands on organizations management accounting and control systems. As a result the period of lost relevance occurred (Kaplan, et al. 1987).

Lost Relevance

As the second half of the 20th century saw little management accounting innovations, organizations have become fixated on the cost systems of the 1920s (Garry Marchant, 2013). Hence, failure to respond to changing environmental needs, has resulted in a situation where firms were using old management accounting systems, that were obsolete and no longer relevant to the competitive and manufacturing environment (J.C. Drury, 1992). This lag eventually led to various problems, such as;
-Distorted product costs
-Delayed and overly aggregated process control information
-Short term performance measures, that don't reflect the increase or decrease in the organizations economic position.
As a result, during this period external financial conventions encouraged a financial accounting mentality, resulting in management accounting following and becoming subservient to financial accounting practices (Nelson Maina Waweru, 2010). Moreover, accounting practitioners and educators were heavily criticized, on the grounds that management accounting practices had changed little over the years, despite radical changes in the business environment (Wikipedia, 2018). This condition continued with very few techniques and practices developed throughout the period, until technology boom occurred in 1960s (Wikipedia, 2017).

Technology Boom

Rapid technological developments starting from 1960s, had influenced many aspects of industrial sector (Kader, Luther, 2004). For example, the use of robotics and computer-controlled processes, improved quality and reduced costs in many cases (Shah Kamal, 2015). Furthermore, developments in computers, obviously changed the nature and amount of data which could be accessed by managers. Hence, the design, maintenance, and interpretation of information systems became of considerable importance in effective management (Ashton et al., 1995). As a result, in the mid-1960s, cost systems became automated on digital computers (Johnson, Kaplan 1987), which was reflected in various benefits to management accountants, ranging from;

-Information can be recorded in real time for analysis of operating performance.
-Virtually, every transaction can be captured for subsequent analysis
-Continual status reports on work in process can be provided
-Extensive systems now can accurately measure and attribute, the resource demands made by each product in a diverse product line.

-Timely and relevant managerial performance measures, can be computed and disseminated throughout the organization.

Consequently, by exploring the development of management accounting and control system practices throughout the years, it could be noticed that such changes was in response to the external environment, and different other factors. All these was explained in literature by contingency theory.

Contingency theory

The contingency theory literature indicates that factors such as, technology and environment affect the design and functioning of organizations (Covaleski, Dirsmith and Samuel, 1996). Its central theme is that there is no unique best structure to all organizations under all circumstances. Instead each organizational structure is a response to a set of contingencies (Abdel-Kader, M. and Luther, R. 2008).

A company's accounting system is a significant element of its organizational structure, and the particular features of an appropriate system will depend upon the circumstances that the company faces (Otley, 1980). The literature shows that important characteristics (contingencies) affecting organizational structure include, size, environmental uncertainty, production technology, corporate strategy and culture (Otley, 1995; Covaleski et al., 1996; Mitchell, 2002; Reid and Smith, 2000). Thus, it's very important to custom tailor a management accounting and control system for an organization, regardless of its type, size, technology and culture... etc.
Accordingly, different management accounting techniques and practices were developed throughout the 20th century, in response to the above mentioned factors.

Management Accounting Techniques and Practices

The major developments of management accounting techniques and practices since the 1950s, were identified by the International Federation of Accountants (IFAC, 1998), in the following stages;
Stage 1 – Prior to 1950s, the focus was on cost determination and financial control, through the use of budgeting, and cost accounting technologies.

Stage 2 – By 1960s, the focus had shifted to the provision of information for management planning and control, through the use of technologies such as;

- Decision analysis, responsibility accounting, zero-based budgeting, critical path scheduling, and management by objective.

Furthermore, by the 1970s, the following techniques were developed (Davood Askarany, 2014);

- Information economics and agency theory, just-in-time scheduling, strategic business units, experience curves, portfolio management, materials resource planning, diversification, matrix organization structures and product repositioning.

Stage 3 – By 1980s, attention was focused on the reduction of waste in resources used in business processes, through the use of the following technologies (Hagerty, 1997) and (Smith, 1999);

- Activity based costing (ABC),target costing, value-added management, theory of constraints, vertical integration, private label and benchmarking

Stage 4 – By 1990s, attention had shifted to the generation or creation of value, through the effective use of resources. This was achieved through the use of technologies, which examine the drivers of customer value, shareholder value and organizational innovation. However, among the most important tools that was developed during this period was, Economic Value Added (EVA), and Balanced Scorecard.

- ***Economic Value Added (EVA):***

The origins of the value added concepts, date all the way back to the early 1900's (Bromwich & Walker, 1998, p. 392).

The term "Economic Value Added (EVA)" is a registered trademark of Stern Stewart & Co in 1990s, a consulting firm which implements the EVA concept for large companies. **(**Singapore Management University, 2008).
However, EVA is not a new discovery. An accounting performance measure called residual income RI, is defined as operating profit after subtracting a capital charge. Thus EVA is one variation of residual income, with adjustments to how one calculates income and capital (Nikhil Chandra Shil, ACMA, 2009). Specifically, Economic Value Added (EVA) is a financial performance measurement that is directly linked, to the creation of shareholders wealth over time i.e. maximize shareholder wealth (M Geyser & IE Liebenberg, 2003). More explicitly, EVA measure is concerned with how much economic value is added for shareholders, by the management (Lucian Blaga, 2017).

- ***Balanced Scorecard:***

In 1992, Kaplan and Norton began writing about Balance Scorecard. They described it as a multi-dimensional approach to performance measurement and management, which is linked specifically to organizational strategy (David Otley, 1999).
Balanced scorecard is a management system that enables organizations to translate the vision and strategy into action (Robert S. Kaplan, 2010). This system provides feedback, on internal business processes and external outcomes, to continually improve organizational performance and results (Margarita IŠORAITĖ, 2008).More specifically, it focus on the following four perspectives (Margarita IŠORAITĖ, 2008).

1. The Financial Perspective: To succeed financially, how should we appear to our shareholders?
Examples of this perspective include; financial ratios and various cash flow measures.

2. The Customer Perspective: To achieve our vision, how should we appear to our customers?
Examples of this perspective include; the amount of time spent on customer calls and customer survey data.

3. The Internal Perspective: To satisfy our shareholders and customers, what business processes must we excel at? The internal business processes are often classified as mission oriented and support oriented.
Examples of this perspective include; the length of time spent prospecting and the amount of rework required.

4. The learning perspective: to achieve our vision, how will we sustain our ability to change and improve? Includes employee training and organizational attitudes, related to both employee and organizational improvement.
Examples of this perspective include; the amount of revenue that comes from new ideas, and measures of the types and length of time spent training staff.

Figure (1), explore overall developments of management accounting and control systems throughout the 20th century;

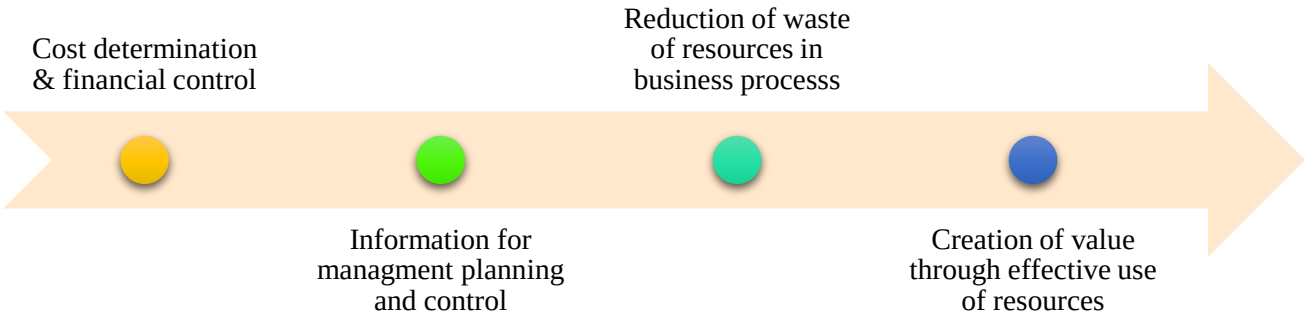

Figure 1: Developments of Management Accounting in 20th Century

Given all the above developments in management accounting techniques and practices, it has been mentioned in the literature that there is no universal consensus, with respect to what techniques constitute management accounting practices and innovations (Cadez & Guilding, 2008).

It is argued that many management accounting techniques, drawn from other disciplines such as, engineering and economics (Miller, 1998; Miller, Kurunmäkii, & O'Leary, 2008). According to Miller, et al. 2008, practices such as standard costing, discounted cash flows (DCF), break-even analysis, and much more have been drawn from disciplines other than accounting, and then adapted and constituted as the core of accounting.

Academic and Research Response

Academic & Research Response by 1950s

Prior to the Second World War, the innovators of management accounting techniques were practitioners. The study and research of management accounting, as an academic subject in universities did not gather momentum until the 1950s (J.C. Drury, 1992).

Researchers initially focused on developing decision models for managers, based on applying ideas derived from microeconomic theory. An early contribution to this economics-based literature was the concept of 'relevant costs.

It was demonstrated that a single concept of cost could not be unique for all purposes, and the expression 'different costs for different purposes', became a fundamental part of the management accounting literature in the 1950s.

It should be noted, however, that this expression was first used by Clark (1923), who devoted an entire chapter of his book to a discussion of it. Horngren (1975) refers to this era of management accounting as the conditional-truth approach; that is, truth depends on how the cost information will be used.

An important contribution to the literature during this period was a study by Simonet al. (1954). This highlighted how management accounting information, could be widely used by managers for planning and control. The authors identified three uses of accounting information:

-Scorekeeping
-Attention-directing
-Problem-solving

Academic & Research Response by 1960s

In the late 1960s, organizational and behavioral research into management accounting began to flourish (Kalu Nnanna Nwonyku, 2015). Kaplan (1992) observes that while management accounting is rapidly moving into a new era of increased technical expertise and sophistication, yet, in one critical dimension, management accounting still appears to be in the 'dark ages'. According to him, "accountants still tend to display an almost total lack of awareness, concerning the behavioral considerations involved in the use of these tools". Moreover, Kaplan (1992) observes with dismay that, "even when management accountants do participate in continuing education programs their goal is always to improve their knowledge of technical procedures, and little interest is expressed in courses dealing with behavioral topics." This is true even at the present time. Specifically, behavioral perspective in management accounting, is not only concerned with helping managers to make wise economic decisions, but also, to motivate them to achieve the desired objectives (Kalu Nnanna Nwonyku, 2015).

Academic & Research Response by 1970s

Awareness of the importance of human information processing (HIP) research to accounting issues, has increased dramatically since 1977. As a result, this literature has expanded in volume and addresses a larger spectrum of accounting problems (Robert Libby et al, 2014). Human information processing system (HIPS) is concerned with how people use information in making decisions (Michael et al. 1975). However, as decision making is the focal point of the current practice of accounting, accountants have shown particular interest in studies which investigate;

-The role of accounting information in user decisions
-The complex decisions required in the practice of accounting

Furthermore, the study of cognition or thinking processes of human information processing, is one of the earliest developments in scientific psychology. (Michael et al. 1975).In its inception, cognitive psychology is divided into normative and descriptive approaches. On the other hand, other researches on human information processing focused on decision Style Theory (Michael et al. 1975). This theory is based on the following two dimensions;

1. Amount of information used
2. Degree of focus

Combing these two dimensions, drives four basic decision styles, that could be made by management accountants;

1. ***Decisive Style:*** Under this style a person uses a minimal amount of data to generate one firm opinion.

2. ***Flexible Style:*** Also uses minimal data, but sees it having different meaning at different times.

3. ***Hierarchic Style:*** Uses masses of carefully analyzed data to arrive at the one best conclusion.

4. ***Integrative Style*****:** Also uses masses of data, but will generate a multitude of possible solutions.

3.6.4 Overall Academic and Research Response by 1990s:

By exploring management accounting development throughout the 20th century, it's very important to identify the different academic and research response during that time. Specifically, their response to the accounting profession, and management accounting discipline in particular. Among these developments are (James R. Martin, 2013);

1904: Cost accounting was being taught in the University of Pennsylvania and New York University.

1905:

- The Federation of Societies of Public Accountants merges with the American Association of Public Accountants.
- The first issue of the Journal of Accountancy is published based on an earlier journal of the Illinois Society of CPAs, The Auditor.

1906: The AAPA forms a committee to create ethics standards for its members.

1908:

- Harvard Business School was founded and the case study approach was adopted.
- On March 30, 1908, they establish the Graduate School of Business Administration.

1916:

- The AAPA changes its name to the American Institute of Accountants (AIA).

- The American Association of University Instructors of Accounting, is founded in Ohio. Annual membership dues were $3.00.

1917:

- The AIA approves eight rules of professional conduct, and provides state boards with a written test for accountants.
- An AIA project named "Uniform Accounting" was published in the Federal Reserve Bulletin - provided authoritative guidance related to the income statement.
- The first AIA examination is given.

1919:

- The National Association of Cost Accountants is formed in Buffalo, New
- The first issue of the National Association of Cost Accountants Official Publications is published. The title was changed to the N.A.C.A. Bulletin in 1925, N.A.A. Bulletin in 1957, Management Accounting in 1965, and Strategic Finance in 1999. The N.A.C.A. became the National Association of Accountants in 1957, and the Institute of Management Accountants in 1991.

1921:

- The American Society of Certified Public Accountants is founded in Washington.

1922:

- The AIA bans contingent fees and most advertising by public accountants and their firms. The ban on advertising lasted until 1978.
- The Puerto Rico Institute of Accountants was formed.

1923:

- The District of Columbia, Alaska, and Hawaii pass CPA laws.
- Clark, J. M. 1981. Studies in Economics of Overhead Costs. The University of Chicago Press. Reprint of Clark's 1923 publication.
- The American Management Association is founded

1926: The first issue of The Accounting Review is published. The first editor was William A. Paton.

1928: New York passed a law requiring a CPA candidate to be a college graduate to sit for the exam after January 1, 1938.

1929: The AIA set rules of professional conduct

1933: The American Woman's Society of CPAs is founded. A survey finds 105 female CPAs.

1936:

- The American Society of Certified Public Accountants merges with the AIA.
- First use of the phrase "generally accepted accounting principles" appears in an AIA report "Examination of Financial Statements".
- The American Association of University Instructors of Accounting was renamed the American Accounting Association (AAA).
- American Accounting Association. 1936. A statement of objectives of the American Accounting Association. The Accounting Review (March): 1-4. (JSTOR link).
- The AAA's Tentative Statement of Accounting Principles Underlying Corporate Financial Statements was published

1938: The Institute's Committee on Accounting Procedure (CAP) becomes the first U.S. accounting standard setting body in the private sector.

1939: The Institute of Internal Auditors is formed

1944: The National Conference of Lawyers and Certified Public Accountants was formed to foster better relationships between the professions

1946: The American Institute of Accountants published Contemporary Accounting.

1959: The Accounting Principles Board replaces the CAP as the Institute's authoritative financial accounting body.
1965: The first issue of The International Journal of Accounting Education and Research is published. Became The International Journal of Accounting in 1989**.**

1971: The American Accounting Association calls for an alternative to the Accounting Principles Board.

1973:

- The Financial Accounting Standards Board replaces the APB
- The International Accounting Standards Committee is formed
- CMA examinations held for first time.

1976: The Federation of Schools of Accountancy is established.

1979: First issue of Journal of Accounting and Economics is published.

1983:

- The first issue of Issues in Accounting Education is published. The first issue of the Journal of Accounting Education is published.
- The first issue of Advances in Accounting is published.
- The first issue of Contemporary Accounting Research is published**.**

- The FASB launched the EITF.

1987:

- The AICPA celebrates its 100th anniversary.
- The first issue of the Journal of Cost Management is published. Now Cost Management.

1988:

- The Cost Accounting Standards Board was dissolved in 1980 and permanently re-established in 1988.
- The first issue of the Journal of Management Accounting Research is published.

1991:

- The National Association of Accountants was renamed Institute of Management Accountants.
- The first issue of Advances in Management Accounting is published.

1992: The first issue of Advances in Management Accounting is published

1995: The AICPA launches the CPA Vision Project to define the future of the profession.

Developments of Management Accounting and Control Systems in the Twenty-First Century:

*"*People in the 21st century live in a technology and media-suffused environment, marked by access to an abundance of information, rapid changes in technology tools, and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills related to information, media and technology"

Competitive Environment, Technology and Organizational Change

In the changing environment of 21st Century, markets have become more competitive, mainly in respect to an increased level of quality and competitively priced products (Tuan Mat, 2010). Organization may respond to these changes, by reorganizing their work processes, through adopting organizational design and strategy, which have stronger customer orientation (Tuan Mat, 2010). In order to compete, many organizations made considerable investments in advanced manufacturing technology, such as computer-integrated manufacturing and just in time systems (Baines & Langfield-Smith, 2003), which in turn can increase quality, productivity and flexibility as well as reduce cost.

The institutional approach to organizational change, suggests that organizational structures affect an organization's learning strategy, and ability to adapt to changes in the external environment (Tuan Mat, 2010). It suggests that the organization structural arrangement can successfully change, if they implement either incremental or radical adaptive strategic change (Sisaye, 2003). Theorists of revolutionary change, have advocated that all organizational elements such as,

strategy, structures, people, systems, and culture, have to be changed simultaneously, to achieve maximum organizational alignment and effectiveness (Huy, 2001).

Organization Structure

In contemporary competitive settings, organizations are increasingly concentrating on factors that provide value to the customer (Cadez & Guilding, 2008a; Perera, Harrison, & Poole, 1997). This customer-focus is triggering a flattening of organizational structures. According to Chenhall (2008) the term "horizontal organization" has evolved to reflect practices applied in companies that integrate activities across the value-chain, to support a customer-focus strategy. In horizontal organizations, decisions are made by cross-functional management teams, including management accountants (Baines & Langfield-Smith, 2003; Naranjo-Gil & Hartmann, 2007; Scott & Tiessen, 1999).

Organizations are seen as having to deal with physical environments that are changing more rapidly, than the organizations themselves. Consequently, the pressure on organizations to adapt and change their structures is immense (Schwarz & Shulman, 2007). Organizational structures address the organization of work activities including both, personnel and production systems (Tuan Mat, 2010). Besides, describing it as a pattern of assigning responsibilities and delegating authorities. Furthermore, these structures can be described along either functional or divisional dimensions, such as, management controls, levels of hierarchy, decentralization, complexity of job tasks, degree of functional specialization, and extent of departmentalization, which will vary according to the organization's size (Sisaye, 2003). Structural change is offered as a means to help the organization evolve. This transition is stimulated by rapid environmental change, increasing complexity and uncertainty, and the predominance of loosely coupled organizational components (Schwarz & Shulman, 2007).

Changes in Management Style

Recently, management style moved away from top-down command and control, to bottom-up empowerment (Ian Herbert, 2009). In command and control style, senior managers are assumed to know best, and their main task is to decide what to do, and tell their subordinates how to do it (Ian Herbert, 2009).

While, employee empowerment, is concerned with giving workers the authority to do their jobs, in the way that's most appropriate to their local circumstances (Ian Herbert, 2009). Other terms, that describe this empowered approach include, participation, autonomy, and entrepreneurship i.e. people are encouraged to think and act as though the business was their own (Ian Herbert, 2009). Taking all the above into consideration, even the role of management accounting has changed.

Changing Role of Management Accounting in 21 Century

In the past, the management accountancy role was primarily one of collecting and presenting financial data. But today's management accountant must become a team player and effective agent for change (Chartered Institute of Management Accountants, 2015). It's not just the accountancy personnel, who need to champion change and create value. The tools themselves need to change too. The old reporting systems that were transaction-heavy, were created for the benefits of

accountants, and made heavy reading for management colleagues in other disciplines (CIMA, 2015).Reports now need to be easy to read, be direct and to the point. They must provide new business insights that excite and enthuse. The role of today's management accountant, is to facilitate the creation of value for clients (CIMA, 2015). Therefore, it's very important to explore organizational value chain, and management account role in such a chain

What is a Value Chain?

A value chain is the full range of activities – including Upstream, mainstream downstream activities – businesses conduct to bring a product or service from conception to delivery (Kayla Harrison, 2017). For companies that produce goods, the value chain starts with the raw materials used to make their products, and consists of everything added before the product is sold to consumers (Kayla Harrison, 2017). Furthermore, value chain management is the process of organizing these activities, in order to properly analyze them. The goal is to establish communication between the leaders of each stage, to ensure the product is placed in the customers' hands as seamlessly as possible (Kayla Harrison, 2017).

Porter's value chain

Harvard Business School's Michael E. Porter, was the first to introduce the concept of a value chain (Michael Hergert, 1989). Porter discussed the value chain concept in his book "Competitive Advantage: Creating and Sustaining Superior Performance" (Free Press, 1998). Porter wrote the following quote;

"***Competitive advantage cannot be understood by looking at a firm as a whole"***

"It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering and supporting its product. Each of these activities can contribute to a firm's relative cost position, and create a basis for differentiation." In his book, Porter splits a business's activities into two categories: primary and support (Kayla Harrison, 2017).

Primary activities include**;**

- Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, After Sale Service.

While, the support activities help the primary functions, and comprise of:

- Procurement, Technology Development, Human Resource Management, Firm Infrastructure.

Management Accounting Information Needs in Supply Chain:

Management accounting information, is a primary informational source for decision making and control. Effective management accounting techniques, can create considerable value for inter-organizational supply chain by (Miguel Martinez Ramos, 2004):

- Providing timely and accurate information , about the activities required for their success (i.e. to support and facilitate decisions throughout the organization)
- Providing information about the efficiency and quality of tasks performed, and about the performance of managers, and operating units (i.e. to ensure that actions are consistent with plans).

Moreover, the mechanisms and activities that play a part in supply chain relationships, must be somehow controlled. Both issues are related to the need for information, and for sharing information (Miguel Martinez Ramos, 2004). Management accounting is viewed as an appropriate, and powerful set of techniques capable of providing this kind of information (Miguel Martinez Ramos, 2004).

Management Accounting Techniques for Supply Chain Management

A common feature of recent management accounting techniques, is their strong focus on activities or processes, and a horizontal view of the company. Thereby, allowing the traditional boundaries of the company to be crossed (John Cullen, 2009). Management accounting techniques for supply chain management, are explored below:

Open-Book Accounting (OBA)

Open book accounting implies that the supplier, renders the buyer access to internal accounting data (Ellram, 1996).The purpose is to facilitate cooperation, leading to the identification of critical areas, and subsequent cost reduction.

One advantage, is that more trusting and harmonious relationship may develop (Mouritsen et al., 2001). The negative counterpart, is that buyer may use cost data to press for price reductions, which are not necessarily linked to suggestions on how to reduce costs.

Target Costing (TC)

Target costing consist of three main processes;

1. Deciding on the features of the product or service, and estimating its selling price from them.
2. Establishing the desired profit target, and then calculating the target cost.
3. Achieving the previously established target cost.

Kaizen Costing (KC)

Kaizen costing is similar to target costing in its cost-reduction mission, except that it focuses on reducing costs during the manufacturing stage of total life cycle of a product (Miguel Martinez Ramos, 2004).

Value Chain Analysis (VCA)

The core idea of CVA is to break up:

……the chain of activities that runs from basic raw materials, to end-use customers into strategically relevant segments, in order to understand the behavior of costs, and the sources of differentiation (Shank, Govindarajan, 1992, p.180).

Quality Costing (COQ Reports)

Quality costing is an important management accounting technique that aims to help improve quality, both within an organization and across organizations, in a supply chain. The key drivers are twofold (John Cullen, 2009):

a. To reduce quality costs.
b. To increase the quality offering to the ultimate customer.

Quality costs can be classified into:

- The cost of conformance (costs of prevention and costs of appraisal)
- The costs of non-conformance (costs of internal and external failure)

Performance Measurement (PM)

Performance measurement needs to take place throughout the supply chain, and should incorporate both financial and non-financial measures (John Cullen, 2009). However, the ways in which organization measures performance, reflects what the organization considers as a priority. Therefore, it's really necessary to use multiple measures of performance, so that employees focus on several dimensions rather than one.

Benchmarking

Benchmarking improves performance, by identifying and applying best demonstrated practices to operations and sales (Bain & Company guide, 2018).

Managers compare the performance of their products or processes, externally with those of competitors and best-in-class companies, and internally with other operations that perform similar activities in their own firms. (Bain & Company guide, 2018). This can be extended to benchmark performance across supply chains (e.g., different supplier performance or different customer performance in terms of the use of a particular product or service), using both financial and non-financial performance indicators (John Cullen, 2009).

New Management Accounting and Control System Practices and Techniques

To keep up with the changing role of management accounting and control systems in the 21st century, new practices and techniques have emerged (Mohammad Talha, 2010). Such practices and techniques consist of;

The American Institute of Certified Public Accountants (AICPA) states that management accounting as a practice extends to the following three areas:

1. Strategic management:

Advancing the role of the management accountant as a strategic partner in the organization.

2. Performance management:

Developing the practice of business decision-making, and managing the performance of the organization.

3. Risk management;

Contributing to frameworks and practices for identifying, measuring, managing and reporting risks to the achievement of the objectives of the organization.

New Management Accounting Techniques consist of:

Beyond Budgeting (BB)

Beyond Budgeting (BB) has been proposed as an influential idea, which will reinvigorate management accounting contribution in business operation, and performance (Michael Goode, 2011). According to Hope and Fraser (2003), the budgeting system as implemented by most businesses, should be eradicated. The budgeting debate has arisen due to a movement into the information age (Drury, 2008). It is considered that the environment is now so complex, and competitive, that budgeting in its existing form is no longer useful for businesses. Dissatisfaction with traditional budgets is growing in the business world, and 'Beyond Budgeting' has been suggested as a method, to reinvigorate the managerial contribution of management accounting (Michael Goode, 2011). It promotes the most ideal characteristics of a budgeting system; flexibility, coordination, and responsiveness (Pilkington & Crowther, 2007). It is not just another system of tools; it requires a complete overhaul of the organizations culture, and a shift in the management style (Becker et al, 2009). This can be performed in two stages;

1. Move toward performance evaluation relative to competition.
2. Implement a decentralized structure.

Moreover, there are 12 Guiding Principles to Beyond Budgeting:

1. Measure performance against the competition, not internal targets.
2. Motivate employees by empowerment.
3. Delegation to divisional managers allows them to take responsibility.
4. Give operational managers independent access to resources.
5. Create customer focused teams.
6. Provide transparent information sharing across the organization.
7. Set targets on external benchmarks.
8. Rewards in line with beating the competitors.
9. Allow managers to be involved with strategy planning.
10. Grant management access to local resources.
11. Coordinate the internal use of resources.
12. Performance measurement information should be available freely

Activity Based Management (ABM)

Activity Based Management (ABM) is another example of Accounting Management tool, which is replacing the traditional accounting system (Mohammad Talha, 2010). ABM uses detailed economic analysis of important business activities, to improve strategic and operational decisions. It increases the accuracy of cost information, by more precisely linking overhead, and other indirect costs to products or customer segments (Mohammad Talha, 2010).

Traditional accounting systems distribute indirect costs, using bases such as direct labor hours, machine hours or material dollars (Mohammad Talha, 2010). ABM tracks overhead and other indirect costs by activity, which can then be traced to products or customers.

ABM system can replace traditional accounting systems, or operate as stand-alone supplements. They require a strong commitment from both top management, and line employees in order to succeed. To build a system that will support ABM, companies should (Daum, 2002);

- Determine key activities performed
- Determine cost drivers by activity
- Group overhead , and other indirect costs by activity using clearly identified drivers
- Collect data on activity demands (by product and customer)
- Assign costs to products and customers (based on activity usage)

Resource Consumption Accounting (RCA)
Resource consumption accounting (RCA) emerged as a management accounting approach around 2001. It is formally defined as a dynamic, fully integrated, principle-based, and comprehensive management accounting approach, which provides managers with decision support information for enterprise optimization (B.Ismail Zabiullah1, et al. 2017).

Throughput Accounting
The most significant recent direction in managerial accounting is throughput accounting; which recognizes the interdependencies of modern production processes. For any given product, customer or supplier, it is a tool to measure the contribution per unit of constrained resource (B.Ismail Zabiullah1, et al. 2017).

Changes in Management Accounting Education
Management accounting has become a subject of hot debate over the last decades, and has undergone major transformation. The debate began with the well-known book of Johnson and Kaplan, Relevance Lost: The Rise and Fall of Management Accounting (1987) , and then numerous research papers contributed to literature on the past, present, and future of management accounting, as a service function in businesses, and as a professional practice for practicing management accountants.There are many academics arguing that traditional management accounting roles, have either disappeared, or been reconstructed (Jablonsky et al., 1993; Siegel and Sorensen, 1999). This argument is in line with academic research findings, that has extended management accounting activities, into domains beyond the traditional roles of , product costing, budgeting, planning and control as described in standard textbooks, which are commonly taught at educational institutions (Albrecht and Sack, 2001; Scapens et al., 2003).

However, the studies that was undertaken in Western countries, have contributed to the debate, that the roles of 'Management Accountants' require new forms of education and training, to meet the needs of the new business environment. In particular, it is argued, a greater concentration on the social and organizational sciences, and the development of research, learning, and problem solving skills, which provides skilful accountants, who are required for 21st century business environment (Boer, 2000). Furthermore, university's curriculum should be developed to reflect the new roles of management accountants which are behaviorist, business analyst, and Organizational Psychologist with emotional content. In other words, Prevailing subjects listed in the teaching syllabus, modes of study, and delivery of teaching programs, have to change to make room for new areas, which are more required in the competitive market that we experience these days (Burns, Hopper and Yazdifar, 2004). However, currently, very few universities modified their curriculum to reflect the changing role of management accounting.

Changing Role of Management Accountants

The literature is rich with papers discussing the changing roles of management accountants. However, the major contribution to the debate on that subject, is the report of American Accounting Association prepared by Albrecht and Sack (2001).

The authors argue that accounting education at higher education institutions, and universities, often leaves graduates unequipped to adequately deal with the different problems, that they face upon entering businesses for the roles that they are expected to fulfil (Burns, Hopper and Yazdifar, 2004).

They explain that accounting education at universities is mainly focused on, technical and theoretical aspects of accounting practices, whereas, by contrast, management accounting jobs are rapidly changing, and are grounded in new information technology and problem solving. They argue that management accounting roles and jobs, as conventionally defined, are disappearing (Burns, Hopper and Yazdifar, 2004). Currently, management accountant's role should be described as business advocate.

Professional Ethics Education

Higher educational institutions play an important role in the cultivation of the values of professional ethics. Universities should cultivate ethical values, instead of allowing young specialists to acquire them on their own (Marian ŢAICU, 2006).Teaching staff in universities can successfully use case studies, and examples of reality to teach professional ethics.

Students must realize that in practical work, they may face ethical dilemmas. They must understand that ethics is the foundation of sustainable business. However, company's responsibility is not confined to economic aspects, but also include ethical, social and environmental aspects.

Accordingly, universities should teach professional ethics, to accounting students starting from the first course of accounting.

Conceptual Framework of the Current Practices

Management accounting discipline has changed dramatically throughout the last 200 years. These changes were in respond to rapid technological developments, environmental uncertainty, changes in organization structure, new management styles, and various other changes. Specially, these were reflected in new practices and techniques that enhanced the changing role of management accounting. All these are represented in Figure (2):

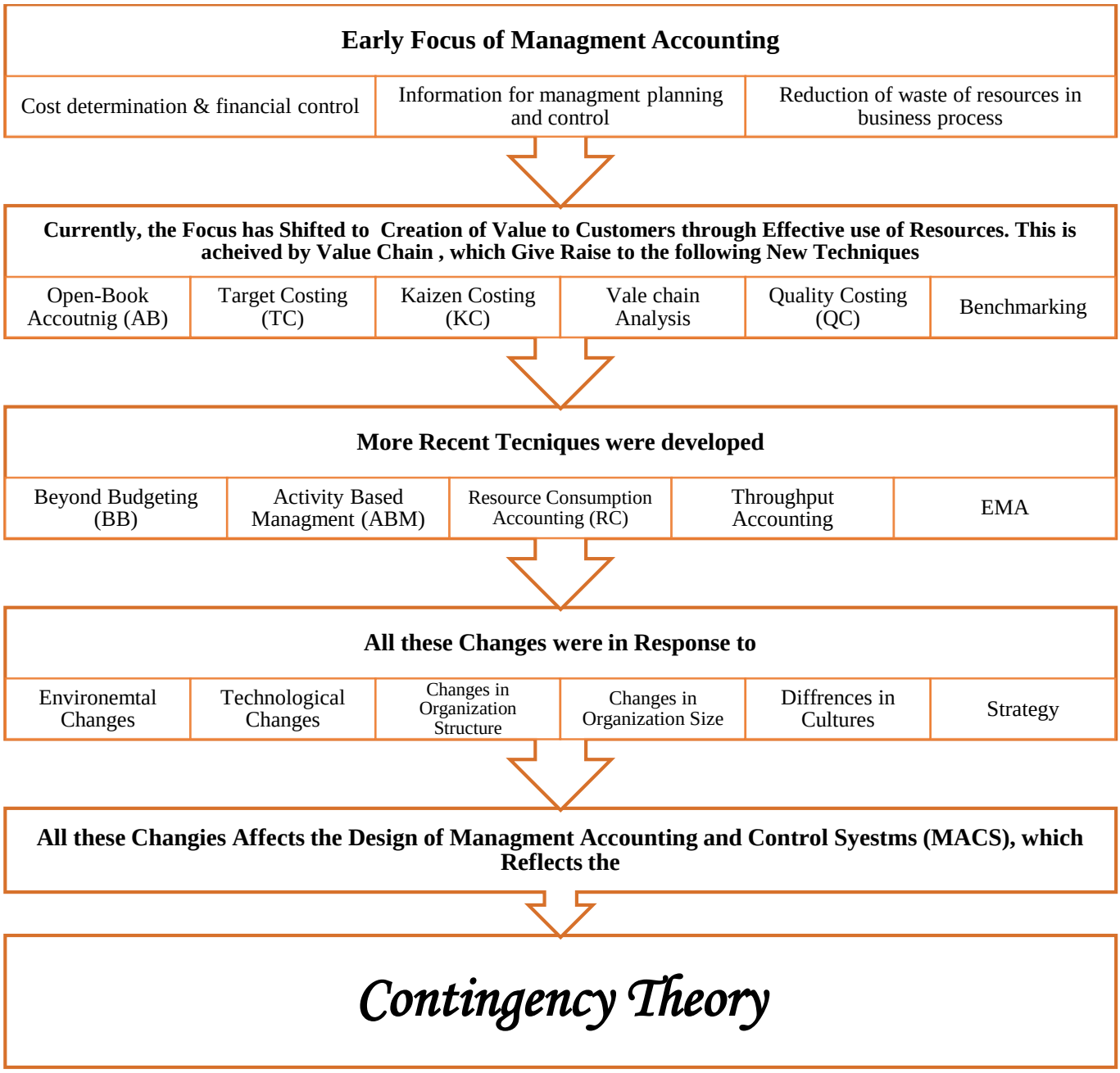

Figure 2: Major Development in Management Accounting

Future Directions of Management Accounting Discipline

Management accounting discipline will continue to develop as a respected and influential profession, with many careers and career paths relating to both value stewardship (protecting value through strong internal controls and risk management, for example) and value creation (financial planning and analysis, merger and acquisition assessment, etc., as examples).

Changing Role of Management Accountants in the Future

CIMA's CEO, Charles Tilley, outlines his views on what the future holds for management accountants. Tilley suggests a number of ways management accountants can develop and enhance their roles over the next decades. (martin, 2010).

1. Tilley notes that successful companies focus on longer-term sustainability. To do this, the right kind of management structures and incentives need to be in place. Here, management accountants can help by ensuring boards get the right kind of information to ask the right questions.

2. Companies need to focus beyond increasing shareholder value. While capital growth is important, running business with an ethical and longer-term focus might be better. Again, management accountants can help here, by providing a robust and ethical analysis of business information.

3. Globalization will continue to effect management accounting. More and more companies are increasingly bigger and face greater challenges on dealing with local knowledge, cultures etc. Again management accountants have a key role to play in providing information and assessing risks.

4. EMA is a subset of environmental accounting, but it's internally not externally focused.

The Future of the Accounting Profession

The accounting profession will face significant changes in the next three decades, and professional organizations, their members, and educational institutions should respond (Muhammad Azizul, 2017).

The three changes—evolving smart and digital technology, continued globalization of reporting/disclosure standards, and new forms of regulation, are also major challenges for the profession.

Association of Chartered Certified Accountants (ACCA) research—*Drivers of Change and Future Skills*—has explored these important changes, expected to be encountered by the year 2025. Three are highlighted here (Muhammad Azizul, 2017).

1. Accountants will use increasingly sophisticated and smart technologies, to enhance their traditional ways of working, and these technologies might even replace the traditional approach.

Smart software systems (including cloud computing) will support the trend toward outsourcing services (including more overseas outsourcing), and greater use of social media via smart technology will improve collaboration, disclosure, engagement with stakeholders and broader communities.

2. Continued globalization will create more opportunities and challenges for members of the accounting profession.

While globalization encourages the free flow of money from one capital market to another, enhanced overseas outsourcing activities and the transfer of technical and professional skills will simultaneously continue to pose threats to resolving local problems (with different cultural, financial, and tax systems).

3. Increased regulation, and the associated disclosure rules, will have the greatest impact on the profession for years to come.

For example, increased regulation is imminent because of massive tax avoidance, transfer pricing, and money laundering as exposed via the panama papers. Many professional (tax) accountants will be affected by intergovernmental tax action to limit base erosion and profit-shifting.

Additionally, because of greater public pressures and stakeholder expectations, social and environmental considerations are getting importance alongside economic concerns in contemporary organizations (Muhammad Azizul, 2017).

There is a range of stakeholder groups including shareholders, workers, governments or regulators, non-governmental organizations, media, and the community have a growing interest in organizational social and environmental issues (Muhammad Azizul, 2017).

Because of the widespread stakeholder concern and associated regulations toward social and environmental considerations, contemporary organizations are facing challenges to find sustainable solutions to deal with the complexity of integrating financial, social, and environmental performance (Muhammad Azizul, 2017). Furthermore, the regulatory concern for different social and environmental issues, along with the associated measurement and reporting complexities of these issues, has allowed accounting professionals to open their minds to the possibility that accounting has the capacity to change (Muhammad Azizul, 2017). The important implication is that all professional accountants will be expected to look beyond the numbers, which will, in turn, enhance collaborations among members of multiple professions, including accountants, doctors, lawyers, environmental scientist, sociologists, and so on.

Implications for Teaching

Future accountants will increasingly need education in digital technology, globalization (outsourcing of accounting services), and evolving regulations (tax regulation, new forms of corporate reporting, integrated reporting regulation, and so on) (Muhammad Azizul, 2017). The ACCA report revealed that knowledge of digital technologies is the key competency area where professional accountants have skill gaps. At present, accountants lack knowledge in (Muhammad Azizul, 2017);

- Transformation of new disclosure regulations
- New forms of disclosures
- Awareness of the interconnectedness of financial and non-financial reporting.

Professional accountants will need the skills to provide more all-inclusive corporate reporting, which tells less about the numbers, and more about the narrative of the organization (Muhammad Azizul, 2017).

Unfortunately, at the moment, few universities have developed curricula for accounting students in line with their future needs. Universities will need to develop or incorporate new units, such as (Muhammad Azizul, 2017);

- Cloud computing, big data, digital technology, integrated reporting, carbon emission accounting, and so on for accounting students.

Professional accounting organizations should consult with universities to collate experts/lecturers in the new areas and run new courses. At the same time, universities should either invest in existing faculty members for training and learning, or recruit experts to coordinate and lecture new units.

Future Profile of Management Accountants

Nowadays, the needs of business in a complex and competitive environment, are exceeding the ability of organizations to capture, assess, and provide actionable strategies (Thomson, 2016). Consequently, management accountants are in a unique position to differentiate themselves, by developing enhanced skill sets not only in traditional descriptive statistics (an analysis of historical events), but also predictive analytics (forecasting future events) and prescriptive analytics (actions and interventions, based on historical and future trends) (Thomson, 2016).

Data analytical skills is very important for future management accountants , as businesses collect or have access to a multitude of data about their customers, products, and markets in a business environment characterized by the 4 Cs;

- Complexity
- Commoditization
- Consolidation
- Competition

So understanding this data and extracting insights, could lead to competitive advantages and sustainable growth (Terry, 2016). Furthermore, The advent of social media and digital marketing metrics, including Twitter, Facebook, blogging, and more, results in both risk and opportunity for the organization , to personalize its marketing approach in the prospecting process (Terry, 2016). So, while management accountants do not need to become econometrics, they need to understand how to extract, assess, report, and offer actionable insights on all of the data available to the enterprise (Terry, 2016).

Other important skills that management accountants must possess are business partnering skills (also known as trusted business advisory skills). This includes resiliency and adaptability given all of the change and disruption inherent in our business environment. The ability to assess a situation in real time, often a situation not expected, and to offer advice is critical (Thomas, 2016). The disruptive situation could be driven by competition, technology, the global economy, or even the customer themselves

Future of Management Accounting Education

Institute of Management Accountants (IMA) continues to work aggressively on a joint committee with the American Accounting Association (AAA) to identify changes to current accounting curricula to make it more balanced, integrative, and reflective of what accountants actually do and will do in the area of “enterprise performance management " (Terry, 2016).

The IMA-AAA task force has put forward a specific competency-based integrated framework, but it will take a call to action from the entire accounting profession (academia, corporations, and professional associations/other partners) to deliver long-term transformation (Thomas, 2016).

Incrementally, IMA has seen some marginal increase in its number of endorsed schools (i.e., those whose curricula largely aligns with the Certified Management Accountant body of

knowledge). The IMA recently also put forth for public comment its Management Accounting Competency Framework, for professionals in business environments to assess and remediate their competency gaps (Thomas, 2016).

Future directions toward Lean Enterprises

Lean manufacturing was developed by Toyota and other Japanese companies. Toyota executives claim that the famed Toyota Production System was inspired by what they learned during visits to the Ford Motor Company in the 1920s, and developed by Toyota leaders such as Taiichi Ohno, and consultant Shigeo Shingo after World War II (Wikipedia,2017).

As pioneer American and European companies embraced lean manufacturing methods in the late 1980s, they discovered that lean thinking must be applied to every aspect of the company, including the financial and management accounting processes (Wikipedia, 2017). There are two main thrusts for Lean Accounting:

1. To eliminate waste, free up capacity, speed up the process, eliminate errors and defects, and make the process clear and understandable.

2. To fundamentally change the accounting, control, and measurement processes so they motivate lean change and improvement, provide information that is suitable for control and decision-making, provide an understanding of customer value, correctly assess the financial impact of lean improvement, and are themselves simple, visual, and low-waste. Lean Accounting does not require the traditional management accounting methods like standard costing, activity-based costing, variance reporting, cost-plus pricing, complex transactional control systems, and untimely confusing reports (Wikipedia, 2017).

These are replaced by:

- Lean-focused performance measurements
- Simple summary direct costing of the value streams
- Decision-making and reporting using a *box score*
- Financial reports that are timely and presented in "plain language" that everyone can understand
- Radical simplification and elimination of transactional control systems by eliminating the need for them
- Driving lean changes from a deep understanding of the value created for the customers
- Eliminating traditional budgeting through monthly sales, operations, and financial planning processes (SOFP)
- Value-based pricing
- Correct understanding of the financial impact of lean change

As an organization becomes more mature with lean thinking and methods, they recognize that the combined methods of Lean Accounting in fact creates a Lean Management System (LMS) designed to provide the planning, the operational and financial reporting, and the motivation for change required to prosper the company's on-going lean transformation (Wikipedia,2017).

CONCLUSION AND RECOMMENDATIONS

Management accounting and control systems have changed dramatically throughout the last 200 years. These changes were in response to rapid changes in various contingency variables, which affects the design and operation of management accounting and control systems. Such variables include, external environment, organizational structure, size, culture, and technology.

Specifically, rapid technological developments have enhanced the role of contemporary management accounting systems, by enabling fast processing of information and provision of such information for mangers to make different planning and control decisions. As a result of all these changes, many of the various contemporary techniques and practices of management accounting, have emerged to fulfill the rising information needs of organizations. Therefore, this paper provided an analytical review of the changing role of management accounting and control systems throughout the centuries. By emphasizing on management accounting roots starting from ancient civilizations, up to the developments of the discipline in the 19th century. Following that, the developments of management accounting through the early decades of the 20th century were explored. Moreover, the developments of management accounting and control systems in the twenty- first century was stated, together with clarification of the academic and research response throughout the centuries. Taking all the above factors into consideration, a conceptual framework of the current practices of management accounting and control systems was developed. Furthermore, the role of management accountant in the future was indicated, in addition to the future of accounting education with emphasize on management accounting and control systems. Lastly, in order to cope with continuous changes in the discipline, the following recommendations are provided:

- In order for management accounting to maintain its relevance, there is a need to react to changes in business environment, and awareness of management of the need for change.
- More emphasis needs to be placed on developing the personal skills, in addition to technical skills of management accountants i.e. they need effective skills in communication, analysis, creativity and adaptability.
- Managers require better understanding of contemporary management accounting methods to make better decisions.
- To be competent and reliable in an organization, management accountant should proactively be involved in organizational leadership, strategic management, operational alignment, and long-life learning and improvement.

Furthermore, there are different research areas that need to be addressed in the management accounting discipline. Among these areas are;

- The impact of gender and gender role in management accounting and control system.
- Social and ethical issues need to be researched extensively.
- Integrated reporting, as a means of holistic reporting of creation of value from both financial, and non-financial resources.
- Behavioural issues of management accounting should be investigated further
- Human Information Processing (HIP) issues

- A comparative study on the different practices of management accounting and control systems across companies in different countries.
- Environmental Management Accounting (EMA) issues

The list is not exhaustive, as every day a new area may arise in response to technological, organizational, and overall environmental complexity and uncertainty.

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The author deeply appreciates Professor Mohamed Ali Mirghani for his valuable comments and feedback on this article.