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A study of the factors influencing the adoption of Management Accounting Innovations in less developed countries: The case of Libya

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Abstract

This study was conducted to examine the factors that influence the adoption of management accounting innovations (MAIs) generally compared to the use of traditional management accounting practices (TMAPs). This was done by looking at the specific case of Libyan manufacturing and non-manufacturing organisations. In view of the nature of the research questions, a mixed methods approach was adopted prioritising quantitative data from a descriptive analysis of 103 returned questionnaires (a usable response rate 41.2 %) in addition to statistical analysis that included correlations and multiple regressions to test the hypotheses of the study. For the qualitative data, 10 semi- structured interviews were conducted. The TMAPs were divided into five groups while the MAIs were seven techniques taken from a review of relevant literature. In looking at factors affecting adoption of MAIs, these were taken from two different perspectives, that of a hybrid framework of New Institutional Sociology (NIS) and contingency theories.

The descriptive analysis indicated that most TMAPs are in use within the Libyan organisations. The management accounting practices (MAPs) that have the highest adoption rates are related to the budgeting group. The results also indicate that three factors were significantly associated with facilitating the adoption of MAIs. They were; using computer systems for MA purposes, top management support, and MA training programmes. The most influential factors hindering the adoption of MAIs were; lack of skilled employees, lack of local training programmes in MAIs, and lack of support from top management. The results of this study indicated that the adoption of MAIs in Libyan organisations have made considerable progress in recent years compared to previous studies conducted in Libya. In addition, the outcomes of empirical analysis and hypotheses test were significant and provide valuable contribution to relevant literature in Libyan context.

To conclude, this study made a significant contribution to knowledge by presenting a reasonable explanation of the adoption of MAIs in Libya, and offered additional insights into factors that influence the adoption of MAIs in the Libyan context. Moreover, it suggests future studies, specified the limitations of the study, and filled the gap in MAIs literature by developing a theoretical framework that evaluates the influence of institutional and contingent factors on adopting MAIs in Libya.

Dedication

I wish to dedicate this thesis to the spirit of my brother “Abdul-Ganee” who passed away during my study, also to my mother to whom I am forever grateful. I wish also to dedicate this thesis to my wife Nabiha, my daughters Soroor and Noor, my son Omar, and all my family and friends.

Thank you all for your love and support

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I am very grateful to Almighty ALLAH for the protection and strength throughout the entire thesis period.

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Finally, I would like to thank my family, colleagues, friends, and all the staff of Salford Business School for providing me support and encouragement throughout my years of study and through the process of researching and writing this thesis.

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26 October 2015

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Dear Alhadi

Re: Ethical Approval Application – A study of the factors influencing the adoption of management accounting innovations in less developed countries: The case of Libya

I am pleased to inform you that based on the information provided, the Research Ethics Panel have no objections on ethical grounds to your project.

Yours sincerely

Julie Connett

Julie Connett

On Behalf of the Research Ethics Panel

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List of abbreviations

ABC Activity Based Costing

ABM Activity Based Management

ARR Accounting Rate of Return

AT Agency Theory

BSC Balanced Scorecard

CMAPs Contemporary Management Accounting Practices

CS Control Systems

CT Contingency Theory

EVA Economic Value Added

GATT General Agreement on Tariffs and Trade

GCC Gulf Cooperation Council

GDP Gross Domestic Product

GNI Gross National Income

GNP Gross National Product

GPC General People ‘s Committee

IFAC International Federation of Accountants

IRR Internal Return of Rate

JIT Just-in-time Manufacturing

JVs Joint Ventures

LAAA Libyan Accountants and Auditors Association

LCC Libyan Commercial Code

LD Libyan Dinar (The local currency)

LDC Less Developed Countries

MA Management Accounting

MAIs Management Accounting Innovations

MAP Management Accounting Practices

MAS Management Accounting Systems

MMR Mixed Methods Research

NAFTA North American Free Trade Agreement

NIE New Institutional Economics

NIS New Institutional Sociology

NPV Net Present Value (NPV)

OIE Old Institutional Economics

OPEC Organization of the Petroleum Exporting Countries

PB Payback period

ROI Return on investment

RI Residual Income

RCC Revolutionary Command Council

SMEs Small and Medium-sized Enterprises

SOE State Owned Enterprises

SMA Strategic Management Accounting

TC Target Costing

TQM Total Quality Management

TMA Traditional Management Accounting

TMAPs Traditional Management Accounting Practices

VIF Variance Inflation Factor

WTO The World Trade Organization

Declaration

I hereby declare that I am the author of this thesis; that the work of which this thesis is a record has been done by myself, and that it has not previously been accepted for a higher degree.

Date…15/05/2018……

Alhadi M Boukr

Chapter One: Introduction

1.1 Overview

This study investigates the factors influencing the adoption of MAIs in the Libyan context. Based on contingency and institutional perspectives, this study aims to attain an understanding of the factors behind the diffusion of MAIs in Libya.

This chapter is mainly divided into six sections to highlight the major research stages and steps. The next section gives a contextual background, while section three presents the purpose and the justifications behind undertaking this study. Following that, section four explains the main aim and imposes the questions of the study. Section five discusses the research framework and the methodology of this study. Finally, section six presents the proposed study structure.

1.2 Contextual background

In the last three decades, many criticisms of MA have been written relating to its traditional tools such as variance analysis, standard costing, budgeting. These writers said that traditional management accounting practices TMAPs are not adequate for the current manufacturing process (Cooper & Kaplan, 1991; Johnson & Kaplan, 1987; Kaplan, 1984, 1986b). Moreover, new techniques in MA are needed to cope with developments in the business environment.

The extant literature states that changes in MAPs and MAIs are relatively slow to match the information needs of organisations in the current organisational environment (Ax & Bjørnenak, 2011; Baldvinsdottir, Mitchell, & Nørreklit, 2010; Sorensen, 2008). Busco (2006) contends that researchers around the world have attempted to bring about an innovative change in MAPs in order to present them in line with organisational strategic objectives, including organisational performance (Macintosh & Quattrone, 2010), corporate vision, organisational commitment (Hopper & Powell, 1985) and goals. According to Ahrens and Chapman (2007), there is a need to move beyond a MA focus from a western perspective to one which delves into the practices of less developed countries in Asia, Arab countries and Africa, where there is a difference in the practice of accounting.

The authors also contend that such a pursuit will help increase the strategic and commercial advantage of MA and show the need for MAIs.

Extant literature has also identified a number of responses in order to establish the cause of changes in the adoption of MAIs. Innes and Mitchell (1990) argue that the adoption of MAIs is a result of various contingency factors such as: a competitive and dynamic market, product cost structures, management influence, deteriorating financial performance and management influence. Furthermore, Scapens (2006) contends that business environment changes, including globalisation, customer focus, technological changes and the changing face of organisational structures, have impacted the management information needs and therefore MAPs. In similar research by Yazdifar and Tsamenyi (2005), they argue that the adoption of MAIs was due to associated improvements in information technology, management style changes, a customer oriented focus and, restructuring of organisations and globalisation. In the modern manufacturing systems, many changes are vital to the MA profession which are related to information requirements, channels, understanding organisational structure changes and adoption of new communication models (Yazdifar, 2003).

In the same context, some studies carried out in less developed countries such as that by Nassar, Al-Khadash, Al-Okdah, and Sangster (2011) who conducted a study aiming to assess the role of supply factors to implement (or not) MAIs among the Jordanian manufacturing sector. The study focused on seven factors including:

Consultant companies
Accounting education in Jordanians school and universities;
Professional accounting bodies in Jordan;
Conferences, seminars and workshops;
Co-operation between universities (academics) and companies (professionals);
Specialist MA journals;
Accounting research in Jordan

They found that the most important factors leading to the decision to implement MAIs in the Jordanian manufacturing sector from a supply side perspective were consultant companies and accounting education. Moreover, lack of co-operation between universities (academics) and companies (professionals) in Jordan, lack of conferences, seminars and workshops in Jordan and lack of local Consultant companies were the main factors behind not adopting and implementing MAIs.

A field study undertaken in South Africa by Waweru, Hoque, and Uliana (2004) covered four retail firms in order to understand the process of MA change in these firms. The study suggested that the two major contingent factors influencing MA change were the intensified global competition and changes in technology. In addition, shortage of resources required to fund change, change resistance within employee, and fear of change were the dominant factors that impeded MA change.

Joshi (2001) examined the MAPs in use in India through surveying 60 large and medium sized industrial firms in India. The study found that the main factor influencing the adoption of MAIs was the size of organisations. In addition, the conservative attitude of Indian management, autocratic leadership, and long-term orientation were other factors which influenced the adoption of MAIs. Wu, Boateng, and Drury (2007) found that the type of ownership plays a role in structuring MAS in China when they studied both state-owned companies and joint ventures with foreign companies. The results indicated that joint ventures with foreign companies used MAIs more than local state-owned companies. In a different study, Joshi, Bremser, Deshmukh, and Kumar (2011) examined how MAPs diffuse and are adopted among listed firms in the Gulf Cooperation Council (GCC) countries. The study argues that the most influential organisational factors in MA change were power and politics. Also, Allahyari and Ramazani (2011) examined independent variables that impede MA change within different sized (small, middle, large, and very large) manufacturing firms in Iran aiming to get better understanding of the MA change process. The study examined seven factors namely: lack of accounting employees, lack of competition resources, management stability, problems in management, lack of accounting power, being assured of meeting legal requirements, and lack of independence from parent company. The results indicated that the lack of accounting employees, lack of independence from parent company and the lack of competition resources have a significant influence on MA change.

More recently, Al-sayed & Dugdale, (2016) conducted a study aiming to investigate the impact of organisational and environmental factors on the extent of the adoption of Activity Based Innovation (ABI) in the UK Manufacturing sector. The findings of this study show the importance of top management attitudes faced with pressure on a business unit to initiate/adopt ABI. Furthermore, the study concluded that the organisational factors, top management support and champion support have significant role in deciding the extent of ABI use.

In a different study Askarany (2016) examined the significance of the effect of characteristics of innovation on the adoption and diffusion of ABC in the Sultanate of Oman. The study found that the adoption and diffusion of ABC in Oman was not very popular, and there was not decisive proof of the importance of innovation characteristics on in the adoption and diffusion of ABC. Furthermore, Chiwamit, Modell & Scapens, (2017) studied the role of regulations through answering the following question; how do regulators mediate the adaptation of MAIs and how does this mediation affect the use of such innovations across regulatees. The study concluded that regulatory standards do not necessarily evolve as an integral part of one coherent reform programme. This is even though the diffusion of MAIs can be seen as an essential part of broader neo-liberal reform programmes aimed at 'modernising' the public sector.

In Egypt, Hussein (2018) conducted a research aiming at examining the adoption, importance and barriers to the implementation of CMAPs. The study tested a total of 40 MAPs, classified into four groups; cost accounting, planning–budgeting, performance evaluation, and decision support. The research findings showed that although there was significant progress towards implement CMAPs, however, TMAPs still have an implementation rate higher than of CMAPs. In terms of factors that impede the implementation of CMAPs, the impediments that have highest impact were; the time taken to change societal values and practices (rank 1), the high degree of uncertainty avoidance (rank 2), the high cost to implement these advanced practices (rank3) and lack of financial resources (rank 4). Moreover, the study revealed that accounting education represent an important factor towards providing students with a beneficiary preparation to become qualified management accountants who are aware of the benefits of CMAPs and how they can improve companies' performance.

Robalo and Gago (2017) traced the adoption of MAIs in the Portuguese public-sector over a period of 4- years. They specified multiple factors that impacted the adoption process whether positively or negatively such as deregulation and improved accountability in the public sector spread by the new public management paradigm in Portugal, the organisational influence of first-line managers, the interferences of (external) third parties such as consultancy firms, and changes at the board level.

In the Libyan context, according to Hosen, Hui, Suliman, and Rahman (2011), over the last few decades there has been significant growth in the Libyan manufacturing sector, with an associated increase in challenges from regional and international competitors. Recently, some

research has been conducted related to MA in Libya such as that by (Abulghasim, 2006; Leftesi, 2008; Alkizza, 2006; Zoubi, 2011; Abugalia, 2011).

Abulghasim (2006) studied MAPs used in Libyan state owned firms. He found that the most significant factors that impeded the diffusion of MAPs were: shortage of modern text books and publications, MA education, lack of training programs, lack of competent operations managers, lack of an active professional MA society, the loss of existing foreign companies, social, political and cultural obstacles, and the lack of financial resources. In addition, other factors were considered to be less influential on the diffusion of MAPs such as: lack of MA studies, the lack of top management support, and lack of English language speakers. Similarly, Alkizza (2006) conducted a study to explore the MAPs in use in the Libyan context. He adopted Innes and Mitchell's (1990) framework in his study. The study reported that use of MAPs in Libya were motivated by four factors; change in the state regulations, change in the firm's strategic goals, increase in the market competition, and change in the organisational structure. The catalysts of change were; the loss of market share and poor financial performance, while the availability of academically qualified accountants who have limited ability in developing accounting systems, the availability of adequate computing resources, the autonomy of management from the parent company before becoming a unitary firm, the authorisation of accountants to change and improve the internal accounting methods, and the help of external accounting and computing advisors were the facilitators.

In the same vein, Leftesi (2008, p. 217) found that the six items that most negatively influence the diffusion of MAPs within Libyan manufacturing companies were related to institutional factors: lack of an active professional MA society, lack of local training programmes about advanced techniques, lack of relevant courses on such advanced techniques in academic institutions, lack of software packages relevant to advanced techniques, lack of up-to date publications about advanced techniques, and the absence of Libyan companies that have adopted advanced techniques. On the other hand, four factors namely; the availability of resources, the availability of training, top management support and company size had positively influenced the adoption of MAPs.

1.3 Purpose of the study

This study is conducted in one of less developed countries to respond to different calls for undertaking further research that may overcome the limitations of the previous studies (see section 3.6.1). The main purpose of the study is to promote understanding about what factors

influence the adoption of MAIs among Libyan organisations? The researcher was highly interested in finding out a rational answer to the previous question by exploring key factors that facilitate or impede the adopting of MAIs in Libya as well as examining the status of traditional MAPs. Moreover, this study was aimed to attain results that will enable the researcher to generalise the research findings to the manufacturing, non-manufacturing sectors. To achieve the study objective, this study adopts a combination of contingency and New Institutional Sociology (NIS) theories as an approach. Adopting both theories will help focus on contingent and external organisational factors including potential cultural factors which may influence the MAIs adoption process. This study will update what MAPs are in use in the Libyan context and it will also investigate the factors influencing the adoption of MAIs in the manufacturing and non-manufacturing sectors.

To answer the study's questions, this study employs mixed methods research which comprises both questionnaires and in- depth interviews to collect data rather than a single method to help obtain more valid and reliable data. In addition, this study will not only describe MAPs in use in Libyan context, but it will also explore factors influencing the adoption of MAIs there. These factors can be classified into: contingent factors, institutional factors, and a combination of contingency and institutional factors. Another important contribution of this study at this time is to research and declare results freely and transparently without censorship or fear of any threats if the findings show the political regime to be responsible for any shortage. This free political environment was not available for previous studies as they were conducted during the dictatorship era in Libya between 1969 and 2011.

1.4 Research questions

The main aim of this study is to investigate the factors that influence the adoption of MAIs in Libyan manufacturing and non-manufacturing organisations. To achieve the study's aim, it has to answer the following questions:

Q1- What is the current status of the adoption of TMAPs and MAIs in manufacturing and non-manufacturing Libyan organisations?

Q2- What are factors that have influenced the adoption of MAIs in Libyan organisations?

> Q2 A- What are the main factors that may hinder and/or enhance the adoption of MAIs?

Q2 B- What is the role of contingent and institutional factors in the diffusion of MAIs?

Q3- What was the effect of the political change and instability in Libya on the adoption of MAIs?

1.5 Significance of the study

The significance of this study comes from providing a good understanding of the factors that influence the adoption of MAIs in general and in Libya particularly. In addition, this study represents a primary step towards fully understanding this topic and paves the way for possibilities of future research into the adoption of MAIs in Libya and other developed countries. The most important reason for conducting this study is to attempt to overcome the limitations of previous studies that undertaken in Libya (See section 3.7 for more details). These limitations can be summarised as; rarity of studies into advanced MA in Libya, a lack of in depth studies related to MAIs in Libya, none of previous studies used combination of contingency and NIS theory, none of previous studies employed the number of factors that have been examined in this study, and this study was the first study related to MAIs to be conducted after the political change in Libya in 2011.

1.6 Research methodology and framework

To answer the research questions, the methodology adopted in the current study is Mixed Methods Research (MMR). According to Creswell (2012), the adoption of a mixed methods approach is effective in management literature as it helps provide consensus information from quantitative approaches like survey analysis and organisational performance, while supporting these views with qualitative approaches like interviews. Moreover, this method offers a combination between quantitative and qualitative research. The major advantage of mixed methods is that it enables the researcher to collect data from different sources for the same object. Furthermore, the Mixed approach is commonly used in MA research to cover the weaknesses of using a single method. Thus, the current study adopts a survey approach as the main data collection instrument targeted at accountants and senior managers of Libyan manufacturing, non-manufacturing organisations. According to Bryman (2012), the use of a survey approach will help identify the views of a number of respondents within a short time. Given this advantage, the current study adopts such an approach. The survey will help

identify the current MAPs in use and give a good idea of factors influencing the adoption of MAIs.

This study also adopted an interview analysis at a later stage after collecting distributed questionnaires aimed at obtaining a deeper understanding of factors that impact the diffusion of MAIs. According to Creswell (2012), the use of a qualitative interview to support the quantitative questionnaire is vital as it helps identify the underlying reasons for specific concepts and helps identify specific themes. This method is useful as it presents an in-depth view and helps the researcher to pose a multitude of questions to the interviewees based on the direction of the interview. The interviewees were chosen firstly according to their desire to be interviewed indicated in their questionnaire response. Another criterion that helped the researcher choose the interviewees was to investigate the variety of sectors (e.g. Manufacturing and non-manufacturing) and variety within same sector (different industries in the same sector).

This research follows two theories, contingency and NIS. The rationale behind using the NIS with contingency theory was to overcome the disadvantages of each theory when used separately. Therefore, using hybrid theories can enhance our understanding of the MAPs adoption process. In other words, using two different theories gives more credibility to the research results through studying the influence of different external and internal factors on MAIs' adoption process.

Regarding the population of the study, this study focused on manufacturing and non-manufacturing Libyan companies whether private or state-owned. However, this study was confined to medium and large companies working in Libya in different sectors. The number of employees was the main factor to classify a company's size. The reason for choosing non-manufacturing companies is because this sector has not been covered in depth in previous studies in Libya. The desire of the researcher was to cover different activities in the services sector such as telecom companies, financial organisations, hotels and hospitals to explore their role in adoption of MAIs in Libya.

1.7 Structure of the thesis

The thesis contains eight chapters. The next chapter presents an overview of the Libyan context including the historical background, political and economic environment. In addition, it presents a summary of the accounting profession in Libya. Chapter three presents the

evolution of MA and the diffusion of MAIs. It discusses MA change in developed and less developed countries, then it takes a broader look of the diffusion of innovations, the definition and diffusion of innovations in the literature, types and theory of diffusion of innovations, and the alternative explanations. Finally, it provides details of factors influencing the adoption of MAIs in developed and less developed countries. Chapter four explains the adopted framework of the study and discusses different approaches used in MA research, however, it focusses particularly on the NIS theory incorporated with contingency theory. Both were adopted as a framework for this study. Chapter five shows the methodology of study. Mixed methods research was adopted as a methodology, data will be collected using questionnaires supplemented by in-depth interviews. Chapter six is devoted to the descriptive analysis of the data from the questionnaires. Chapter seven provides the result of the empirical analysis and the test of the hypotheses. This chapter comprises the interviews analysis and the interpretation and discussion about quantitative and qualitative data analysis. Finally, chapter eight summarises the main study findings, the limitations of the study and recommends future study topics.

Chapter Two: Libyan Business Environment and Economy

2.1 Overview

Much research conducted in former socialist and transitional countries has shown that there is a strong relationship between reforms and MA changes in these countries. The findings of these studies mentioned that the business environment has an important influence on MAPs (Alkizza, 2006). Therefore, it is reasonable to give the economic and historical background on the environment where this research will be conducted.

This chapter covers the Libyan geography, illustrating the location of Libya on the map. Then a short history of Libya will be given from ancient history up to modern times. Following that the Libyan political and economic environment is covered; the chapter will talk firstly about politics then in some details about the economics of Libya before and after the discovery of oil then about the era of privatisation. Finally, the accounting profession in Libya is covered in the last section.

2.2 Libyan geography:

Libya is one of less developed countries located in central north Africa; it occupies part of southern shore of the Mediterranean Sea with a coastline of about 1900 km. Libya has common borders with Egypt and Sudan on the east, Chad and Niger on the south, Tunisia and Algeria on the west. Tripoli is the capital city located in the northwest of the country. Figure 2.1 shows the location of Libya in the world.

The total area of Libya is about 1,760,000 sq. km, which is more than seven times bigger than the UK. It is the fourth biggest African country. However, most of the land is desert which is reflected in the population distribution, the majority of the Libyans living in a few coastal cities. With regard to population, the first national census was conducted in 1954 and the population was 1.041 million. Life expectancy increased from 42.4 to 69.5 years between 1949 and 2002, and there was a dramatic increase the urban population from 1.344 to 4.812 million between 1973 and 1995. In other words, the percentage of urbanisation grew from 59.8 to 85.6 percent between 1973 and 1995 (Otman, 2007).

Figure 2. 1. Libya map

The population was about 6,244,174 in 2014 (CIA, 2012). The vast majority of the people 77.6 percent of the population live in urban areas, while 22.6 percent of the population live in rural areas (UN, 2012). Most of the population (90%) lives in 10% of Libya along the Mediterranean Sea coastline. The density of population per sq. km is very low (3.75 per sq. km). Also, in recent years there has been a significant drop in the population growth rate from 3.98 percent in 1985 to 1.54 percent in 2010 (UN, 2012).

Arabs and Berbers represent 97 percent of the population. The other 3% includes Greeks, Maltese, Italians, Egyptians, Pakistanis, Turks, Indians, and Tunisians. Islam is the dominant religion with about 97 percent of people being Sunni Muslims. Arabic is the official language while English is widely used.

Table 2. 1 The growth of the Libyan population (000)

Year	Male	Female	Total
1980	1,614	1,464	3,278
1985	1,992	1,747	3,739
1990	2,249	2,011	4,260
2000	2,688	2,488	5,176
2005	2,878	2,717	5,595
2010	3,077	2,964	6,041
2015	3,158	3,189	6,347

Source: United Nations, World Population Prospects: The 2012 Revision,

2.3 Libyan history

Libya is an ancient society; it began more than 8000 years ago, the Berbers are the original population of the country, and Libya was subject to the control of foreigners such as the Phoenicians. They established commercial relations between Lebanon and the Berber tribes before they finally settled and founded three main cities in Libya; Oea, Leptis Magna and Sabratha. The ancient Greeks also occupied eastern Libya in 631BC (The Library of Congress, 1987).

Romans invaded Libya in 74 BC, they settled in Libya for four centuries, and then the Vandals replaced the Romans after the Romans Empire's declined in the fifth century. The Byzantines were the last invaders before the Arabs conquered Libya in 642 AD, and Islam spread across the country. Libya witnessed some stability in the early years after the Arab conquest. However, that did not last long and instability occurred again as a consequence of invasions such as the Fatimid, Hafsids, Spain and the Ottoman Empire. The Ottoman empire presence lasted almost four centuries from 1551 to1911. It started when the Libyans called the Ottoman empire to help them against the Catholic king of Spain (Kilani, 1988). After 360 years of Ottoman domination, Italy overran Libya in 1911. The Italians ruled the country for over three decades up to the beginning of the Second World War when Italy declared war against Britain and attacked the British troops in Egypt. By 1943 the Italian army was defeated and it withdrew completely from Libya to be replaced by English and French troops when they established their administration in Libya. Libya stayed under the common administration of Britain and France until Libyan independence was declared by the United

Nations on 24th December 1951 (Kilani, 1988) .The new state was headed by Idris al-Sanusi as King of the Libyan kingdom. However, before the declaration of independence the Libyan new constitution had been announced by the general assembly on the 7th of October 1951 (Vandewalle, 2012) .

2.4 Libyan political environment

Historical literature about Libya refers to the country passing through various political changes. Modern Libya started after independence on the 24th of December 1951 when the UN declared Libya an independent state. Libya became a constitutional monarchy under King Idris Sanusi. The country contained three provinces Tripolitania, Cyrenaica and Fezzan.

On 19th February 1952 the first general election was conducted and the first session of Libya's Parliament was on 25th March 1952, then in 12 February 1953 the Libyan Kingdom joined the Arab League (Vandewalle, 2012) .

In the early years after independence Libya was one of the poorest countries in the world with no natural resources. Because of the lack of funds, Libya depended completely on foreign aid, although they did sign two military treaties with the UK and USA in order to raise some funds. The World Bank mission report contained details of these agreements:

> "Assistance from the United Kingdom is granted under the Treaty of Friendship and Alliance concluded between the two countries in 1953, which gives the United Kingdom the right to important military facilities in Libya, including the "exclusive and uninterrupted use for military purposes" of certain specified lands and buildings and permission for United Kingdom public aircraft "to fly over and, in any emergency, land on and take off from any of the territory of Libya, including territorial waters." Under the original financial agreement attached to this Treaty the United Kingdom undertook during the five financial years 1953/54-1957/58 to pay £L 1 million a year to Libyan development organizations and £L 2.75 million a year to the Libyan budget. A new agreement was negotiated in 1958, under which the United Kingdom was providing £L 3.25 million a year in the form of budgetary aid for a further five years, but with no additional contribution to development. American assistance stems from two agreements concluded in 1954, which among other things give the United States the right to occupy and use certain areas in Libya for military purposes, including the important Wheelus Air Base on the outskirts of Tripoli. Under the economic agreement, Libya was to receive an initial sum of $7 million (together with some grain) followed by grants of $4 million annually during the six fiscal years beginning July 1954 and $1 million annually during the eleven years beginning July 1960. Actual assistance from the United States has substantially exceeded the amounts envisaged in the 1954 agreement. Loans have been made as well as grants, together" (The World Bank, 1960, p. 45) .

In 1955 the oil law was issued and the country's Petroleum Commission was established, in October 1961 the first Libyan oil shipment left Brega Port, and in 1962 Libya became a member of the Organization of Petroleum Exporting Countries (OPEC) (Vandewalle, 2012) .In April 1963, the federal system has abolished and Libya became united under a central government, the name of country was also changed to ' Kingdom of Libya' (Kilani, 1988; Vandewalle, 2012).

In September 1969, a coup has been led by Colonel Muammar Qaddafi who abolished the monarchy and declared the Libyan Arab Republic. The Revolutionary Command Council (RCC) was established and headed by Muammar Qaddafi (Kilani, 1988). After that the country entered the dictatorship era under the rule of Qaddafi for more than four decades. He cancelled the constitution, banned political parties, put opposition in prisons and controlled the country by force. However, in February 2011 the Libyans demonstrated against Qaddafi's regime asking for freedom, democracy and a constitutional state. Consequently, Qaddafi's security forces shot the demonstrators killing tens of civilians. Then, the events developed dramatically. Protestors attacked the army camps and took the weapons to fight Qaddafi troops. The UN issued resolutions number 1971 and 1973 in March 2011 to protect the civilians, the NATO intervened to protect the civilians in Libya by attacking the heavy weapons of Qaddafi. Finally, Qaddafi was caught and killed by Libyan Revolutionaries. The Liberation of Libya was declared on 23rd of October 2011. On the 7$^{th\ of}$ July 2012, the first general election for a new parliament in the last 50 years was conducted. At the current time, a special committee is writing a new constitution for a new Libya.

2.5 Overview of Libyan economy

The economic condition in Libya can be divided into two main periods. The first period represents pre-oil exploration, and the second period starts after the discovery of oil.

2.5.1 Libya before oil discovery

Libya witnessed many wars and different types of colonial administrations. In addition to a lack of natural resources, limited agriculture expansion due to its climatic status and wide spread illiteracy, the low rate of skilled workers and nomadic or semi-nomadic life dominated a significant part of national life. All these factors made Libya one of the poorest countries in the world at the time of independence in 1951 (Buzied, 1998; Edwik, 2007; Kilani, 1988; Mahmud, 1997).

During the Italian colonisation, agriculture and industry received a great amount of investment which improved Libyan economy growth. However, the Libyans were out of the Italian economic circle, and the investment affected the local traditional industry negatively. Moreover, the Italians did not help Libyan people towards self-governance. In addition to that they ignored education and technical training, also the Libyans were excluded from administration (Bank, 1960). On the other hand, industry was dominated by the Italians and about four -fifths of all enterprises were small and had technically out of date equipment. The industrial centre was located in Tripoli (El-Mehdawi, 1975).

The Libyan budget suffered from a deficit for five decades before exploring oil (1911- 1961), this deficit was set off by foreign aid: by the Italians between 1911 and 1943 and by the British and French administration from 1946 to 1952. After independence, the deficit was covered by the UN aid and revenues gained from renting the military bases to the UK and the US governments (Buzied, 1998; Kilani, 1988; Mahmud, 1997).

The World Bank Mission (1960, p.3) described Libya's condition as:

> "Most Libyans still lead a very simple life, their diet is plain, their wants are limited, they have little knowledge of twentieth-century technology, and tribal traditions are strong. This section of the Libyan population has been little touched by all the development that has taken place in the past fifty years. The majority (perhaps 200,000 workers) till the land or graze their livestock on the fringes of the desert, largely consuming what they produce, supplying most of their own needs. For shelter they have a low one or two-roomed house, a tent, a tin-shack or a cave; for clothes home-spun woollen barracanes; for transport a camel, horse or donkey. The property of a family or a Kabila may be considerable, but their living standards generally remain austere. Such amenities as electricity and running water are practically unknown".

Pre-oil discovery, the Libyan economy was based heavily on primitive agriculture including animal husbandry, about 70 to 80 percent of the labour force was employed in agriculture and it contributed about 30 percent of the GDP. Furthermore, the country's land useable for economic purposes was about 10 percent the coastal strip. Also, Libya experienced frequent droughts. In addition to that, there was a lack of opportunities in the other sectors of the economy which might offer new jobs. This meant the agriculture sector was the main sector in Libya (Buzied, 1998).

However, there were many small factories that had been created depended on processing the products of the agriculture such as fruit drinks, olives oil refining, tobacco, flour milling, textiles, salt, footwear and clothing. Factories at that time employed about 15000 to 20000

workers and their contribution to the GDP was 10 percent (Bank, 1960; Edwik, 2007; Kilani, 1988). Moreover, the major cities Tripoli and Benghazi dominated the industrial sector as a result of concentration of about 77 percent of the total number of establishments and about 90 percent of the industrial workforce (El-Mehdawi, 1975).Table 2.2 illustrates the distribution of GDP between all sectors in 1958.

Table 2. 2 Industrial origin of Gross Domestic Product at factor cost in 1958

Economy activity	£L millions	Percent
Agriculture, forestry and fishing	13.6	26.1
Petroleum prospecting and quarrying	3.6	6.9
Manufacturing and repairing	6	11.5
Construction	1.8	3.4
Electricity and gas	0.8	1.5
Transportation, storage and communication	2.9	5.6
Wholesale and retail trade	7.3	14
Banking, insurance, ownership of dwellings, and services	9.5	18.2
Public administration and defence	6.7	12.8
Gross domestic product	52.2	100

The economic activity suffered from many problems such as lack of finance, poor quality land, water shortage and weather conditions, lack of raw material and skilled workers, a narrow local market. For this reason, the Libyan authority was forced to sign deals with foreign administrations in the country. For instance, the Libyan government signed treaties with the UK and the USA enabling them to maintain air bases in the country, and both governments were obliged to give financial and economic assistance to Libya.

Libya also received financial assistance from France, Italy, Egypt and the UN, the total value of loans and grants which were given to Libya was £L 13 million between 1957 to 1960 (Bank, 1960). French and Italian aid which has been given to Libya was due to a friendship agreement signed with France in 1955 and a financial and trade pact with Italy in 1957 (Mahmud, 1997).

In March 1951, the Libyan Currency Commission was established which represented one of the most significant economic events of Libya's history because this organisation issued the first national currency - the Libyan pound-, before 1951 the currency used in the country was the British Pound. Following that, the Bank of Libya based in Tripoli opened in April 1956, then a branch in Benghazi was opened in 1957 (Kilani, 1988).

2.5.2 Libya after oil discovery

The discovery of commercially viable oil in 1959 was the turning point of the Libyan economy and brought about dramatic change in the Libyan socio-economic status. (Buzied, 1998; Edwik, 2007; Kilani, 1988; Vandewalle, 2012). An increase in foreign investment occurred as an early impact of the discovery of crude oil. Also, government spending doubled as a result of royalties from oil production and authorisation fees (Mahmud, 1997).

The exploration for oil started in 1955. In 1956 the first well was begun in Fezzan and in 1957 the first traces of oil were discovered. Two years later the first commercially viable was discovered by Esso (currently Exxon Mobil). The first use of a pipeline to carry oil was in 1961 from an Esso privilege at Zalten to Marsa al Buraygah (Edwik, 2007). The petroleum industry has significantly dominated the Libyan economy since the early 1960s up to the current day. By 1963, the country had covered its budget deficit and a surplus was created in the balance of trade. Therefore, the government no longer relied on foreign aid as before, moreover, in 1960 the government launched its first economic and social development plan for the next five years (Buzied, 1998).

The Libyan economy started to grow gradually as a result of the oil discovery. The deposits in the commercial Banks were increased due to foreign investments made by companies that were working in the oil and gas sector. Thus, the financial institutions in Libya became able to lend to private businesses and the individuals. These funds helped local firms to start their operations in different sectors such as industry, services and the import of goods to cover the rising demand within the Libyan market. Libyans were living a primitive life in 1961, lacking modern infrastructure such as schools, housing , medical centres and means of transportation (Kilani, 1988; Mahmud, 1997). Because of these needs bank lending in Libya rose from 6.031 million Libyan pounds (MLP) in 1956 to 88.846 MLP in 1969 (El-Sharif, 2005). Within three years following the discovery of oil in1959/1960, a significant change occurred to the Libyan economy. The growth in oil production and export was more than ten times in 1963 and the revenue obtained from oil increased from 4,097,000 (LP) to

116,861,000 (LP) (Kilani, 1988). Consequently, Libya moved from one of the poorest countries in the world to one of the richest. The increasing number of international oil companies and the foundation of new economic activities raised the standard of living in Libya. The average income per capita before oil discovery was 20 LD per annum in 1950, 100 LD in 1960, then it shot up to LD 600 in 1970 , and 8,000 per annum in 1984 (Alkizza, 2006). After oil was discovered, Libya witnessed several development plans. The first development plan covered the period from 1963 to 1968. The estimated expenditure for this plan was LD 169.1million (Table 2.3). However, the actual expenditures exceeded the planned expenditures by 325.8 % this means that the actual expenditures were LD 550.93 million. The first development plan comprised the following sectors/ million LD: Housing and public finance 162.2, Transport and communication 91.6, other services 82.4, agriculture 65.4, electricity 56.8, education services 47.6, industry (heavy and light) 28.5, health services 16.4.

As a result of the increase of oil prices, and the government's ambition the second development budget which covered the period from 1970 to 1980 lead to actual total expenditures of LD 11,253.2 million. In this plan, the agriculture sector occupied the first position with LD 2,393.2 million, followed by industrial sector LD 1,655.3 million, then the transportation and communication sectors placed in the third position with 1,429.6 million, housing LD 1,373.6 million, electricity LD 1,345.7, public finance LD 1000 million, education services LD 711 million, other services LD 470.8, health services LD 327.6, oil and gas sector LD 546.4 million.

In the 1980s the planned expenditure was LD 18,355 million and the actual spending between 1980 and 1990 was 15184.3 which was LD 3,170.7 million less than the planned budget. The decline in oil prices during 1980s had a huge impact on the Libyan economy. In 1985 oil revenues dropped to their lowest level since the OPEC price increased in 1973 (Edwik, 2007). An additional factor was the government's failure to create an alternative source of revenues beside oil. In this budget, the priority of the government moved from agriculture which was placed in third position with LD 2,151.5 million after industry LD 2,901.7 million and transport and communication LD 2,329.7 million. The biggest change happened in the public finance sector which represented 8.8 percent in 1970 and grew to represent 13.4 percent, from LD 1,000 million in 1970 to LD 2,024.4 million in 1980.

Table 2. 3 Development budgets, 1963-1992 actual and planned expenditure in millions of Libyan Dinars.

Source	1963- 1968		1970- 1980		1981- 1990		1970- 1992	
	Value	%	Value	%	Value	%	Value	%
Agriculture and agrarian reforms	65.4	11.9	2393.2	21.3	2151.5	14.2	5190	18.3
Industry	28.5	5.2	1655.3	14.7	2901.7	19.1	4731.7	16.6
Electricity	56.8	10.3	1345.7	12	1395.7	9.2	2816.8	9.9
Transport & communication	92.6	16.6	1429.6	12.8	2329.7	15.3	3957.9	13.9
Housing	*	*	1373.6	12.2	1599.3	10.5	3153.6	11.1
Public Finance	*	*	1000	8.8	2024.2	13.4	3230.7	11.4
Education Services	47.6	8.6	711	6	976.8	6.4	1830.8	6.4
Health Services	16.4	3	327.6	3	555.7	3.7	988.5	3.5
Other Services	82.4	15	470.8	4.3	879.9	5.8	1521.5	5.4
Total Non-Oil Sector	551	100	10706.8	95.1	14814.5	97.6	27421.5	96.5
Oil and Gas Sector	_	_	546.4	4.9	369.8	2.4	1001.6	3.5
Total Actual Development Expenditure	551	100	11253.2	100	15184.3	100	28423.1	100
Planned Development Expenditure	169.1	100	12368.1	100	18355	100	33518.1	100
% of Actual to Planned Expenditure	_	325.8	_	91	_	82.7		

Source:(Mahmud, 1997)

These sizeable investments in infrastructure for two consequent decades changed all aspects of life in Libya. The number of schools and hospitals rose, the rate of illiteracy dropped, the standard of living improved and many houses were built (Alkizza, 2006).

The economic system between 1951 and 1969 (from the independence to the coup) was capitalist. The intervention of the government in the economic process was at the lowest level and the private ownership in its early stages (Leftesi, 2008). Moreover, there was a mixture between the private and public sector. The private sector focused on small enterprises and the government ran the strategic enterprises. In order to encourage the private sector to engage

the economic cycle the government issued some laws to regulate the economic activities (Zoubi, 2011).

In September 1969 after the Colonel Qaddafi led coup, the constitution had been abolished and intervention in the economy by the state increased. Also, it changed the country from capitalist to socialist which greatly affected the ownership of businesses and its goals (Leftesi, 2008). The 1970s witnessed a great increase in crude oil prices which increased the GDP and average monetary income per capita. GDP per capita rose dramatically from $ 2169 in 1970 to $ 10458 in 1980. However, it fell in 1990 to $6329 due to a drop in international oil prices (Mahmud, 1997). In the late 1970s, the new regime banned private ownership, the government became responsible for providing all needs of society, also it controlled the production and services sectors and the Libyan economy was centrally planned. The new regime not only took over the national companies, but also the foreign oil companies such as British Petroleum, Nelson Bunker Hunt, Royal Dutch and American oil overseas. However, the American companies Amerada Hess, Conoco and Occidental preferred to sign partnership agreement with the Libyan government. At that time, some national oil companies were established such as Arabian Gulf Oil Company and Umm Al-Jawabi Oil Company (Mahmud, 1997).

Socialism was to liberate the country from the dominance of foreign companies. The economic activity was controlled by the public sector which dominated most of domestic investments. This caused many negative results such as the public sector being considered the main financier of all economic activities. Moreover, the labour force was concentrated in the public sector in undesirable numbers (Zoubi, 2011).

During the early years of the coup, there were many real changes which re-structured the Libyan economy. The new regime launched the first three years' plan (1970-1972) followed by the next plan which covered the period from 1973 to 1975. Following that in March 1976 the five-year development plan (1976-1980) was launched by the government. The government announced another five-year plan (1986-1990) the money to be spent in the period of the plan was about LD 26437.5 million (Buzied, 1998).

The change from capitalism to socialism in a backward country, and the domination of the state over economic activities caused several dilemmas such as the rise in production cost, over employment, misuse of resources, and lack of control in the public sector, lack of accountability and a high rate of corruption. All these factors negatively affected the national

economy. Also, the political changes were one of the main reasons for the disappointing development. It affected political, economic and social life. Politically, in 1973 the new regime abolished the constitution and the instructions and speeches of Colonel Qaddafi replaced the constitution. The parliament was replaced with General People's Congress (Edwik, 2007). According to the Green Book (written by Qaddafi) the ideology which controlled Libya from 1977 to 2011, profit was not allowed in the Libyan economy for individuals, because profit-making is related to the exploitation of workers. Moreover, the goal of economic activity in Libya according to Qaddafi's vision was gratification of people's need not to maximize the profit. The condition of the Libyan economy went from bad to worse. The public sector owned all the means of production, the private sector did not exist during the period from mid1970s to late1980s. The policy of the central bank was based on supporting the regime's effort by preventing credit to the private sector and giving it to public entities. This odd economic policy led to severe economic problems such as people's dissatisfaction, a huge reduction in production because of adopting the social system, and deterioration of state-owned enterprises.

From the late 1980s, Libya took an important decision to stop the worsening condition of the economy. Some important laws and resolutions were issued towards liberalisation and privatisation to move from a centrally planned and controlled economy to an open market policy. The government tried to encourage the private sector and foreign investments to be part of the Libyan economic cycle. Act number 8 of 1988 was the introduction of the private sector because it allowed the private ownership of economic activities, followed by act 9 of 1992 which focused on private sector regulation in the economy (Leftesi, 2008). Furthermore, to encourage foreign investments, Libya issued Law number 5 of 1997 which was improved by Law number 7 of 2003, to regulate local investors rights in private and public economic entities (Mohammed, 2013). Following this legislation, the Libyan government made an ambitious plan to privatise as much as it could by transferring the ownership of hundreds of companies and factories which were state-owned to employees and the private sector. The ownership of about 360 economic units was transferred to the private sector by means of this program, the assets total value was approximately 8 billion LD. This program was implemented between 2004 and 2008 in three phases.

2.6 Accounting in Libya

The accounting profession in Libya is still in its early stages and two main factors have impacted its development, international companies working in Libya and accounting education (Bait-El-Mal, Smith, & Taylor, 1973). The condition of the accounting profession in Libya is confined to two roles, firstly; to prepare external financial statements, secondly; to comply with the Libyan legislation requirements by means of auditing these financial statements (Bait-El-Mal et al., 1973; Buzied, 1998; Kilani, 1988). This section discusses the evolution of accounting in Libya and it is divided into two parts; part one represents the development of accounting profession since the Ottoman Empire in Libya up to recent years, while part two discusses accounting education in Libya.

2.6.1 The development of accounting in Libya

No evidence or records exist to illustrate exactly when, how and where the accounting profession was first recognized in Libya. However, the available literature considers that the Ottoman Empire as a starting point to study the evolution of the accounting profession in Libya.

2.6.1.1 Accounting during ottoman occupation

During the Ottoman occupation of Libya between 1551 and 1911, there was no development in accounting in Libya as Kilani (1988, p. 80) states:

> ‘‘Even after 1850, there was little sign of any commercial or industrial enterprises in Libya. The only commercial activity was that Libya was a commercial route for the rest of Africa. The fact that no enterprises or industrial or manufacturing activities existed, suggests that no managerial accounting or cost accounting was practised in Libya during the rule of the Ottoman Empire. One may thus conclude that the only accounting practice in Libya during the Ottoman Empire rule was some primitive financial accounting practice to administrate Zakat collection from Libyans and its transfer to the central government in Istanbul”

By the end of the nineteenth century the Ottoman Empire had become weak and the provinces were out of control and it had lost its military power. The former Ottoman Empire states were invaded into colonies of western power. Libya was occupied by Italian forces in October 1911.

2.6.1.2. Accounting during the Italian invasion

Italy occupied Libya in 1911, and the military stayed until 1943 when they defeated by the allied forces in the Second World War. However, the Italian settlers remained in Libya up to

1970. Because of the Italian presence, the accounting profession was developed by the Italian accountants who came with the Italian enterprises and the Italian tax law was first implemented in 1923 in Libya. The tax law and the Italian accounting profession obviously impacted the development of accounting in Libya (Kilani, 1988). The Italian Tax Law of 1923 was superseded by the Libyan Tax Law in 1968 with many amendments based on Italian law.

There is no evidence of auditing being used by the Italians in Libya and financial accounting was the only branch practiced by the Italian accountant. Before the independence of Libya in 1951, the accounting profession had not exist locally ,however, most of the accounting business were run by foreign accounting firms (Bait-El-Mal et al., 1973). After independence, many Italian accountants were recruited to work with government administrations and private firms as a result of the shortage in domestic accountants. It is a matter of fact that the Italians did not help the Libyans to establish and develop the accounting profession practice because Italian firms depended on Italian immigrants for managerial and financial manpower as they were more competent and skilled than the indigenous population (Saleh, 2001).

The Italian colonisation not only failed to educate and train Libyan people, but also they excluded them from administrative jobs in government and private firms (Bait-El-Mal et al., 1973). Under the British administration, the Libyan education system witnessed a huge expansion starting from 1945 when schools were built to educate the Libyans in Arabic ; the first high school was established in Tripoli in 1947 (Mohammed, 2013). Up to independence, there was no formal accounting education or training which caused a shortage of local qualified people in accounting to fill financial positions in the Libyan departments and private sector. This situation forced Libya to rely heavily on qualified workers from the UK, USA and UN to start primitive accounting systems during the 1950s (Ahmad & Gao, 2004).

2.6.1.3. Accounting after the independence

Libya has witnessed many political and economic changes since December 1951 when independence was declared. These changes led to an accounting evolution. Before this time the accounting practices were rudimentary, except for the accounting practices of foreign companies; in particular, British and American which were working in Libya.

The development of the accounting profession after independence was influenced by many factors such as the development in the Libyan education system, foreign companies, Libyan students who graduated and returned from abroad especially the UK and the USA,

international accounting firms and change in the social, political, legal and economic situation. These factors led the Libyan profession to pursue the same route in the UK and the USA (Kilani, 1988).

The development in the education system was an important factor for the accounting evolution post-independence to provide the needed qualified local people. For instance, in 1951, 10 Libyans held a university certificate and around 90% of the population were illiterate (see table 2.4). This condition produced a great shortage in indigenous managers, technicians and skilled workers (Mohammed, 2013).

Table 2. 4 Number of holders of College or University qualification in Libya (Libyan and non-Libyan)

Year	Male	Female	Total
1951	NA	NA	10
1964	5,882	391	6,273
1973	104,853	26,642	131,495
1984	164,424	72,448	236,866
1995	450,186	272,460	722,646
2006	658,594	717,709	1,551,018

Source: (IBRD, 1960), General Authority of Information (GAI, 1964, 1973, 1984, 1995, 2006)

The University of Libya opened in 1957 in Benghazi comprising a faculty of commerce and economic. This faculty adopted the British education system at the beginning, however in the mid-1970s, the American education system was adopted (Saleh, 2001).

For a long time the University of Libya remained the only place that offer an accounting programme in the country between 1957 and 1981 (Ahmad & Gao, 2004). The accounting education system in Libya can be divided into two stages; the old accounting education system (1957-1976) influenced by the British system, and the new accounting education system (1976- present) influenced by the American system (Mahmud, 1997).

Since 1981, many commerce faculties have been established in different locations in Libya such as Tripoli University in Tripoli and the Accountancy College in Gharyan. However, the domination of the University of Benghazi (previously the University of Libya) in business education is still effective because of its written textbooks, its staff, and its graduate students that hold bachelor's and master's in accounting diffused all over the country (Mohammed,

2013). Table 2.5 illustrates the distribution of business and economics students among the Libyan public universities.

Table 2. 5 Numbers of Students Studying Economics in Libyan Public Universities for the year 2011-2012

University	Number of students
Benghazi	18,787
Tripoli	12,753
Al- Mergab	8,946
Omar Al- Muktar	6,814
Al- Zawiya	5,885
Misurata	2,778
Al- Jabal Al- Gharbi	1,566
Sirte	1,555
Sabha	988

Source: Ministry of Higher Education and Scientific Research 2012

Accounting education has faced some obstacles since it started at the University of Libya (currently Benghazi University). For instance, faculties of commerce have adopted the education system of the UK and the USA even though Libya is completely different from them. Also the accounting profession has developed towards a private sector resembling that in the western developed countries which is inconvenient for Libyan economic activities which are centrally planned and controlled by the government without a stock market (Ahmad & Gao, 2004; Kilani, 1988). Furthermore, there are a lack of qualified accounting educators, the variances in the accounting curricula between professional training and academic teaching , and limited efforts in accounting research (Ahmad & Gao, 2004). Other factors which impeded evolution of accounting in Libya related to the accounting education system were the outdated accounting curricula and the shortage of modern textbooks in Arabic (Leftesi, 2008).

Another important factor that influenced the development of accounting in Libya is the legislations enacted after independence such as Libyan Commercial Code (LCC) of 1953 amended by Law 23 of 2010, and the tax laws of 1923,1968,1973,2004 and 2010, and Banking Law no 1 of 2005, Saleh (2001) argues that the major influence on the accounting profession was a consequence of the Libyan Commercial Code, Petroleum Law, Financial system Law, Income Tax Law and Accounting and Auditing Professional Law.

This legislation forced enterprises to prepare certain financial statement such as profit and loss statements and balance sheet annually by the end of the fiscal year. Moreover, the LCC imposes on all firms to keep specific books : a journal for daily transactions, an inventory and a balance sheet which is a mixture of different books (Saleh, 2001).

Furthermore, the Libyan authorities established some regulatory bodies to develop, oversee and control the accounting profession in the country; for example, the State Accounting Bureau (SAB) was established by Law 31 of 1955 and the Libyan Accountants and Auditors Association (LAAA) was formed by Law 116 of 1973. The SAB was under the Ministry of Treasury accountability; however, to maintain its independence it became responsible for all government ministries according to the Audit Bureau Law of 1966. After the coup in September 1969, the Revolutionary Command Council (RCC) held the executive and legislative authorities of the state (Ahmad & Gao, 2004).

Before Law 116 of 1973 there was no accounting body which regulated and governed the accounting profession. This law comprises : the foundation of the LAAA, accountants registration, profession training, fees, accountants and auditors obligations and penalties (Buzied, 1998). In fact, the enactment of law 116 of 1973 was a consequence of the increase of accounting students who obtained university degrees inside and outside the country, as well as that many accounting firms owned by Libyans were founded and at that time there was a lack of a regulatory body and accounting and auditing standards. All these factors accelerated the issuing of this law in order to establish a professional body to regulate and govern the accounting and auditing profession in Libya (Ahmad & Gao, 2004).

Table 2. 6 Registered accountants in the Libyan association of accountants and auditors in 2002

Types of membership	Number
Accountants in practice	945
Assistant accountants in practice	307
Assistants who are not in practice	117
Total	1369

Source: LAAA (2002). (Ahmad and GAO, 2004)

Foreign companies played an important role in developing accountancy in Libya. British and American companies helped in accounting practice diffusion in Libya. The impact of the

British was through British owned or directed oil and non-oil firms working in Libya, as well as through British consultants working with Libyan or governmental enterprises (Bait-El-Mal et al., 1973). The American investments increased after discovering oil in Libya. The American oil and non-oil firms brought their accounting system and implemented the American accounting principles and American accounting standards and recruited Libyans in accounting jobs (Saleh, 2001).

Also, international accounting firms helped with developing the accounting profession in Libya. Kilani (1988) states that because of exporting oil from Libya since the early 1960s and the starting of development plans and businesses developments in the private and public sectors, the stakeholders needed reliable and credible information which can help them to make important economic decisions. This led to the use of accounting services, and as a result many international accounting firms started their business in Libya.

Furthermore, the vast majority of accounting firms during the 1950s and 1960s in Libya were branches of British and American enterprises. As a result these firms heavily influenced the accounting practice and gave a western shape to the auditing and accounting profession in Libya (Bait-El-Mal et al., 1973; Kilani, 1988). However, from 1970s most accounting firms became Libyan. The Libyan ministry of treasury was responsible for giving licenses to accounting firms during the 1960s and early 1970s. Practicing members had to hold a university degree in commerce, in addition to two years of practical accounting experience (Mahmud, 1997).Law 116 of 1973 was enacted to bridge the gap in the accounting profession in this and related areas in Libya. The LAAA founded in 1975 aimed to regulate and enhance the status of accounting and to set accounting and auditing standards. Moreover, it aimed to organise and promote accounting events inside and outside the country in order to bring Libyan accountants up to date with subjects related to accountancy. Also, one of its objective was to create pension funds for retired members and to raise co-operation between members and to enforce penalties against members who broke the rules (Ahmad & Gao, 2004; Buzied, 1998; Saleh, 2001).

Based on its responsibilities the LAAA started to issue the chartered accountant Licence under the following requirements: a candidate must hold Libyan nationality, have obtained a bachelor's degree in accounting, have five years' experience in jobs related to accounting, be of good conduct, in a good reputation and must pay the annual fees (Ahmad & Gao, 2004).

Candidates who have a degree higher than a bachelor's degree in accounting are not required to submit proof of experience if their certificate requires at least four years of study and training after a bachelor's. Accredited accountants can certify financial statements of all kinds of enterprises and taxpayers. Accounting firms which are approved by the LAAA can offer accounting, auditing, tax services, consultations and designing and installing accounting systems (Ahmad & Gao, 2004). Even though the LAAA was established four decades ago, it has failed to significantly regulate and develop the accounting profession in Libya. Thus, the status of accounting profession in Libya is still in its early stages (Mahmud, 1997) .

2.7 Summary

The aim of this chapter is to present an overview of the Libyan business environment and economy. The chapter summarises a set of factors that have influenced the demographic, economic, social and political condition. Moreover, this chapter sheds light on the discovery of oil that represented the turning point in many different aspects in life in Libya through reviewing developments in economic activities, health services, transportation, industry, and housing.

The development of the accounting profession is discussed in some detail dealing with different historical periods starting with the Ottoman occupation of Libya between 1551 and 1911, followed by the Italian occupation between 1911 and 1943 when the accounting profession was developed by Italian accountants who came with Italian enterprises and Italian tax law was first implemented in 1923 in Libya. The era after the independence in 1951 witnessed a significant development in the accounting profession which started with a development in the education system, the increase in the number of the universities or college graduates from 10 graduates in 1951 to 1,551,018 in 2006, and in addition the enacting of new legislation such as the Libyan Commercial Code (LCC) of 1953 amended by law 23 of 2010, and tax laws of 1968, 1973, 2004, and 2010. Also, banking law no 1 of 2005. Furthermore, some regulatory bodies to develop, oversee, and control the accounting profession in Libya were set up such as the State Accounting Bureau (SAB), established by law 31 of 1955, and the Libyan Accountants and Auditors Association (LAAA) was formed by law 116 of 1973.

The following chapter reviews the literature related to management accounting change and the diffusion of MAIs.

Chapter Three: Management Accounting Change and the Diffusion of MAIs

3.1 Overview

The emergence of MA can be traced back to the nineteenth century during the industrial revolution (Drury, 2012). In the mid-nineteenth century railways grew as a main driving force in the MAS developments. At that time, MA was based on calculating the cost of products to help financial accounting to prepare its external reports. Consequently, new concepts appeared in MA such as cost per ton per mile, cost per passenger per mile and the ratio of operating expenses to revenue (Waweru, 2010).

Starting from the 20th century, the role of cost accounting changed from merely calculation and giving the cost of products to helping managers in their responsibilities. Vatter wrote the first textbook about MA in 1950, it called "Managerial Accounting". Vatter stated that the role of MA was to serve the manager rather than reporting to the owners (Kelly & Pratt, 1994).

In the UK changing the name of the Institute of Cost and Works to the Institute of Cost and Management Accounting in 1972, and changing its journal from Cost Accounting to Management Accounting in 1965 was a clear indication of the change from cost accounting to management accounting. The institute became the Chartered Institute of Management Accountants (CIMA) in 1986 (Allot, 2000). On the other hand, in the United States the National Association of Cost Accountants changed its name to the National Association of Accountants in 1958 (Scapens, 1991, p. 9). Following that, the Institute of Management Accountants (IMA) was established in 1991.

In mid 1980s criticism arose in the accounting literature of MA traditional practices e.g. (Drury, Braund, Osborne, & Tayles, 1993; Johnson & Kaplan, 1987; Kaplan, 1984). Kaplan (1984) was the first scholar who wrote about this. Johnson & Kaplan published their book called "Relevance lost: the rise and fall of management accounting" in 1987. They found that the shortage of MAIs in the previous sixty years and its insufficiency to render contemporary solutions in accordance with changes in the competitive manufacturing environment had

reduced its relevance. Waweru (2010, p. 174) reviewed MA literature related to the main criticisms of MAPs and he grouped these criticisms as follows:

- Traditional product costing systems provide misleading information for decision making purposes.
- Traditional/conventional MAPs follow and have become subservient to financial accounting requirements.
- MA focuses almost entirely on internal activities and relatively little attention is paid to the external environment in which the business operates.
- A lag in the development and implementation of innovation which has led to a failure to meet the needs of today's manufacturing and competitive environment

This chapter discusses MAPs and changes in developed and less developed countries. Following that, diffusion of innovations is defined. Then, this chapter reviews diffusion of innovation literature including diffusion of innovations theory, kinds of innovations and the alternative explanations of the diffusion of innovations. Finally, the last two sections review the relevant literature linked to factors that may influence the adoption of MAIs in developed and less developed countries.

3.2 Management Accounting Change

This section focuses on MA change in terms of its concept, drivers of change, and factors causing MA Change.

3.2.1 The Concept of Management Accounting Change

There is no agreement among authors on a unified meaning of change. Jick (1992) argues that its meaning is problematic. Change in an institution has been defined as "any alteration in tasks or activities" (Dawson, 1994, p. 10). Moreover, Macy and Arunachalam (1995) defined MA change as "the ability of management accounting systems to adapt to changes in an organization's internal and external environment".

Regarding MA, (Abdul Khalid, 2000; Kaplan, 1986a) contends that there is no common definition of change. However, change is not only confined to procedures, but also it includes the day-to-day practices, activities, attitudes, roles and responsibilities of the members of the organisation. In the same context, Kaplan (1986a) believes that MA change is a cause- effect relationship, that when the business environment changes this causes change to MA systems for the organisations which operate among this environment.

Innes and Mitchell (1990, p. 14) classified factors that cause MA change into three main groups as follows:

- Facilitators: factors deemed significant for change but not adequate in themselves, including accounting staff resources, degree of autonomy, accounting requirements, authority of accountants and accounting computing resources.
- Motivators: factors that affect change in a general way, including competitive market, organizational structure, production technology, product cost structure and short product life cycle.
- Catalyst: factors that are related directly to the timing of change, including poor financial performance, loss of market share, organizational change, new accountants and launch of competing product.

3.3 Perspectives on MA change

Abrahamson (1991) contends that before the1990s the efficient- choice perspective, which reinforces pro innovation biases, was dominant. According to March (1978), the efficient-choice perspective is based on two main suppositions: (1) organizations within a group can freely and independently choose to adopt an administrative technology and (2) organizations are relatively certain about their goals and their assessments of how efficient technologies will be in attaining these goals. Consequently, innovations will be always adopted as it is assumed by pro innovation biases they will always be beneficial to organisations. However, the efficient- choice perspective failed to answer questions related to diffusion / rejection of inefficient/ efficient innovations. Therefore, Abrahamson (1991) suggested new alternatives which may give a better understanding of the diffusion of innovations namely: the force-selection perspective, the fad perspective, and the fashion perspective. These perspectives will be discussed in detail later in this chapter.

Bjørnenak (1997) conducted one of the earliest studies that concentrated on both the demand and the supply side of the diffusion process. He aimed to study deeply the diffusion of ABC in Norway in order to find an explanation of how diffusion of innovations occurs. He tested the relationship between various variables related to the demand side (e.g. competition, product diversity, business strategy, organisation size, cost structure and costing system) and ABC adoption. He found that cost structure was strongly related to the ABC adoption and the other demand side variables did not entirely explain the diffusion of ABC. subsequently, the study used the supply side to obtain a full understanding of the diffusion of ABC. The

conclusion showed that consultants and mass media such as books, magazines, papers, conferences and the Internet have a great influence in favour of ABC adoption.

3.3.1 Diffusion of innovation theory

The diffusion of innovations studies focusses mainly on finding answers to questions such as; how innovations spread among individuals and organisations? Why some innovations are more adopted than others? What are the factors that facilitate or impede diffusion of innovations?

The process of the diffusion of innovations has been studied for over five decades. Rogers was the first scholar that wrote about the diffusion of innovation theory in his book "Diffusion of Innovations" first published in 1962. Rogers (2003) defined diffusion of innovation as "the process by which an innovation is communicated thorough certain channels over time among the members of a social system". According to Rogers' definition; innovation, communication channels, time, and the social system are the four main components of the process diffusion of innovations.

- Innovation: (Rogers, 2003, p. 12) defined innovation as "an idea, practice, or project that is perceived as new by an individual or other unit of adoption". This definition considers an innovation to be new if it is perceived by individuals as a new apart from whether it was invented recently or a long time ago.

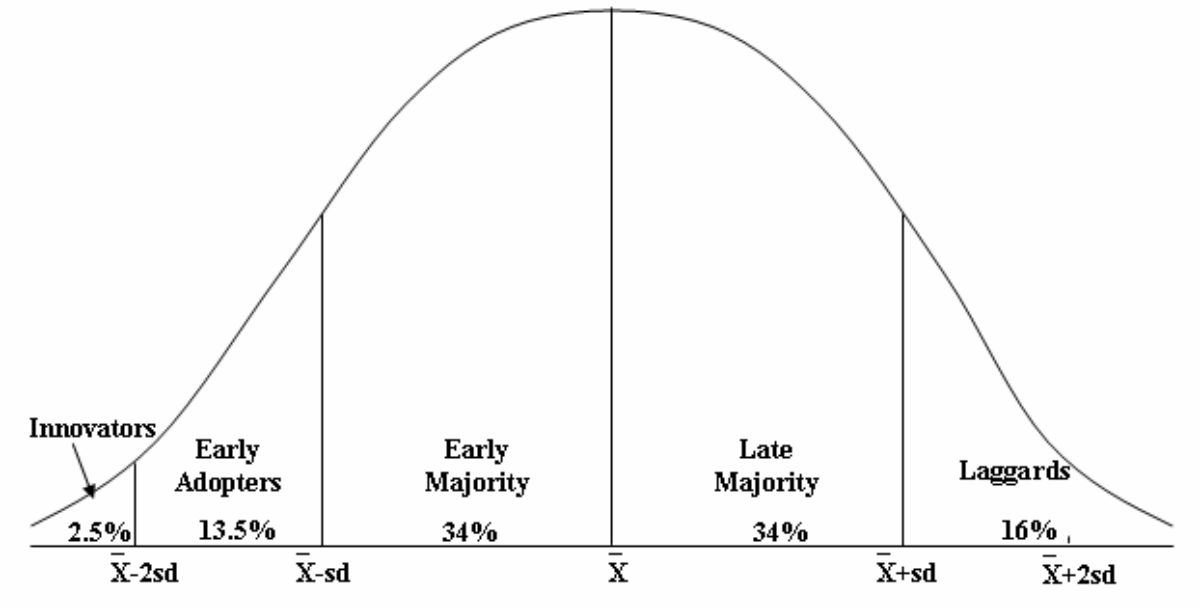
- Communication Channels:(Rogers, 2003, p. 5)defined communication as " process in which participants create and share information with one another in order to reach a mutual understanding". A communication channel is a means of carrying a message from the source to the receiver such as mass media or personal interaction. The source (Innovator) could be an individual or organisation that offers a new idea or item to the receiver (Adopter).

- Time: diffusion of innovation is a process over time starting from the innovation and ending with the implementation of the innovations.

- Social System: The social system influences individual's alternatives and their trends in adopting innovations. Rogers classified adopters into five categories based on the time of adoption as following: innovators, early adopters, early majority, late majority, and laggards.

Innovators: Innovators are willing to deal with uncertain new ideas. They were ready to take risks as they are usually from the high social class and their financial status allows them to adopt unprofitable and risky innovations. Innovators, as they are risk takers do not represent a high percentage of adopters they are only 2.5% of overall adopters.

Figure 3. 1. The diffusion of innovation curve



Source: Rogers (1962)

Early Adopters: Early adopters are considered as the society leadership within the adopters' category and they have higher education and are wiser than innovators, and their openness to innovation is essential because they are seen as role models by other potential adopters. They represent 13.5% of all adopters.

Early Majority: They adopt new inventions later than the innovators and early adopters. They do not have the leadership position in the social system. They usually have a good interpersonal communication with the social system's members. They represent 34% of adopters.

Late Majority: Late majority are sceptical and they adopt the innovation after most people do. In addition, they are usually below the average of social status and they only adopt an innovation when they think it is safe to do so. They represent 34% of adopters.

Laggards: Laggards tend to concentrate on traditions, have low social status, are the oldest within adopters, lack a leadership role and lack financial resources. All these issues make laggards' decision to adopt innovations take the most time.

Rogers (2003, p. 177) distinguished between adoption and rejection decisions as follows: the adoption decision means "full use of an innovation as the best course of action available" while the rejection decision means "not to adopt an innovation". Moreover, he developed five characteristics for an innovation:

(1) Relative advantage (2) Compatibility (3) Complexity (4) Trial ability (5) Observability.

The perception of relative advantage means that the innovation is more beneficial than the currently used technique or procedure. Compatibility is the degree of harmony between the existing system and the potential innovation. Complexity is the difficulty of using and understanding the innovation. Trial ability is the possibility of testing the innovation before the adoption decision or ability for reinvention.

Observability is the degree of its effects. These five attributes can explain the rate of adoption of innovations. The rate of adoption was defined as "the relative speed with which an innovation is adopted by members of a social system" (Rogers, 2003, p. 221).

3.3.2 Agency Theory (AT)

Literature shows two branches of AT; positivists and principal agents (Jensen, 1983) Eisenhardt (1989, p89), defines agency relationship in which "one party (the principal) delegates work to another (the agent), who performs that work". While Jensen & Meckling (1976, p.308) defined the agency relationship as "a contract under which one or more persons (the principal (s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent" (p. 308).

The core idea of AT based mainly on the assumption that when the management is separated from the ownership, it is highly likely a conflict of interest will exist between the owners and the managers when the later may not expend the resources to maximise the wealth. Accordingly, Kosnik (1987) contends that the main focus for AT is to find any reinforcing mechanisms that can guarantee accountability and control in order to reduce the negative managerial effects on shareholder's wealth. During 1960s and 1970s the first agency paradigm was established aiming to find the best way of sharing the risk among the different individuals. However, the scope of AT was later widened to include the management role for defining the cooperation between different people with several targets in the organisation (Eisenhardt, 1989).

With regard to MA, the period of 1980s witnessed an extensive use of AT in MA research in order to determine the optimal-incentive among various people and creating accounting control mechanisms to monitor their behaviours and actions (Baiman, 1990). AT can be used to explain different kinds of MAPs (e.g. participative budgeting cost allocations, transfer pricing and variance analyses. Furthermore, it is used in MA research to talk about the

principle of controllability. However, AT has faced a number of criticisms regarding the principal-agent relationship. According to Baiman (1990), the reality of some of the assumptions appearing to underlie the principal-agent model. Another criticism is related to the outcomes of the principal-agent relationship; we assume the use of simple and powerful contracts, however, in real world these appear more complicated and very different from actual contracts. In addition, the relationship between managers and shareholders regarding principals 'duties and responsibilities include informal arrangements and understandings.

3.3.3 Neo-classical Economic theory

Neo - classical theory emerged in the second half of the 19th century. The core assumptions of neoclassical theory are economic, and based on rationality and equilibrium. However, these assumptions fail to explain the process of MA change (Burns & Scapens, 2000). Neo-classical theory focuses on predicting the rational outcomes instead of explaining the reason behind variations from one equilibrium to another. Yazdifar (2004) argues that neoclassical theory ignores individual's tastes, preferences, needs, wants, interests, and rational understanding of the issues facing them. Scapens and Arnold (1986) state that because the neoclassical economics theory's assumptions are rationality and equilibrium, this theory is unable to explore the process of MA change and it does not help to develop new MAPs to deal with continuous change in organisations.

3.3.4 Old Institutional Economics (OIE)

OIE is one of the most commonly used approaches in research in MA change. According to Burns (2000), OIE was founded by Thorstein Veblen (1898; 1909; 1919) in opposition to static economic theorising. In addition, he argues that OIE tries to explain how MA change occurs over time from a processual perspective. Moreover, Veblen was the first author who wondered why economic science was not evolutionary.

Bell, Hoque, and Arroyo (2012) state that one of the most cited articles related to OIE is that of Burns and Scapens (2000) who contend that "MAPs can both shape and be shaped by the institutions that govern organizational activity". The idea behind using OIE is to answer the questions: How MAPs among a company evolve over time? and Why MAPs evolve in particular way? (Robalo, 2014). OIE has been used to conceptualize MA change or stability by Burns and Scapens (2000) when they suggested a framework to interpret why MAPs change or stay stable in organisations. Their framework focused mainly on internal factors that shape the process of MA change such as routines and rules which are drawn from OIE.

In this context, the authors considered the process of conceptualization based on OIE as a starting point for researchers who are interested in studying MA change as a process. Regarding OIE, many researchers followed Burns and Scapens' (2000) study in order to explain the process of MA change based on OIE such as (Börner & Verstegen, 2013; Burns, 2000; Burns & Baldvinsdottir, 2005; Busco, 2006; Nor-Aziah & Scapens, 2007; Yazdifar, 2004; Yazdifar, Zaman, & Tsamenyi., 2008).

In this regard, it is important to reflect on OIE, NIS and NIE to find differences and similarities between them. OIE concentrates more on the micro level of institutions through studying the rules and routines as main factors in MA change over time while NIS focuses more on the macro level the environment around the organisations. In other words, NIS is interested in studying the political, economic and social factors which may make organisations look similar (Burns, 2000; Burns & Scapens, 2000; Scapens, 2006; Yazdifar, 2004). Burns (2000) confirms that NIE is linked strongly to static neo-classical economics and the common interest between OIE and NIE is that both focus on performance and economic behaviour and both theories comply with economic factors that cause change.

Johansson and Siverbo (2009) declared that the main assumption of OIE is that economic behaviour is shaped by institutions which contradicts the assumptions of neo-classical economics related to factors maximising the profit and economic equilibrium. Base on the above discussion, it is useful to look at the philosophical underpinnings of OIE.

3.3.4.1 The Philosophical Underpinnings of OIE

The OIE framework has faced further development and criticism as well since its emergence. Undoubtedly this framework has strongly motivated MA research and made it active (Johansson & Siverbo, 2009).

The philosophical underpinning of OIE differs from that of NIE. Hodgson (1993) contends that new-institutionalism is linked with methodological individualism. In other words, OIE refused methodological individualism and adopted methodological collectivism instead (Dugger, 1990). In addition, OIE assumes that an acceptable manner of behaviour which is socially developed shapes the individual and organisations' actions (Hodgson, 1998). Thus, OIE does not accept the notion of rational, maximising individuals because it assumes that the individuals exist as a part of their environment (Dugger, 1990). In the same vein, Hodgson (1998) argues that habit drives individual behaviour, also habits can be developed into routines and customs when they become part of an individual's action and there is a link

between the notion of habits and the concept of institution. Scapens (1994) contends that institutionalism's approach focuses on the institution as a unit of analysis instead of the behaviour of individuals. Moreover, Gruchy (1990) argues that OIE uses an evolutionary and a processual approach among its economic analysis, in order to grasp the factors that influence change. Therefore, institutionalists use a so-called processual approach to focus on institution as a unit of analysis (Dugger, 1990). The notion of the processual approach shows that alteration is a dynamic and complex process that cannot be explained by conducting questionnaire surveys and static case studies, (Burns, 2000). Furthermore, The processual approach is defined as a modern process to study organisational change (Abdul Khalid, 2000). In other words, the processual approach refers to studying the internal process of change.

Yazdifar (2004, p. 94) concludes that: "The individual is situated in a dynamic and evolving social culture. Social phenomena are seen as evolutionary, dynamic and in a constant process of change. Therefore, the OIE suggests that a researcher should use a holistic, processual and historical approach in his/her analysis, accepting the centrality of power and conflict between individuals and institutions".

3.3.5 New Institutional Economics (NIE)

NIE is consistent with the core economic theory, and it is considered an extension to neo-classical economics (DiMaggio & Powell, 1991; Scapens, 1994). NIE accepts the main assumptions of economics of exogenous tastes and preferences, although with some modifications (Abdul Khalid, 2000). Its ontological position is atomistic; that is "the individual is taken as the elemental building block in the theory of the social or economic system" (Hodgson, 1993, p. 5). Yazdifar (2004, p.122) states that "According to this school of thought, individuals are seen as behaving perfectly rationally and having access to all information. Furthermore, they are not affected by political, social and cultural factors. Hence, their understanding about reality is accurate and complete, enabling them to choose the optimal solution". Similarly, Hodgson (1993) contends that NIE follows the individualistic methodology.

Burns and Scapens (2000) argue that NIE theory shows that economic factors are behind shaping organisations structures and their MAPs as well. The idea of the individual who can optimize utility is rejected by OIE and NIS. In contrast, OIE and NIS adopt the idea of significance of culture and society in the process of MA change. Moreover, NIE is unable to

give sufficient explanation of MAPs, whereas OIE is more relevant for studying the MA in its institutional environment (Scapens, 1994). Rutherford (1996) as it cited by Yazdifar (2004) makes five criticisms of NIE: (1) it is often too abstract and formal; (2) individuals are considered to be rational and autonomous, and not influenced by their institutional and social setting; (3) it adopts a reductionist view of individualism; (4) it is not capable of explaining economic change; and, (5) it assumes the static equilibrium of institutions.

3.4 MAPs and changes in developed countries

The World Bank (2013) classified countries into two groups; developing which includes 145 countries and developed countries for the rest of the world's countries. This classification based on Gross National Income (GNI) per capita per year. According to this classification, countries with GNI less than or slightly above US$ 12,746 are considered as developing countries and countries with GNI greater than US$ $12,746 are defined as developed countries. The term developing countries is usually used to indicate countries that are less developed than developed countries but it does not include the least developed countries with income per capita of US $ 1,045 or less (see appendix 1 for more details). In this context, Hopper, Tsamenyi, Uddin, and Wickramasinghe (2009) conducted a study of MA in less developed countries (LDC). They classified the world into rich countries and LDC. The rich countries comprise western countries, Japan, New Zealand, Australia and some other countries, while the LDC comprise developing countries such as: China, India, Indonesia, Brazil, Malaysia, Pakistan, Middle East Countries etc. This study adopted the World Bank classification and the term Less Developed Countries will be used to indicate middle income countries per capita per annual. Therefore, the developed countries include the USA, the Europe Union, Russia, Japan and the Asia Pacific region and a few other countries.

In the USA, Shim and Larkin (1994) undertook a study of the US manufacturing firms. They found that 51% of surveyed firms were using the job order costing practice, 14.2% had adopted the process costing practice, 10.6% firms used operation-costing practices and 24.2% were using the standard costing practice. In addition, direct material represented 47% of total manufacturing cost while overhead cost represented 38% of total cost and direct labour represented just 15%. The multiple allocation approach was used by 44% of respondents to allocate overhead costs; while the single allocation approach was used by 34% of respondents and 22% allocated their overhead costs using ABC. Shields, Chow, Kato, and Nakagawa (1991) reviewed the literature related to MAPs in the USA and Japan. They stated that there

were aspects in common and differences in the use of MA between the two countries. The common practices among companies in both countries were; direct costing and full costing and the main differences between Japanese and U.S. firms were found to be the greater use of capital budgeting decision models and net present value and internal rate of return within US firms while the payback model was mostly used among Japanese firms.

In Europe, starting with the UK, Drury, Braund, Osborne, and Tayles (1993) undertook a study based on a survey aiming to explore MAPs in use in the UK manufacturing companies. Data was collected by using a postal questionnaire sent to 1269 participants, the number of returned questionnaires were 303. The result illustrated that negotiated price was widely used as a pricing method; full cost-plus and market price were popular methods as well.

Abdel-Kader and Luther (2006) conducted a study to survey the evolution of the MAPs in food and drinks companies in the UK based on the IFAC' model. The IFAC- based model divided the evolution of MA into four stages: Cost determination & financial control, Management planning & control, Reduction of waste in business resources and Value creation through effective resource use. The study found that traditional MA was still in use and 19% of surveyed companies were in stage one, 41% were in stage two, 27% were in stage three and 13% were in stage four according to the IFAC' based model of MA evolution.

In Belgium, Bruggeman, Slagmulder, and Waeytens (1996) studied MAPs in local companies. They concluded that traditional MAPs were in use with the intention to start adopting advanced techniques such as ABC. Pierce and O'Dea (1998) surveyed professional qualified management accountants in order to investigate their perception in the usage of MA advanced techniques in Ireland. They found that traditional MAPs were still dominated by MAS based on financial measures of control and performance evaluation. The adoption rate of MAIs is generally low and the adoption rate of traditional techniques is higher among Irish companies. In the same context, Clarke, Hill, and Stevens (1999) examined the MAPs development using supply and demand sides. The study found that the adoption rate of ABC in Ireland was lower than in the UK, Canada, and USA, and the management accountants in Ireland did not have clear understanding of ABC.

In their study Cinquini, Collini, Marelli, and Tenucci (2008) reported on two surveys studying a sample of large Italian companies over a ten year period. The first survey was conducted in 1996 and the second one was undertaken in 2005 and both surveys examined

ABC and TC techniques among the largest Italian companies. The researchers found that the use of both ABC and TC had increased from 1996 to 2005.

Hyvönen (2005) examined the adoption and benefits of MAS among Finnish manufacturing companies compared with those in Australia. He collected the data by sending surveys to 132 local companies. The sample comprised large companies from three sectors: forest, metal and electronics industries. The questionnaire included the 45 MAPs. He concluded that 20 out of 45 practices were adopted by more than 90% of the companies and 43 practices were adopted by at least 71% of the companies. Budgeting for controlling costs practice was adopted by all companies in the sample and ranked as number one. Also, budgeting for cash flows and budgeting for evaluating the performance of the managers were reported as important practices adopted by the companies surveyed. Budgeting for planning financial position were reported as the lowest ranking among budgeting practices with adoption rate of 84%. Capital budgeting measures which comprise ROI and payback had the highest rate of adoption among long-term planning practice and it ranked third with an adoption rate of 96%. Absorption costing was adopted moderately and ABC's adoption rate was low.

In Denmark, Israelsen, Anderson, Rohde, and Sorensen (1996) conducted two studies. The first study examined the diffusion of cost management innovations and the second evaluated product costing techniques among Danish industrial firms. They reported that the most dominant pricing practice in use was a market- oriented pricing policy. Non- financial performance evaluation was widely in use and the TC practice was highly adopted among Danish firms. On the other hand, the adoption rates of ABC, benchmarking and strategic cost analysis were low. However, the adoption rate of ABC was higher among foreign subsidiaries.

Bjørnenak (1997) examined 75 large manufacturing firms in Norway in order to discover to what extent local firms adopted the ABC technique. He collected data by using a questionnaire survey. The study found that ABC had been adopted as an idea by a large number of firms. Furthermore, the study classified firms according to their adoption rate into three categories; adopters 40%, non- adopters 31 % and 29% who had no experience or knowledge of it.

In Sweden, Ax and Bjørnenak (2005) studied the diffusion of innovation through focusing on (BSC). They investigated communication, diffusion of BSC from a supply side perspective. The study found that the fashion setters were consultancy firms, early adopters and

accounting academics represents the most influential factor on the diffusion process. Furthermore, they suggested that barriers to change are important in adoption of innovations, and the distance between the sender and the recipient was one of barriers which affected diffusion of innovations. Cultural, linguistic and mental distance was more influential than physical distance.

In Russia, Kallunki, Moilanen, and Silvola (2008) investigated to what extent Russian companies adopt western MAPs and control systems (CS) as a contribution of limited or non-existent literature on MA in Russia. They collected data in two different points of time in 2006 and 2008 using face to face interviews of two samples of 100 Russian organisations in order to observe the diffusion process of MAPs and CS. The researchers found that the Russian companies adopted different types of western MAPs and CS, however, they did not use the most advanced MAIs widely compared to developed countries. Moreover, they reported that the adoption rate of performance evaluation and formal control practices such as standard costing had increased in the second sample and the informal control mechanism's importance declined in the 2008 investigation because of adopting more western MAIs. The study results showed that the significance of adopted MAPs within Russian companies had an adoption rate similar to other countries.

In Australia, Chenhall and Langfield-Smith (1998) surveyed Australian manufacturing companies to explore to what extent the Australian firms adopted traditional and advanced MAPs, and to discover the benefits obtained by these practices. The researchers selected 140 manufacturing firms from the business review weekly list of Australia's largest companies. They found that the adoption rate of traditional MAPs was higher than MAIs. Yet, the adoption of MAIs such as ABC had increased compared with previous surveys. Moreover, traditional MAPs were more beneficial than MAIs. Following this study, Askarany (2009) carried out a study to examine the diffusion of MAIs within Australian organisations and the satisfaction level of these organisations after adopting the new techniques. He compared the results of the first and the second surveys on the diffusion of MAIs and the organisation's satisfaction in Australia in 2003 and 2007 respectively. The results indicate that MAIs are not widely adopted in Australia. Furthermore, most organisations that adopted MAIs are not completely satisfied with the adopted cost and MAS or think that the new systems need development. On the other hand, the study stated that there has been improvement during the period from 2003 to 2007 in terms of the degree of satisfaction with their applied MAS. Askarany (2009, pp. 20,21) states:

"All new management accounting techniques addressed in this study except "target costing" have had a relatively small growing diffusion rate (from 2% to 11.7%) from 2003 to 2007 in Australia. The only exception is target costing; its diffusion has suffered a significant drop (-37.9%) from 2003 to 2007". In the same context, Yazdifar and Askarany (2010) conducted a comparative study covering the UK, Australia and New Zealand. The study investigated the adoption rate of some MAIs in these countries. Findings are shown in table 3.1.

Table 3. 1 The adoption rate of MAIs in UK, NZ, and AU

Type of cost and management accounting practice	UK %	NZ %	AU %
ABC	27.3	26.7	28.6
ABM	24.3	22.5	17.5
BSC	45.4	25.7	40.3
Benchmarking	46.9	45.1	58.5
Strategic management accounting	24.3	32.4	32.4
Target costing	25.8	21.1	23.4

Source: Yazdifar and Askarany (2010)

This study also measured the satisfaction level with implemented MAPs in organisations, classified into 5 categories (Very satisfied, moderately satisfied, needs improvement, dissatisfied and very dissatisfied). In Australia, the rate was; 8.7% very satisfied, 30.2% moderately satisfied, 49% needs improvement, 7.4% dissatisfied and 4.7 very dissatisfied while in New Zealand the rate was; 20.6% very satisfied, 29.4% moderately satisfied, 30.9% needs improvement, 10.3% dissatisfied and 8.8 very dissatisfied.

Table 3. 2 Summary of previous studies in developed countries

Author/ Year	Title	Country	Method of data collection	Main findings
Shim and Larkin (1994)	A survey of current managerial accounting practices: where do we stand?	USA	Questionnaire	The study found that 51% of surveyed firms were using the job order costing practice, 14.2% were adopting the process costing practice, 10.6% represent firms using operation-costing practices and 24.2% were using the standard costing practice.
Shields et al. (1991)	Management Accounting Practices in the U.S. and Japan: Comparative survey findings and research implications	USA & Japan	Questionnaire	The common practices among companies in both countries were; direct costing and full costing and the main differences between Japanese and U.S. firms can be found in the use of capital budgeting decision models and net present value and internal rate of return being more popular within US firms while the payback model was mostly used among Japanese firms.
Drury, et al. (1993)	A survey of management accounting practices in UK manufacturing companies	UK	Questionnaire	The result illustrated that negotiated price was widely used as a pricing method; full cost-plus and market price are popular methods as well.
Abdel-Kader and Luther (2006)	IFAC's Conception of the Evolution of Management Accounting	UK	Questionnaire	Traditional MA were still in use and 19% of surveyed companies are in stage one, 41% are in stage two, 27% are in stage three and 13% are in stage four according to IFAC's- based model of MA evolution.
Bruggeman et al. (1996)	Management accounting: the Belgian experience	Belgium	Questionnaire	The results indicate that traditional MAPs were in use with the intention to start adopting advanced techniques such as ABC.
Pierce & O'Dea (1998	Management accounting practices in Ireland - the preparers' perspective	Ireland	Questionnaire	The findings indicate that traditional techniques continue to dominate management accounting systems, with heavy emphasis on financial measures of control and performance evaluation. Usage of new techniques is generally low, but tends to be highest in those companies reporting high usage of traditional techniques.
Clarke et al. (1999)	Activity-Based Costing in Ireland: barriers to, and opportunities for, change	Ireland	Questionnaire	The study found that the adoption rate of ABC in Ireland is lower than in the UK, Canada, and USA, and the management accountants in Ireland do not have clear idea about ABC.
Cinquini et al. (2008)	An exploration of the factors affecting the diffusion of Advanced Costing techniques: a comparative analysis of two surveys (1996-2005)	Italy	comparison of two questionnaires results	only "importance of cost information" and "cost structure", among the contextual variables considered in the more recent survey responses, are positive and significant in relation with increasing in implementation of advanced costing techniques.
Hyvönen (2005)	Adoption and benefits of management accounting systems: evidence from Finland and Australia	Finland & Australia	Questionnaire	The study indicated that 20 out of 45 practices were adopted by more than 90% of the companies and 43 practices were adopted by at least 71% of the companies. Budgeting for controlling costs practice was adopted by all companies in the sample and ranked as number one.

Israelsen et al. (1996)	Management accounting in Denmark: theory and practice.	Denmark	Questionnaire	The adoption rates of ABC, benchmarking and strategic cost analysis were low. However, the adoption rate of ABC was higher among foreign subsidiaries.
(Bjørnenak, 1997)	Diffusion and accounting: the case of ABC in Norway	Norway	Questionnaire	The findings show that a large number of companies have adopted ABC as an idea, i. e. they have implemented ABC or plan to do so (40%). Different variables related to cost structure, competition, existing costing system and product diversity were tested for their relation with ABC (planned or actual) adoption, but only cost structure was found to be statistically significant.
Ax and Bjørnenak (2005)	Bundling and Diffusion of Management Accounting Innovations - The Case of the Balanced Scorecard in Sweden	Sweden	Review conferences the best-selling book, and articles.	The fashion setters were consultancy firms, early adopters and accounting academics represents the most influential factor on diffusion process.
Kallunki et al. (2008)	Western management accounting and controls in Russian firms: an analysis of the extent of the use and its influences	Russia	Questionnaire	The use of MACS is not as widespread in Russia as it is in other Western countries, but that especially the use of formal controls such as standard costing and development of production techniques may be gaining importance as the business environment is getting more stable.
Chenhall and Langfield-Smith (1998)	Adoption and Benefits of Management Accounting Practices: An Australian Study	Australia		The findings indicate that, overall, the rates of adoption of traditional MAPs were higher than recently-developed techniques. However, newer techniques, such as activity-based costing, were more widely adopted than found in prior surveys. Also, the benefits obtained from traditional management accounting techniques were higher than those of newer techniques
Askarany (2009)	An investigation into the diffusion of cost and management accounting innovations in Australia	Australia	Historical review	The majority of organisations in Australia (more than 50%) are reluctant to implement new management accounting techniques and at the same time are unhappy with their implemented management accounting techniques. However, there has been a positive development in terms of the extent of organisations‟ satisfactions with their implemented management accounting innovations.
Yazdifar and Askarany (2010)	A comparative investigation into the diffusion of management accounting innovations in the UK, Australia and New Zealand	UK, Australia New Zealand	Questionnaire	The study indicates a growing interest in the adoption of new cost and management accounting practices. This shift in views regarding the new practices might be due to changes in the markets and the need for more advanced costing and management accounting practices.

3.5 MAPs and changes in less developed countries

Many studies have been conducted in China such as those done by (Firth, 1996; Wu, 2003; Wu et al., 2007). Firth (1996) examined the influence of foreign partnered joint ventures on the diffusion of western MAPs among Chinese firms. Survey results indicate that local firms with a foreign partner joint venture achieved a higher level of adoption of western MAPs than firms who did not cooperate with a foreign partner. Wu (2003) carried out a study to investigate the adoption of western MAPs among Chinese firms and to explore its benefits in particular, in state-owned enterprises and foreign joint-ventures located in China. She found that MAPs in Chinese firms have developed in recent years compared to previous local research although the adoption rate and usage of MAPS still lower than in western countries. In the same context, Wu et al. (2007) studied the progress of western MAPs in the Chinese emerging market economy based on data covering a sample of 64 joint ventures (JVs) and 115 State Owned Enterprises (SOE), the data was gathered using questionnaire forms. They concluded that the ownership type of the organisation, joint venture (JV) or stated owned enterprise (SOE) was the main factor that affected the adoption level of MAPs. Another important finding was that budgeting for controlling costs, profit and sales budgeting, and target costing were considered to be more beneficial for SOEs compared to JVs.

Ali (2010) studied utility of cost and MAPs in manufacturing firms operating in Istanbul, Turkey. The sample consisted of 61 firms between small and medium sized and he collected the data using a questionnaire survey. He concluded that job costing is the dominant method to calculate product costing and the three most important MAPs within Turkish firms were budgeting, planning and control, and cost-volume-profit analysis. In addition, traditional MAPs were still important among the Turkish firms, where MAIs such as strategic planning, and transfer pricing were considered less important.

In South Africa Luther and Longden (2001) conducted a comparative study including South Africa and the UK. The study was based on a questionnaire as the tool of collecting data. They concluded that MAPs benefit in South Africa changed over time from 1996 to 2001 to become more beneficial, and they differed from those in the UK as a result of the volatile situation due to uncertainty which made MA information system more important than in a more stable economic environment. Also, they reported that factors behind MA change in South Africa were different from factors in use in the UK, because in South Africa there is shortage of competent financially trained staff.

In Iran Allahyari and Ramazani (2011) investigated the factors that impeded the MA change process. The main factors were: lack of accounting employees, lack of competition resources, management stability, problems in management, lack of accounting power, being assured of meeting legal requirements and lack of independence from parent company. They concluded that the lack of accounting employees based on poor training and failure in developing their technical knowledge, and the lack of independence from the parent company led to bad decisions. Moreover, the lack of calculation resources caused a delay in MA change in Iran. Similarly, Ahamadzadeh, Etemadi, and Pifeh (2011) carried out a study to explore the influence of organisational factors on adopting the ABC practice in firms listed in the Tehran stock exchange. The result indicated that there is a positive relationship between the cost structure, importance of cost information and product/services diversity. On the other hand, the study found a negative relationship between the industry type, size and product/services diversity (volume and support) with implementation and choice of the ABC system.

In Jordan, Hutaibat (2005) in his exploratory study reported that Jordanian manufacturing companies still relied heavily on traditional MAPs. In a more recent study Joshi, Bremser, Deshmukh, and Kumar (2011) examined the adoption and diffusion rate of MAPs among Gulf Cooperation Council (GCC) countries. They reported that cost accounting and strategy MAPs were not adopted by many companies in the GCC while the adoption rate of performance measurements MAPs was moderate. They stated that the major reasons behind non-adoption of MAPs were not economic but power and politics. In Egypt, Al and McLellan (2011) undertook a study looking at 215 Egyptian industrial companies in order to examine the adoption rate of MAPs and the benefits obtained from these MAPs. The study was based on a questionnaire survey covering 42 MAPs to collect data. The results indicated that Egyptian manufacturing firms depended heavily on traditional MAPs and higher benefits were obtained from using traditional MAPs. In the same context and more recently, Mohamed (2013) carried out a case study investigation in Egypt to confirm whether alteration in the business environment caused changes in the level of MAPs and whether company's competitiveness was influenced by the level of MAPs. He found that the firm under study stratified advanced technology in its production system and it adopted both traditional and advanced MAPs. Furthermore, as a result of acquiring modern technology, the company under study managed to achieve competitive advantages based on MAPs which played a vital role in this case.

In South East Asia, Maelah and Ibrahim (2007) investigated the adoption rate of the ABC technique within Malaysian manufacturing firms. A questionnaire was used to collect data. The results of the study indicated that ABC adoption is still in its infancy and the rate of adoption was 36%. They concluded that the adoption process of the ABC was affected by many factors such as decision usefulness of accounting information, organization support, and internal measures of performance. Also in Malaysia, Ahmad (2012) examined to what extent MAPs in Malaysian Small and Medium Enterprises were in use. He used a postal questionnaire to collect data from 1000 Malaysian SMEs. The results indicated that use of the costing system, budgeting system and performance evaluation system were significantly higher than the decision support system and strategic MA. This means that the use of traditional MAPs was higher than advanced MAPS. Moreover, the study found that the adoption and use of MAPs among medium sized companies was higher than small sized firms. In addition, the main roles of MAPs within SMEs were performance evaluation and controlling activities. The study concluded that:

> "Four out of five contingent factors; size of the firm, intensity of market competition; participation of the owner/manager in the development of MAPs in the firm, and advanced manufacturing technology have a positive and statistically significant relationship with the use of certain MAPs" (Ahmad , 2012 p.p. 4).

Bee, (2007) examined the extent of usage of 21 Strategic MA and 18 TMAPs in Singapore by using a survey of 400 strategic business units in Singapore. The study explored the link of TMAPs and SMAPs to strategic business efficiency. The study found that TMAPs were still dominating among Singaporean enterprises. It also found that 5 out of 21 SMAPs were above average. Furthermore, SMA was in use among foreign- owned firms while SMAPs usage within local organisations was limited.

In Thailand, Chongruksut (2009) studied the link between organisational culture and the adoption of MAIs that include ABC, ABM, BSC and TC. The study stated that there was not cultural difference between firms who adopted or do not adopt MAIs. However, firms with higher flexibility value or support trends or innovation orientation were more likely to adopt MAIs. In the same context, Nimtrakoon (2009) attempted to explore the adoption benefits of MAPs and to examine whether there was any link with contingency factors that may influence organizational performance in Thailand. The study used questionnaire forms to collect data and semi- structured interviews as well. The results confirmed the dominance of

TMAPs and high benefits that were obtained from adopting them. In contrast, the study revealed that the adoption rate of MAIs was low and its benefits relatively low as well. In more recent study, LYJ, Sumkaew, and J. (2014) examined the alteration in MAPs in Thailand between 2001 and 2012. The study found that there was no relative change during the period covered by the study and TMAPs such as budgeting, planning and performance evaluation using budget variance analysis were still dominant. Also, the results indicated some positive and important bonds between MAPs and some contingency factors (perceived environmental uncertainty, organisational strategy and size). In contrast, other contingency factors (intensity of market competition, organisational structure and types) negatively impacted the MAPs adoption process.

In other developing countries, Anderson (1999) conducted an exploratory study of 14 firms in order to evaluate the evolution of MAPs in India using a contingency theory framework. They found an evidence of changes in MAPs because of external environment changes due to liberalisation of the Indian economy starting in 1991. Following this study, Joshi (2001) conducted a study to examine to what extent Indian manufacturing firms adopted traditional and contemporary MAPs and what benefits were obtained from using these MAPs. He used a questionnaire survey to collect data covering 45 MAPs. The study found that the adoption rate of TMAPs was higher than MAIs. Moreover, the majority of adopted MAPs were related to traditional budgeting and performance evaluation systems. Maqbool (2011) examined the implementation of MAPs in the manufacturing sector of Pakistan. Data was collected from a sample of 45 manufacturing companies. The study concluded that TMAPs were in wide use whereas usage of MAIs was limited among Pakistani firms.

To sum up, according to previous research reviewed above, it can be seen clearly that traditional MAPs were still dominant in developed and developing countries. Furthermore, benefits obtained from traditional MAPs were perceived as greater than those obtained from advanced MAPs which was reflected in the higher rate adoption of traditional MAPs compared to advanced ones.

Table 3. 3 Summary of previous studies in less developed countries

Author/ Year	Title	Country	Method of data collection	Main findings
Firth (1996)	The diffusion of managerial accounting procedures in the people's republic of china and the influence of foreign partnered joint ventures	China	**Questionnaire**	Those Chinese enterprises who participated in foreign partnered joint ventures made more changes to their management accounting systems when compared to similar P.R.C. companies who had no collaborative venture operations with foreign firms
Wu (2003)	The adoption of western management accounting practices in China and the influences of foreign partnered joint ventures	China	Questionnaire	The results of this research indicated that management accounting practices in Chinese organisations have made considerable progress in recent years compared to previous Chinese studies. However, there is a lower usage of management accounting practices by comparison with western countries.
Wu et al. (2007)	An analysis of the adoption, perceived benefits, and expected future emphasis of western management accounting practices in Chinese SOEs and JVs	China	Questionnaire	The study finds that the level of adoption of management accounting practices is most influenced by ownership type of the enterprise (JV or SOE) and to a lesser extent by the nature of the management accounting techniques to be adopted.
Ali (2010)	Cost and Management Accounting Practices: A Survey of Manufacturing Companies	Turkey	Questionnaire	The findings indicate that companies perceive traditional management accounting tools still important. However, new management accounting practices such as strategic planning, and transfer pricing are perceived less important than traditional ones.
Luther and Longden (2001)	Management accounting in companies adapting to structural change and volatility in transition economies: a South African study	South Africa	Questionnaire	The result indicates that MAPs benefits in South Africa changed over time from 1996 to 2001 to become more beneficial, and they differ from the UK ones because of the volatile situations due to uncertainty which make MA information system more important than they are in stable economic environment. Also, factors behind MA change in South Africa are different from MAPs in use in the UK.
Allahyari and Ramazani (2011)	Studying the Factors Which Delay Management Accounting Changes (Case Study of Iranian Manufacturing Firms)	Iran	Questionnaire and interview	The lack of accounting employees based on poor training and failure in developing their technical knowledge, the lack of independence from parent company which leads to made bad decisions. Moreover, the lack of calculation resources cause delay in MA change in Iran

Ahamadzadeh et al. (2011)	Exploration of Factors Influencing on choice the Activity-Based Costing System in Iranian Organizations	Iran	Questionnaire	The results indicate a positive relationship among cost structure, the importance of cost information and products and services diversity. It also indicates negative relationship among the type of industry, organization size and product and services diversity with adopting the mentioned system.
Hutaibat (2005)	Management Accounting Practices in Jordan - A Contingency Approach	Jordan	Questionnaire and interview	The study found that industrial companies are still using traditional rather than new MA techniques. The study revealed that there were significant associations between certain management accounting practices and four explanatory variables, namely, company size (measured by sales), competition (both domestic and international), industry type (chemical and pharmaceutical industry), and foreign ownership.
Joshi et al. (2011)	Diffusion of Management Accounting Practices in Gulf Cooperation Council Countries	GCC	Questionnaire	The results of our survey show that the adoption rates for MAPs in the area of cost management and strategy are low while those in the area of performance measurement are moderate. Overall, the respondents favourably perceived their success in implementing MAPs. Power and politics, not economic (or cost–benefit) reasons, were the most influential reasons for non-adoption of MAPs
Al and McLellan (2011)	Management Accounting Practices in Egypt – A transitional economy country	Egypt	Questionnaire	Results indicate that Egyptian manufacturing organizations rely heavily on traditional management accounting practices, while the adoption rates of recently developed or advanced practices are rather low and slow. The study reveals that, in most of the cases, higher benefits are derived from the traditional practices compared to the advanced ones
Mohamed (2013)	Changes in the business environment and the level of management accounting practices in Egypt: a case study	Egypt	Case study	Results indicate that the level of MAPs keeps pace with technological developments and intensity of competition, and MAPs play a basic role in developing the company's ability to achieve competitive advantages
Maelah and Ibrahim (2007)	Factors influencing activity based costing (ABC) adoption in manufacturing industry	Malaysia	Questionnaire	The study found that ABC adoption in Malaysia is at infancy stage, with 36% adoption rate. The factors that influence ABC adoption are decision usefulness of accounting information, organization support, and internal measures of performance.
Ahmad (2012)	The use of management accounting practices in Malaysian SMES	Malaysia	Questionnaire	The results indicate that medium sized firms make greater use of all MAPs as opposed to small sized enterprises. The results also suggest that MAPs were perceived as playing very important roles in the management

				of Malaysian SMEs. Performance evaluation and controlling activities were the major roles of MAPs in the management of SMEs.
(Bee, 2007)	Management Accounting Practices In Singapore	Singapore	Questionnaire	Results indicated that TMA practices were still heavily in use in Singapore Five out of 21 SMA practices had above average usage rates. While SMA was found mostly in foreign-owned organizations, local companies also used SMA practices to a certain extent.
LYJ et al. (2014)	Changes in Management Accounting Practices in Thailand	Thailand	Questionnaire	The study found that there was no relative change during the period covered by the study and TMAPs such as budgeting, planning and performance evaluation using budget variance analysis were still dominant
Nimtrakoon (2009)	Organization Strategy, Management Techniques and Management Accounting Practices: Contingency Research in Thailand	Thailand	Questionnaire and interview	The findings confirm the popularity of the use of, and high perceived benefit from, traditional MAPs and reveal disappointing adoption rates of, and relatively low perceived benefit from, contemporary MAPs.
Anderson and Lanen (1999)	Economic transition, strategy and the evolution of management accounting Practices: The case of India	India	Questionnaire and case study	The study finds an evidence of changes in MAPs because of external environment changes due to liberalisation of the Indian economy starting in 1991.
(Joshi, 2001)	The international diffusion of new management accounting practices: the case of India	India	Questionnaire	The adoption rate in India for traditional management accounting practices were higher than for the recently developed techniques and the adoption rate for the newly developed techniques had been rather slow
Maqbool (2011)	Which management accounting techniques influence profitability in the manufacturing sector of Pakistan?	Pakistan	Questionnaire	The results concluded that TMAPs were widely in use whereas MAIs were limited among Pakistani firms.

3.6 MAPs and changes in Libya

Since the beginning of the new millennium, several studies related to MA have been conducted in the Libyan context e.g. (Omar, 2005; Alkizza, 2006; Leftesi, 2008; Abugalia, 2011; Zoubi, 2011; Alhashmi 2014; Ahmad & Leftesi, 2014)). Table 3.4 concludes the title, research methods, theory, and main findings of the previous studies in the area of MA in Libya. Ahmad and Leftesi (2014) conducted a study to explore the Level

of Sophistication of MAPs in Libyan Manufacturing Companies. They collected data by posting questionnaires to top financial staff and senior management accountants of medium size and large Libyan manufacturing firms. They adopted an IFAC- based model to evaluate the stage of evolution of the MAPs in Libya. They found that traditional MAPs dominated the Libyan manufacturing companies. Moreover, they found that the adoption rate of MAIs was low and slow. In addition, the study uncovered that MAPs in Libya were located between stage one and stage two in the IFAC- based model.

Table 3. 4 Previous studies in MA in Libya.

Author	Title	Scope	Research method	Theory	Main findings
Omar (2005) PhD thesis	Management control systems in a transition context: case studies from the Libyan industrial sector	Manufacturing sector	Case study	Descriptive	There is a lack of using accounting information in planning and control process.
Alkizza (2006) PhD thesis	The Impact of Business Environment on Management accounting practices: Libyan evidence.	Manufacturing and non- manufacturing sectors	Survey and case study	Contingency	There is a considerable growth in MAPs
Leftesi (2008) PhD thesis	The Diffusion of Management Accounting Practices in Developing Countries: Evidence from Libya	Manufacturing sector	Mixed	NIS and DOI	The adoption rate of MAPs is lower than other countries according to MA literature.
Abugalia (2011) PhD thesis	The Influence of Business Environment on the Effectiveness of Management Accounting Practices: Evidence from Libyan Companies	Manufacturing and non- manufacturing sectors	Survey and limited interviews	Contingency	the adoption rate of MAPs in companies under study were lower than average in other countries
Zoubi (2011) PhD thesis	The processes of Management accounting change in Libyan privatised companies: An institutional perspective.	Manufacturing sector	Case study	OIE and NIS	There is no revolutionary change within MAPs, and there is resistance to change.
Alhashmi (2014) PhD thesis	An Empirical Investigation of Management Accounting and Control Systems Change in Two Libyan State-owned Manufacturing Companies: An Institutional Perspective	Two state-owned manufacturing companies	The case study approach	NIS	the changes in the Libyan business environment have caused changes in the MACS of both companies
Ahmad & Leftesi (2014) Article	An exploratory study of the level of sophistication of management accounting practices in Libyan manufacturing companies	Manufacturing sector	Survey	Not mentioned	Adoption rate of MAIs is low and slow and MAPs in Libya are located between stage one and two in IFAC-based model

Omar (2005) carried out a study to investigate the state of management control systems in the transition Libyan context. The main aim of this study was to gain a clear understanding of MCSs in several Libyan industrial firms during its transition from state-owned companies to the private sector. The researcher used the interpretive approach to conduct his study and the case study method to collect data. The case studies focused on three private industrial sectors - Food, Paper, and Construction Materials. The study found that accounting information obtained from the accounting system was very limited, and accounting information was not greatly used in the planning and control process. Moreover, the annual statement was confined to the income and balance sheet statements which were prepared to comply with the regulations and to obtain resources from the ministry of industry. Because the ministry of industry was responsible for items pricing, cost calculations and cost systems do not exist.

Alkizza (2006) conducted a study to examine the change in MAPs in Libyan companies following the privatisation process in the national economy. He investigated the change process in MA at two levels: macro and organisational. The researcher first used the contingency theory approach and the questionnaire method to collect data from a sample of 79 firms. Secondly, he used Innes and Mitchell's (1990) framework with the case study method conducted in two Libyan firms to explore MA change at the organisation level. The study found that there was considerable growth in MAPs used in the surveyed companies in general and in various types of companies. Moreover, the change in MAPs was affected by many factors related to business environment. The case study data analysis showed that changes in MAPs in both companies was caused by what he termed motivators, catalysts and facilitators.

Leftesi (2008) managed to investigate the diffusion of MAPs in Libya and factors effecting its diffusion. The study investigated the condition of traditional and advanced MAPs of a combination of 81 medium and large size Libyan manufacturing companies from various industrial sectors. The findings indicated that surveyed companies used mostly traditional MAPs. However, the adoption rate of MAPs was lower than in other developed countries. Furthermore, the study revealed that the environmental factors (eg. uncertainty and market competition) do not significantly influence the MAPs adoption process. On the other hand, the study stated that innovation attributes positively affected the diffusion of MAPs in Libyan manufacturing companies.

In the same context, Zoubi (2011) conducted a study aiming to explain the process of MA change in Libyan privatised firms. It examined two privatised manufacturing firms based on a case study to explore the influence of institutional factors on MAS. The triangulation method was used to collect data and an institutional framework adopted from NIS, OIE and power mobilisation to obtain a deeper understanding of the change process in Libyan firms. The study illustrated that the companies' objectives have changed entirely from social to economic purposes. Moreover, the study revealed that MASs have been influenced by institutional factors before, during and after the privatisation process. In addition, the study found that the change in MASs and MAPs was not comprehensive although it was incremental. Finally, the study showed that there was a resistance to change to a new system of information technology.

Finally, Abugalia (2011) did a study aiming to investigate the adoption of MAPs within Libyan firms. The researcher developed 14 variables using a theoretical contingency model. He used a survey questionnaire to collect primary data from 123 firms, and complemented the survey with interviews with top managers in ten of the surveyed firms. The researcher found that the adoption rate of MAPs in companies under study were lower than average in other countries such as USA, UK, Australia and India. He stated that the reasons for the low rate adoption of MAPs were lack of financial resources, lack of top management support, cultural factors, new established company and fear of change.

3.7 Limitations of the previous studies

From the above discussion related to reviewing the literature of previous studies undertaken in Libya, there are several limitations that the current study aims to overcome as follows:

□ There is a rarity of studies that investigate the factors that influence the adoption of MAIs in Libya as most of the studies are about MCS, TMAPs, and MA change.

□ Apart from the study by Leftesi (2008), none of the previous studies discussed in detail the status of MAIs in the Libyan context, although Leftesi's study was confined to the manufacturing sector and the factors examined were limited.

□ The previous studies either use contingency theory for instance (Alkizza, 2006; Abugalia, 2011), or institutional theory (e.g. Alhashmi, 2014; Leftesi, 2008; Zoubi, 2011) and no study used a combination of contingency theory with NIS as a theoretical framework.

□ No previous studies focused on a group of MAIs, however, some studies scanned their adoption rate while others focused on one innovation such as ABC or BSC. This study tested chosen MAIs as a group and showed the impact of the independent factors on every chosen MAI separately.

□ No previous study investigated the factors that influence the adoption of MAIs among the manufacturing and non-manufacturing sector alike. Moreover, this study comprises three types of triangulation (data, methodology, and theory triangulation) in order to validate data and to overcome weaknesses that come from employing mono method.

□ The previous studies conducted in Libya were performed during the previous regime where transparent research was impermissible, and accurate data was not easily available. However, the current study was undertaken in different circumstances after the collapse of the old regime which made transparency, access to accurate reliable data, and interviewing people without fear possible.

□ There was a call from some previous studies to conduct further research to focus on possibility of adopting and implementing MAIs in Libya (Alkizza, 2008), and to cover several sectors rather than focusing on the manufacturing sector in order to enhance the understanding of the topic of MAPs whether it is traditional or advanced (Leftesi, 2008; Haider, 2011).

□ Finally, due to limited variables that were examined and case studies that were covered, some studies claim that future studies have an opportunity to examine the impact of missing variables, and adopt a larger-scale survey approach in order to statistically generalize the results to other settings (Alhashmi, 2014; Leftesi, 2008; Zoubi, 2011).

3.8 Summary

This chapter shed light on the MA change process and issues related to the diffusion of MAIs in developed and less developed countries aiming to give a better understanding of the process of the diffusion of innovation. Different theories were considered. In addition, the literature related to the evolution of MA and MAPs in developed and less developed countries alike was reviewed. Also, this chapter provide an overview of the theoretical

perspectives on MA change including diffusion of innovation theory, agency theory, neo-classical economic theory, old institutional economics, and new institutional economics. This chapter has reviewed several studies that cover these countries focusing on MAPs in use in the surveyed countries. Also, the previous studies related to MA conducted in Libya were reviewed and summarised in this chapter. Overall, based on reviewing the literature concerning MAIs and MA change in different countries, it is obvious that traditional MAPs are still dominant and the advanced MA techniques are more adopted in developed countries than in less developed countries. The need for this study was explained through presenting the limitations of the previous studies. The last section in this chapter showed the limitations of the previous studies undertaken in Libya which lead to a decision to conduct this study to overcome those limitations.

The next chapter focuses on the theoretical framework adopted in this study that include a combination of contingency and new institutional theory.

Chapter Four: The Theoretical Framework

4.1 Overview

This chapter discusses the study's theoretical framework, which is based on institutional and contingency theories. The institutional approach employed in this study is New Institutional Sociology (NIS). A framework is used that includes NIS and contingency theory aiming to gain a holistic understanding of the problem under study.

4.2 New Institutional Sociology (NIS)

New institutionalism drew attention to how the external environment socially shapes organisations and increases their legitimacy in the broader world (Powell & Bromley, 2013). In the same context, DiMaggio and Powell (1991, p. 8) describe the new institutionalism as: "The new institutionalism in organization theory and sociology comprises a rejection of rational actor models, an interest in institutions as independent variables, a turn toward cognitive and cultural explanations, and an interest in properties of supra individual units of analysis that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives". They added, NIS enhances the relationship between organisations and their environment and it focuses more on culture and power in structuring the organisations.

NIS mainly endeavours to answer the question; why do organisations in particular areas appear to be similar (Scapens, 2006). Furthermore, NIS assumes that the external environment shapes MAS, the structure of organisations and formal systems of the organisations (Scott, 1991). DiMaggio and Powell (1983) state that: in order to gain legitimacy and resources, organisations tend to adopt formal structures and procedures common in their environment, and by adopting these structures and procedures they become isomorphic. According to DiMaggio and Powell (1983) there are different types of institutional isomorphism: normative, mimetic and coercive. Yazdifar (2004, p. 107) concluded that "NIS focuses on change at an extra-organizational (or macro) level and primarily focuses on the `legitimating' of organizational forms and processes in society. The success of a "subsidiary" organization from an NIS perspective is defined by the extent to which an organization embodies society's (e. g. parent companies) `ideals' (myths) concerning norms of rational behaviour". In addition, Johansson and Siverbo (2009) argue that NIS shows how MAIs come to an organisation.

4.2.1 NIS assumptions

NIS assumes that when the organisation adopts a particular accounting system, it must be driven by the need to react to pressure coming from the external environment (Moll, Burns, & Major, 2006). Moreover, NIS assumes that organisations emerged from, are rooted in and linked to broader social environments, which comprise cognitive, normative and cultural systems of rational networks, rules and beliefs (Scott & Meyer, 1991). Scapens (2006) suggests that NIS assumptions aim to explain why organisations in same field look similar. The focus of NIS is mainly on the external environment; therefore, the definition of institutions from the NIS perspective is entirely different from OIE. In this context, Scott (1995, p. 33) defines institutions as: "Institutions are transported by various carriers, cultures, structures and routines and they operate at multiple levels of jurisdiction". According to Yazdifar (2004), NIS theory suggests that for an organisation to survive it must follow the prevailing norms of practice in the society more than aim to accomplish a high level of efficiency. Consequently, the policies, activities and structure of the organisation will be influenced by institutionalised rules which exist in the external environment (DiMaggio & Powell, 1983). In terms of MA, NIS assumes that the adoption of certain MAPs could occur in order to gain legitimacy or as a result of isomorphism. DiMaggio and Powell (1983, p. 149) define isomorphism as "the concept that best captured the process of homogenisation". They added that isomorphism is a process that compels units in same population to be similar under the same environmental conditions. Isomorphism comprises two types: competitive and institutional. Also, institutional isomorphic has three mechanisms for change: coercive isomorphism, mimetic processes and normative pressures (DiMaggio & Powell, 1983).

4.2.2 Isomorphism in MA

Isomorphism can be divided into two types: competitive and institutional isomorphism. The difference between these two types is that competitive isomorphism is more related to efficiency and market competition and this type of isomorphism is more relevant to organisations that work in free and open markets. With regard to institutional isomorphism, it happens when an organisation falls under pressure coming from an external source such as the government, suppliers or other organisations working in the same field (DiMaggio & Powell, 1983). Isomorphism is a key element from the NIS perspective because it explains the homogenisation of organisations in a similar environment.

According to DiMaggio and Powell (1983), coercive isomorphism emerges from political influence and legitimacy problems. It is caused by both formal and informal pressures exerted by the external environment. Government regulations, large manufacturing firms and stakeholders are examples of coercive isomorphism. Regarding mimetic processes, it usually occurs as a result of uncertainty when an organisation tends to resemble a successful organisation in the same field in order to achieve its goals or gain legitimacy. The last mechanism is normative pressure; this stems from professionalism. There are two sources of professionalization; the first source is specialised universities in a shape of formal education. The second source is the professional training centres which help to diffuse new MAPs. Both universities and professional centres are important to enforce organisational standards in order to improve the performance of professional managers and other staff.

In MA literature, Yazdifar (2004) states that in the MA change context, the NIS concept of coercive change can be imagined as a result of change in the external environment which affects privatised companies in their organisational structure. Granlund and Lukka (1998) argue that institutional isomorphism has two dimensions: convergence and divergence. On the other hand, competitive isomorphism includes pressure caused by market competition towards similarity (Mizruchi & Fein, 1999).

4.2.3 Limitations of NIS

NIS have some shortcomings that make it insufficient to give a complete explanation of the process of MA change. NIS is confined to study environmental pressures and it neglects organisational factors. Therefore, employing NIS in a study as a single theory would face some criticism in terms of its limitations. In this regard, Yazdifar (2004, pp. 126-130) summarises the main criticisms of NIS theory as being:

(1) Neglect of power issues and actors' interest-based behaviour.

(2) Inability to recognise the disparity within institutional environment.

(3) Incapacity to explain processes of organizational change.

(4) Lack of consideration of internal generation of institutionalized forms.

(5) Lack of consideration of the pressure for efficiency and the economic environment.

(6) Assumption that external legitimacy leads to decoupling in all cases.

4.3 Contingency theory

Kreitner (1998) reports that as a result of the inadequacy of the traditional theories, the contingency theory became a favourable alternative. It aims to focus on a contingent approach rather than a universal approach by explaining the mutual relationship between characteristics of the organisation.

Otley (1980) contends that contingency theory was developed in the early to mid- 1960s, however, the first reference to contingency theory related to accounting literature was in the mid- 1970s. It became dominant in MA research as it explained the structure of the organisations by assuming that the design of the organisations is contingent upon contingency factors that comprise environmental uncertainty, technology and organisational size (Fisher, 1995; Chenhall, 2003). Since then and for the following five years the published work about the behavioural and organisational aspects of management accounting was dominated by the contingency theory. It is still one of the most popular research approaches in management accounting, and typically used in positivistic studies (Malmi & Granlund, 2009).

The notion of the contingency theory emerged after several studies aiming to explore the contingent nature of accounting. It is based on the concept that no generally convenient accounting system can be applied to all circumstances (Otley, 1980; Fisher, 1995; Haldma & Laats, 2002). In this context, Covaleski et al (1996, p. 4) define contingency theory as "A theoretical perspective of organizational behaviour that emphasizes how contingent factors, such as technology and the task environment affect the design and functioning of the organizations". While Kreitner (1998, p. 55) defined the contingency approach as "An effort to determine through research which managerial practices and techniques are appropriate in specific situation".

Otley (1980, p.413) described it thus "The contingency approach to management accounting is based on the premise that there is no universally appropriate accounting system which applies equally to all organisations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organisation finds itself". Similarly, Chenhall, Harrison, and Watson. (1981) believed that there is no unified solution that can applied globally to resolve all organisational problems, however, the surrounding environmental circumstances and the company's character can effectively help to solve the problems the company faces.

Regarding the MA research, there are many researchers who have made an important contribution based on the contingency theory approach such as (Luther & Longden, 2001; Haldma & Laats, 2002; Waweru et al, 2004; Abugalia, 2011; Fakhri, Menacere, & Pegum, 2009; Al-Omiri, 2003; Nimtrakoon, 2009). Some researchers presented frameworks linked with contingency theory included in their work such as (Otley, 1980; Innes & Mitchell, 1990, Cobb, Helliar, & Innes 1995; Haldma & Laats, 2002).

According to Schreyögg and Steinmann (1987), the contingency theory proposes that the performance and efficiency of the system is highly influenced by the environment or the internal and external context of a system or an organization, and the system has to adapt with its circumstances to be efficient. Consequently, the organisations that attain a match between internal features and their situation specific demand can adapt in a good way. The adaptation of the organisation with its internal and external environment is called the fit.

4.3.1 The Concept of fit in Contingency Theory

Tosi and Slocum (1984) contend that in order to obtain significant results, there are two essential concepts related to contingency theory that must be understood by researchers namely; organisational performance and fit. In the same vein, Drazin and Van de Ven (1985) argue that the main idea of contingency theory is "fit", and the fit between organisational structure characteristics and contextual factors will enhance the performance of the organisation. On the other hand, misfit between the organisation and the surrounding environment will cause poor performance.

Reviewing the literature shows that the contingency theory can be divided into two approaches; an interaction congruence approach and a contingency approach. According to Drazin and Van de Ven, (1985), the interaction congruence approach assumes that context-structure has a relationship with all surviving organisations and this relationship is assessed as fit. The contingency approach, however, suggests that fit has several levels related to influence of the interaction between the organisation structure and the contextual variables on the performance of the organisation. Therefore, higher performance implies that there is a higher level of fit.

4.3.2 The nature of the contingent variables

According to (Chenhall & Morris, 1986; Gordon & Miller, 1976; Govindarajan, 1988; Gul & Chia, 1994; Merchant, 1981; Reid & Smith, 2000) the main contingent variables comprise

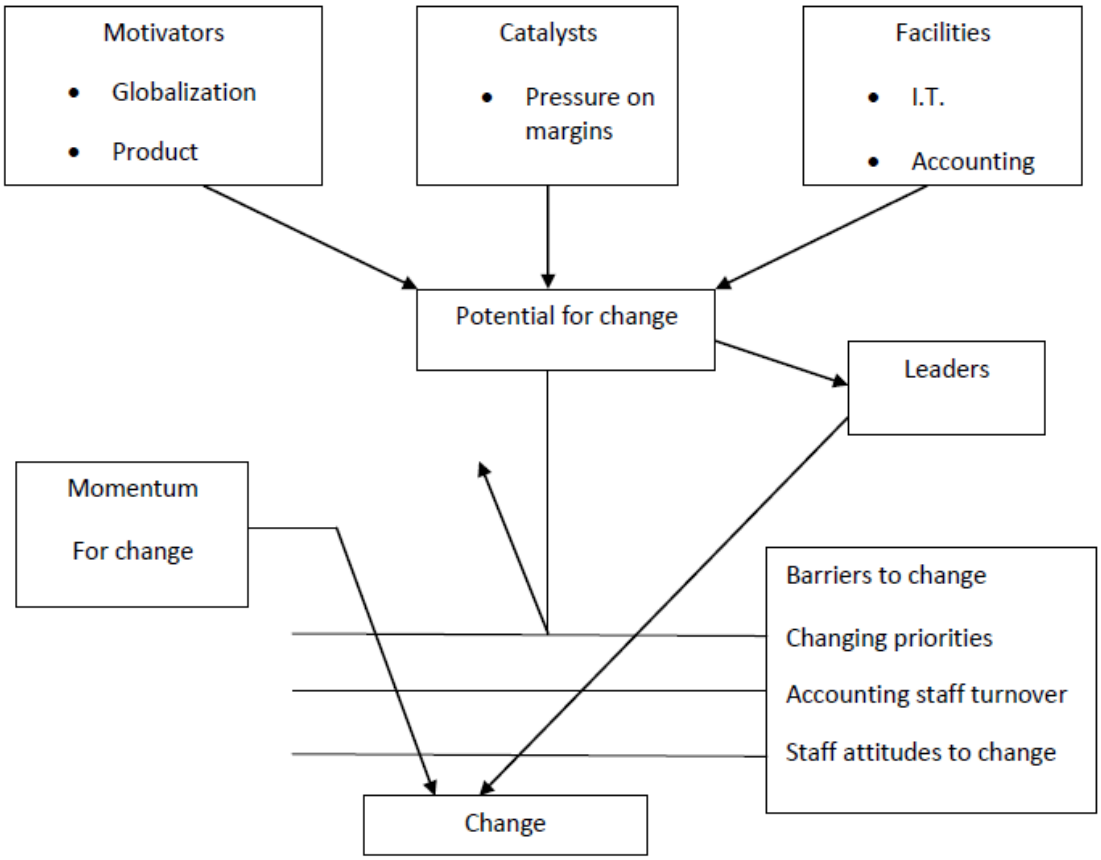
production technology, size, organizational structure, and environmental conditions. similarly, Mintzberg (1979) categorized the contingent factors into four types as follows: the age and size of the organisation; the technical system it uses; the surrounding environment; and its power relationships. In addition to these variables, Chenhall, (2003) contends that strategy and national culture have been added as contingent variables. With regard to theoretical structure, new frameworks were presented by some researcher such as (Gordon & Miller, 1976; Otley, 1980; Innes & Mitchell, 1990; Otley & Berry, 1994; Cobb *et al.*, 1995)**.** Furthermore, contingency variables were classified by Jones (1985) into internal variables such as size and structure of the organisation, goals, culture, and management philosophy, and external variables that includes competition and technology.

In the same context, Innes and Mitchell (1990) report that there are three sets of contingent variables that significantly affect MAS namely; motivators, catalysts and facilitators. They stated that facilitators in the "set of factors comprised conditions conducive to management accounting change which were necessary but not sufficient, in themselves, for the change to occur. Examples included the availability of adequate accounting staff and computing resources and the authority attributed to the accounting function within the organization" (p.12). Also, they stated that motivators in the "set of factors were those considered to be influencing the observed changes in a general manner. Examples included the competitiveness of the market, production technology and the product cost structure" (p.13). Finally, they stated that catalysts in the "set of factors were those directly associated with the changes with their occurrence corresponding closely to the timing of the change. Examples included the loss of market share, the arrival of a new accountant or a deterioration in profitability" (p. 13).

Innes & Mitchell built their own framework to explain the process of MA change based mainly on the three sets of factors mentioned above (facilitators, motivators, and catalysts). However, this framework was criticised by Cobb et al (1995) in terms of neglecting the variables that may hinder or prevent change, moreover, the weaknesses of explaining how the change process could occur internally in the company and in particular the role of individuals in change process. Accordingly, Cobb et al (1995) developed Innes & Mitchell's framework by adding three factors; the role of leaders, the momentum, and the barriers that delay or prevent change (see figure 4.1). In their framework, Cobb et al (1995) assume that motivators, facilitators, and catalysts cannot cause change alone as they merely create

potential for change, however they need help from leaders and the momentum for change as well.

Figure 4. 1 MA Change framework based on contingency factors



Source: Cobb et al (1995, p. 173)

In terms of classifying the contingent variables, many studies have classified these variables into different categories. Haldma and Laats (2002) classified contingent variables into two main groups: internal and external factors. Internal factors comprise organisational characteristics, technology and strategy. External factors include the business external environment and the accounting external environment. Chenhall et al. (1981) classified contingent variables into two types. They contend that the first type of contingent variables represents part of broad dimensions such as homogeneous/ heterogeneous' and 'stable/ dynamic, while the second type includes variables that have particular characteristics such as size, age and ownership of the organisation, organisational structure. Similarly, Drury (2012) classified the contingent variables into four categories; external environment, technology, organisational aspect and industry, and business strategy variables. In the same context, Fisher (1995) reported that the organisation was influenced by several contingent factors

namely; the external environment, competitive strategy and mission, technology, unit, firm and industry variables, and knowledge and observable factors. In different study, Abugalia (2011) sorted the contingency variables into five main categories as follows:

1- The External Environment Factor
2- Businesses Strategy Factor
3- Organisational Structure Factor
4- Technology Factor
5- Characteristic of Organisation Factor

4.3.3 Limitations of Contingency Theory

Although contingency theory is widely used by MA researchers, like any other theory it has some limitations and shortcomings as follows:

Firstly, according to Chenhall (2003), contingency theory relies heavily on traditional functionalist theories rather than interpretive and critical views.

Secondly, there is a problem related to generalizing the findings of the contingency theory as its prescriptive inferences cannot be useful without relevant consideration of other factors (Wickramasinghe & Alawattage, 2007).

Thirdly, contingency variables are not specified and properly defined, moreover, these variables are not fixed and they vary from one study to another. Therefore, missing important factors may negatively affect MA change.

Fourthly, contingency theory employs positivism as an approach and uses survey questionnaires to collect quantitative data and ignores the qualitative approach to give explanation for how the management accounting system emerges from within organizations (Otley, 1980; Chenhall, 2003).

4.4 Combination between NIS and Contingency Theory

It has been shown that both institutional and contingency theories have their limitations and shortcomings. Therefore, in order to obtain the best results from this study, the researcher decided after reviewing the relevant literature to combine both theories together and built a new framework to be used in this study. The following lines give an explanation of the reasons to combine the two theories.

Ketokivi and Schroeder (2004) examined the implementation of specific practices using contingency and institutional perspectives, they found that contingency approach failed to give a comprehensive explanation of why certain organisations adopted certain practices. On

the other hand, the mimicry argument gives a more adequate explanation of the phenomenon. In a different study, Williams and Seaman (2001) found that several variables not included in the contingency theory may impact MA change. Accordingly, they contended that the contingency theory provides a limited explanation of the process of MA change, moreover, they stated that "additional variables could be added to the model to refine measurements" (p. 457). Regarding the institutional theory, Yazdifar (2004) reported that NIS focuses on the macro impact of the external environment, therefore, it is unable to provide a holistic explanation of the process of MA change. To overcome the limitations of both the contingency theory and the NIS theory, they will be combined and this will be beneficial in terms of solving the problem of this study from different sides and perspectives. Contingency and institutional fit provide complementary and interdependent explanations of a firm's performance (Volberda, Van der Weerdt, Verwaal, Stienstra, & Verdu, 2012).

According to Volberda et al (2012), the integration between the contingency and institutional perspectives is vital because none of them can solely explain the success of the firm and its relationship with its environment. In the same context, Heugens & Lander (2009, p. 64) argue that "According to contingency theory, managers carefully analyse the firm's task environment, taking into account the internal characteristics of the firm, and adapt their practices accordingly. On the other hand, according to institutional theory, the environment exerts strong pressures for institutional fit or adoption of "conformance enhancing templates".

Reviewing the literature shows that many studies discussed the combination and the integration of contingency and institutional theory. Volberda et al (2012) conducted a study to test their own framework using data collected from 3,259 respondents in 1,904 companies, the result indicates that "contingency and institutional fit are complementary and interrelated explanations of firm performance, and show that the combination of both theories produces superior insights into the relationship between fit and firm performance" (p. 1040). Carroll (1993), explained that firm's successes were enhanced when there are complementarities between contingency and institutional theories for the understanding of the homogeneity or heterogeneity of firms in different industries. Furthermore, Gupta, Dirsmith, and Fogarty (1994), contended that using both contingency and institutional theory together to test the influence of institutional forces on work unit performance was better. Similarly, Clark and Soulsby (1995) reported that the combination of contingency and institutional theories

complemented each other and improved the insights gained related to organizational change among former enterprises in the Czech Republic.

4.4.1 Conflict between contingency fit and organisational fit

Both contingency and institutional theories assume that the fit between structure and other factors lead to beneficial outcomes that differ between the two theories. From the contingency perspective, the fit structure is the one that produces more internal effectiveness that achieves objectives. Institutional theory assumes that organisations are formulated by the broader institutional environment. Accordingly, institutional theory supposes that the beneficial outcomes are different in type and origin from contingency outcomes and are based on legitimacy and external support. Therefore, two dimensions of outcomes can be obtained as a result of combining contingency and institutional theories: internal effectiveness and external support (Burton, Eriksen, Hakonsson, Knudsen, & Snow, 2008). However, it's not easy for an organisational designer to attain the fit of structure to both theories' requirements when the internal effectiveness opposes external institutional support. The organisational designer must choose whether adopting traditional organisational design guided by structural contingency theory will cause a misfit in the institutional requirements causing a problem to external support or not. DiMaggio and Powell (1983) contended that the conflict between the organizational designs relying on contingency and institutional theories arises as a result of contradictions in the fits in both theories. In some cases, an organisational designer believes that the typical design is to adopt an institutional fit even if it doesn't match the contingency fit. However, in other cases the contingency fit is chosen regardless of the mis-fit in the institutional requirements.

4.4.2 Resolving the conflict between contingency and institutional fit

The internal effectiveness of the organisation increases when the fit between structure and contingency is implemented, consequently, the organisation's goals such as profitability and higher dividends can be achieved (Van de Ven & Drazin, 1985). On the other hand, institutional fit improves and makes the organisation compliant with the model of the organisation, this leads to gaining legitimacy and obtaining external support such as grants and loans. In addition, the legitimacy represents a source of trust that attracts investors to buy shares in the organisation, this attraction creates demand and the growing demand increases the share price (Fligstein, 1985; Meyer & Rowan, 1977; Meyer, Scott, Richard, & Deal, 1983). Thereby, institutional fit increases the share price, whereas contingency fit leads to

higher dividends, therefore, the contingency and institutional fit outcomes can be measured and matched in terms of their benefits and value to the organisation (Burton et al., 2008). In order to compare the two approaches, it is important to find a suitable metric measurement that can evaluate the importance of the internal factors (contingent) and the external ones (institutional).

Burton et al (2008), reported that the fit between contingency and institutional theories can be measured and expressed in a common metric, money, and the typical fit or meta-fit can be attained. This helps the structure designer to build a rational organisational design based on the idea of analysing the effect of both structure on the dividends and share price. When the effect caused by the structural contingency on dividend is monetarily stronger than the effect of the institutional pressure, the meta-fit is the contingency fit and vice versa. In few cases, when the effect of contingency variables and the institutional variables are equal, the organisation attains an identical fit either way.

In their empirical study, Gupta et al (1994) combined contingency and institutional theory in order to discover the impact of institutional power in a work-unit setting. The result showed that:

> "the two perspectives can be combined to study and understand the relationships in a government professional organization between such elements as institutionalized setting, size, task characteristics, work-unit interdependence, coordination and control, and work-unit performance. The results also support the institutional theory position that government and professional organizations apply bureaucratic control that is unrelated to work-unit performance, while backstage they coordinate and control and improve work-unit performance through the more social and idiosyncratic personal and group modes" (p. 277).

In a different point of view, Burton et al (2008) state that, most often when there is a conflict between the contingency and institutional fits, it is possible to find a typical organisational design that will be good for the organisation. They added that:

> "This result holds regardless of whether the institutional fit is at a structural level that is high, middle or low. The exception is where the contingency and institutional fits have the same monetary effects, so that both are optimal designs, which can create a range of equally beneficial structures, rather than a clear-cut preferred structure; however, this is an unusual circumstance that is unlikely to apply to most real organizations" (p. 39).

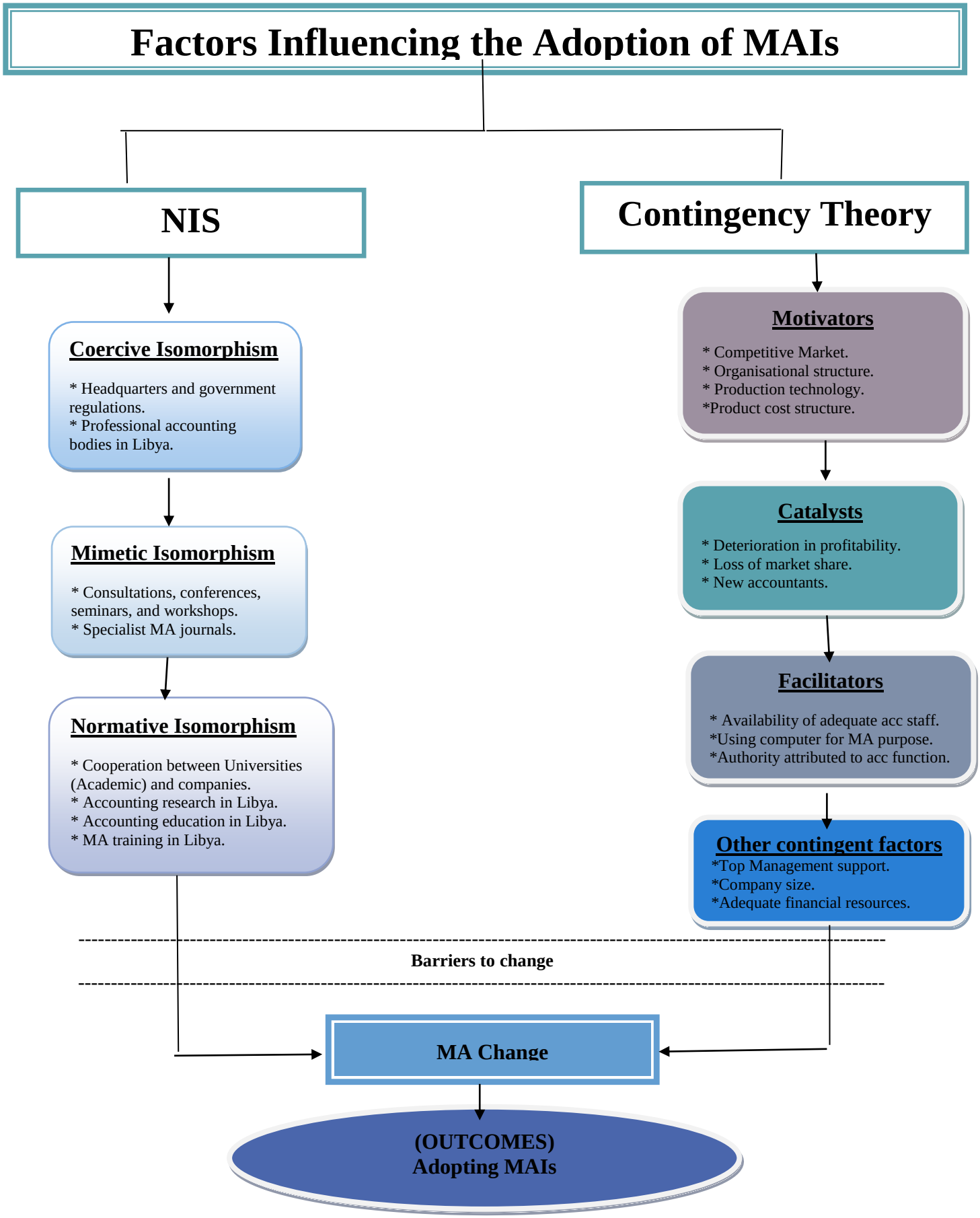
4.5 The adopted framework

The study framework model is represented by figure 4.2 a combination of contingency and institutional theories. The frame work shows the factors that influence the adoption of MAIs

among manufacturing and non-manufacturing Libyan organisations. The NIS side in this figure is based mainly on DiMaggio and Powell's (1983) study where they divided the institutional factors into three types of Isomorphism namely; Coercive, Mimetic, and Normative. On the other hand, the contingency side of this model is based mainly on the model developed by Innes and Mitchell (1990) and Cobb et al (1995) which explain the process of MA change that comprises Motivators, Catalysts, Facilitators, and other contingent factors added by Cobb's et al (1995) study.

In this study's framework, the institutional and contingency factors that cause MA changes are opposed by barriers that prevent or impede the change process. All contingency and institutional factors that pass the barriers to change interact together causing MA change in the organisation and the adoption of MAIs is an outcome of this process.

Figure 4. 2 The study theoretical framework



4.6 MAIs examined in this study

This section gives an overview of seven advanced MA techniques/ MAIs namely; ABC, ABM, BSC, TC, LCC, Benchmarking, and Kaizen. These innovations were selected after reviewing the relevant literature and were found to be the most popular MAIs in use.

4.6.1 Activity Based Costing (ABC)

The limitations of the traditional costing system had begun to appear by the mid-1980s as a result of producing different types of products and the wide use of technology in production operations. This led to a change in cost structure as direct labour cost decreased and overhead costs increased in importance and needed to be allocated accurately and fairly. In addition, the global competition during the 1980s forced the top management to take decisions based on reliable and competent cost information systems (Al-Omiri, 2003). Consequently, ABC emerged in the mid-1980s. Robert Kaplan & William Burns were the first who defined the concept of ABC. This new cost system was created to overcome the deficiencies in traditional cost systems and to help in providing accurate cost information to managers in order to help in making the suitable decisions.

The Chartered Institute of Management Accountants (CIMA) defined ABC as: "An approach to the costing and monitoring of activities which involves tracing resource consumption and costing final outputs. Resources are assigned to activities and activities to cost objects based on consumption estimates. The latter uses cost drivers to attach activity costs to outputs" (CIMA, 1996, p. 20). This definition divided the allocation process into two stages; the first stage comprises tracing the source of cost and assigning it into different activities, while in the second stage the activities are assigned to cost objects.

Allocating the overheard in the ABC system contradicts the allocation in a traditional system where the cost is assigned to cost pools not based on activities or a cause and effect relationship in the first stage according to a traditional cost system, then it uses volume-based cost drivers (e.g. number of machine / labour hour) to allocate costs to cost objects.

The traditional cost system is considered irrelevant and inaccurate due to the increase of overhead and the distortion of allocating the overhead cost which may negatively affect the decision-making process. Therefore, ABC became the preferred alternative approach to the traditional cost system. According to Cardos and Pete (2011), the first appearance of ABC as one of the most important innovations to calculate cost was in the USA and it was as result of much theoretical and practical research. ABC apparently helped to find solutions for allocation of overhead cost accurately by tracing and assigning the resources to activities

considered as cost drivers, then distributing the activity cost to objects according to its exact consumption from these activities. In more detail, Edwards (2006, p.5) suggested the process of assigning the resources to activities by using cost drivers comprises four steps as follows:

> "1. Identify activities: The organisation needs to undertake an in-depth analysis of the operating processes of each responsibility centre. Each process might consist of one or more activities required to produce an output.
> 2. Assign resource costs to activities: This involves tracing costs to cost objects to determine why the cost occurred. Costs can be categorised in three ways:
> i. Direct – costs that can be traced directly to one output. For example, the wood and paint that it takes to make a chair.
> ii. Indirect – costs that cannot be allocated to an individual output, that is, they benefit two or more outputs, but not all outputs. For example, maintenance costs or storage costs.
> iii. General/administration – costs that cannot be associated with any product or service. These costs are likely to remain unchanged, whatever output is produced. For example, salaries of administration staff, security costs or depreciation.
> 3. Identify outputs Identify all of the output for which an activity segment performs activities and consumes resources. Outputs might be products, services or customers.
> 4. Assign activity costs to outputs This is done using activity drivers. Activity drivers assign activity costs to outputs (cost objects) based on the consumption or demand for activities".

Undoubtedly the ABC costing system has several benefits such as providing more accurate cost calculations, shows non-value adding activities which enables managers to reduce or eliminate them, and it can be used as a package with other modern techniques to improve cost and managerial performance. However, ABC has some drawbacks: it is complicated and time consuming in terms of activity analysis, costly to implement, and some overheads are still hard to allocate.

4.6.2 Activity Based Management (ABM)

All organisations require reliable information for managers to set priorities, assign resources, make decisions, and supervise actions taken. Activity Based Management (ABM) represents a good way to help managers make relevant decisions mainly based on ABC outcomes. In other words, ABM draws on ABC to provide management reporting and decision making. Furthermore, ABM is a management analysis that brings the full benefits of ABC to an organization (Gunasekaran, McNeil, & Singh, 2000).

Kaplan and Cooper (1998, p. 4) described ABM saying "the clearer picture from ABC systems led naturally to Activity- Based Management (ABM): the entire set of action that can be taken, on a better informed, with activity based cost information. ABM enables an

organization to accomplish its outcomes with fewer demands on organisational resources, that is, the organisation achieves the same outcomes at a lower total cost".

The idea and philosophy of activity- based management affected all industries whether private or state-owned. Moreover, ABC and ABM caused a revolutionary change in cost management systems, the use of ABC obtaining accurate cost calculations of products, services, processes, activities and customers. When the management uses the outcomes of ABC to make decisions based on these outcomes, this process is known as ABM. Simply, ABM is ABC in action (Brimson, 1992). Similarly, Gunasekaran et al. (2000) considered ABC as a means that provides accurate cost information and provides a big amount of information while ABM uses this information to initiate improvements. In this context, Cardos and Pete (2011, p. 159) reported that:

> "Organizations that are designing and implementing ABM will find there are five basic information outputs:
> • relevant information about the cost of activities and business processes;
> • the cost of non-value-added activities – in order to identify activities that do not contribute to customer value or the organization's need and make improvement efforts;
> • activity-based performance measures – to provide scorecards, to report how well improvement efforts are working;
> • accurate product/service cost (cost objects) information – this is vital for selecting the segmented markets where an organization competes;
> • cost drivers – in order to identify factors that can cause changes in the cost of an activity".

Kaplan and Cooper (1998) divided ABM into two complementary applications; operational and strategic ABM. Operational ABM – works to enhance efficiency, lower costs and asset utilization. Operational ABM can increase the capacity of resources by reducing machine downtime, improving or eliminating entirely faulty activities and processes and increasing the efficiency of the organization's resources. Operational ABM provides several benefits such as; minimising costs which leads to maximised revenues due to better exploitation of the resources and avoidance of unnecessary cost. On the other hand, strategic ABM attempts to change the activities' demand in order to increase profitability. Strategic ABC tries to eliminate demand for unprofitable activities by reducing its cost driver quantities.

ABM together with ABC principles can enable managers to better understand (a) both product and customer profitability, (b) the cost of business processes, and (c) how to improve them (Cardos & Pete, 2011).

4.6.3 BSC

Financial measurement was the only traditional performance measurement. However, in the late twenty century the global competition intensified between companies which led to a search for systems that had two functions; balancing the historical accuracy of financial numbers with the drivers of future performance, and assisting organizations in implementing their differentiating strategies. The Balanced Scorecard is the tool to do both jobs. According to Niven (2002), the BSC developed from a tool used to measure performance to a "strategic management system".

Balanced scorecard is a new strategic management system developed by Kaplan and Norton in the early 1990s when they undertook a study sponsored by KPMG to measure the performance systems of 12 companies. The result of this study was published as an article in the Harvard Business Review giving the background of BSC. In addition, they describe BSC as:

> "The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

Niven (2002) describes balanced scorecard as a carefully selected set of measures derived from an organization's strategy. Furthermore, the measures included in BSC to be considered as tools that can be used are; measurement system, strategic management system, and communication tool. Hopf, Pratsch, Executive, Welch, Denett, Litman, and Tychan (2001, P 7-8) contended that BSC was a tool to translate the vision of the organisation into a set of performance indicators. The performance indicators were divided into four perspectives as follows:

Financial: In the government arena, the "financial" perspective differs from that of the traditional private sector. Private sector financial objectives generally represent clear long-range targets for profit-seeking organizations, operating in a purely commercial environment. Financial considerations for public organizations have an enabling or a constraining role, but will rarely be the primary objective for business systems. Success for public organizations

should be measured by how effectively and efficiently they meet the needs of their constituencies. Therefore, in the government, the financial perspective emphasizes cost efficiency, i.e., the ability to deliver maximum value to the customer.

Customer: This perspective captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction. In the governmental model, the principal driver of performance is different than in the strictly commercial environment; namely, customers and stakeholders take pre-eminence over financial results. In general, public organizations have a different, perhaps greater, stewardship/ fiduciary responsibility and focus than do private sector entities.

Internal Business Processes: This perspective focuses on the internal business results that lead to financial success and satisfied customers. To meet organizational objectives and customers' expectations, organizations must identify the key business processes at which they must excel.

Key processes are monitored to ensure that outcomes will be satisfactory. Internal business processes are the mechanisms through which performance expectations are achieved.

Learning and Growth: This perspective looks at the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting the accomplishment of organizational goals. Processes will only succeed if adequately skilled and motivated employees, supplied with accurate and timely information, are driving them. This perspective takes on an increased importance in organizations, like those of the PEA members that are undergoing radical change. In order to meet changing requirements and customer expectations, employees may be asked to take on dramatically new responsibilities, and may require skills, capabilities, technologies, and organizational designs that were not available before.

4.6.4 Target Costing (TC)

TC is considered as a method of managing cost, it is a useful and effective management tool because it helps in reducing the product's prime cost in the early stages of the product life cycle such as the planning and design stage (Sharafoddin, 2016). The key aim of TC is to assess the cost of the product based on the target income that set by the company after selling the product. In other words, TC is a technique that helps to keep the cost of the product in the ranges of the determined prices based on competition (Sharafoddin, 2016).

TC has several definitions, for instance, Jalali Nainih et al. (2010) define target costing as "a systematic approach to determine at what expense a desired product with a specific quality and functionality is to be produced so that the expected profit be made from the forecasted sales price". Also, Everaert and Swenson (2014) define target costing as "a cost management technique used during new product development (NPD)" in which "a cost target is set for a new product and the NPD team is motivated to attain that target before product launch". Moreover, Cooper and Slagmulder (1999) defined TC as **"**a technique to strategically manage a company's future profits. It achieves this objective by determining the life-cycle cost at which a company must produce a proposed product with specified functionality and quality if the product is to be profitable at its anticipated selling price". They argued that this technique gives a chance for companies to control cost during the design stage instead of reducing the costs in further stages. Finally, according to Sakurai (1989) target costing can be defined as "a cost management tool for reducing the overall cost of a product over its entire life cycle with the help of production, engineering, R&D, marketing and accounting departments."

Regarding the origins of TC, Leahy (1998) claims that the TC approach first emerged after the second world war when a scarcity of resources forced Americans to evolve the notion of maximising the quality of the products and minimise the cost of these products at the same time. After a while, the new technique was given the name "value engineering" and was adopted by Japanese companies. According to Tani, Horvath, and Wangenheim (1996), the first use of value engineering in Japan known as "genka kikaku" occurred at Toyota in 1963, though it wasn't mentioned in Japanese literature until 1978. The term "genka kikaku" was translated into English later on as "target costing"

During the 1960s in Japan, the value engineering technique was developed and mixed with the idea of reducing and eliminating non-added value costs in a product's early stages such as the planning and development stages. Over the years, TC has developed from merely an instrument helping in controlling the purchase costs to a managerial tool that is used to plan the profit within the organisation. In other words, the aim of TC currently is to minimise life-cycle costs which lead to maximise long-term profits. Therefore, to accomplish this aim TC must be aware to all costs whether it is cost of the production or the costs that occurred during all life-cycle of the product (Feil, Yook & Kim, 2004). They contend that three major events occurred in the 1990s in Japan which caused a huge change in TC as follows:

> "The first and most significant event was the bursting of the economic bubble in 1990 and 1991, which caused many companies to struggle to meet customers' expectations

of lower prices. The second event was the rise of the Japanese yen against the U.S. dollar, which started in 1993. By 1995, the Japanese yen had appreciated as much as 50 percent against the dollar. It moved from a stabilized exchange rate of 130–140 yen per dollar in 1992 up to a record 84 yen per dollar. As a result, both exports and the profit margins of Japanese companies plummeted. To survive, Japanese companies intensified their use of target costing.

The third major event was the long recession in Japan caused by a crisis in the financial sector that forced many Japanese companies to squeeze out costs to meet their profitability requirements. This time the improvement focused largely on information processing and information technology support" (p. 12).

Zengin and Ad (2010) state that the main objective of target costing is to enable business executives to manage the business profitably in a competitive marketplace. Target costing in simple words, estimates the range of cost for obtaining a determined profit according to a given market price. It is calculated as follows:

Target costing = Market price – target profit

Table 4. 1 The difference between TC and traditional method of cost management

Traditional Method of Cost Management	Target Costing
Market price is not considered as a part of prime cost planning	Competitive price is considered as a part of prime cost planning.
Costs determine sales price.	It is sales price that determine costs.
Losses and inefficiency are taken into consideration in order to reduce costs.	Design is an important factor in reducing costs.
Customers are not involved in cost reduction	Customer data is considered as a guide for cost reduction.
Prime cost and some proportion of profit stem from closed system.	It is an open system and takes into consideration the interactive function or the external effect of variables on the system
Suppliers of material and equipment are involved after designing the product.	Suppliers of material and equipment are involved before designing the product.
It does not use value engineering.	Value engineering is used as a prerequisite in this system

Source: Sharafoddin (2016)

There are differences between TC and other cost techniques such as "Genka kaizen" a Japanese cost management system widely known as "Kaizen". The difference between Kaizen and TC is that kaizen focuses on reducing cost during the production stage while TC is focusing on cost from the earliest stage of the product such as planning and designing stages in order to achieve the cost of the product determined by the market. In addition, kaizen is a tool used to achieve a short-term profit goal, while TC is an instrument that focuses on long-term profit (Hasegawa, 1997).

4.6.5 Life Cycle Costing (LCC)

The first use of the term (LCC) was in 1965 by the United States Logistics Management Institute in a military related document. Following that in the early 1970s the US defence department published three guidebooks (Okano, 2001; Sherif & Kolarik, 1981). These publications are considered as the real start of LCC that opened doors into several practices, publications, and theories related to LCC to appear. LCC has moved to the industrial from the defence sector. Accordingly, the industrial sector witnessed the evolution of the scope of the LCC. Generally, LCC comprises several types of costs such as; R & D cost, production and construction cost, operation and support cost, retirement and disposal cost (Okano, 2001).

Sherif and Kolarik (1981, p. 287) define LCC as "an analysis technique which encompasses all costs associated with a product from its inception to its disposal". While Okano (2001, p. 318) defines LCC as "a method of expenditure evaluation which recognizes the sum total of all costs associated with the expenditure during the time it is in use". Furthermore, Okano (2001) explains the meaning of LCC as a method of calculating the total cost of ownership over the life span of the asset. Initial cost and all subsequent expected costs of significance are included in the calculations as well as the disposal value and any other quantifiable benefits to be derived (p. 319).

LCC is usually specified by examining the relevant functions in detail in every phase of the life cycle, converting these functions into cost, then applying the obtained cost by a function in a yearly basis schedule, then accumulating the costs over the product's life cycle. LCC comprises suppliers, producers, customers, and other relevant costs. Accordingly, the focus should be on costs that can be directly assigned to a specific system or product (Okano, 2001). Regarding the calculation of LCC, the future cost must be calculated taking in account the value of money over time. For instance, the operation and maintenance cost should be assigned and well calculated in advance and converted to their real values by using a number of formulas developed for this purpose prior to adding them to the item's cost.

LCC differs from traditional cost calculations as the LCC perspective covers the life cycle of the product to include the cost of investment in addition to the operational cost during the product estimated life, while the traditional cost covers only the cost of investment and ignores any other costs that related to the product. Therefore, the calculated cost according to LCC offers a good indication of how and which strategic decision should be made.

4.6.6 Benchmarking

Benchmarking is a method used as a self- improvement tool, evaluating the performance, and setting goals by following others without concentrating on previous goals. In other words, benchmarking is a process that measures the performance of a specified company compared to another in the same or different industry. It is a simple concept that refers mainly to learning from others. According to Kelessidis (2001), the benchmarking process involves comparing one's firm performance on a set of measurable parameters of strategic importance against that of firms' known to have performed best in those indicators.

Stapenhurst (2009, p. 6) defines benchmarking as "a method of measuring and improving our organisational performance by comparing ourselves with the best". Also, Bubshait and Abuzaid (2009) define benchmarking as "a process for improving performance of any organization by continuously identifying, understanding & adopting outstanding practices and processes inside or outside the organization". According to Kelessidis (2001, p. 2) "Benchmarking is the process of improving performance by continuously identifying, understanding, and adapting outstanding practices and processes found inside and outside an organization (company, public organization, University, College, etc.)".

It was introduced by Xerox Corporation in the 1970s as a result of global competition in the photocopier market, the company (Xerox) used reverse engineering of the products that belonged to competitors. In addition, the benchmarking process included business services and processes. It was a result of looking for a way to survive after suffering financial problems by attempting to drive out waste, reduce costs, and improve quality. Although Xerox started benchmarking a few elements, however, it is now benchmarking about 240 performance elements (Kelessidis, 2001). After more than three decades, these days benchmarking is still heavily based on what Xerox did.

The benchmarking process is usually conducted by companies that seek to stay on top and are interested in information about competitors such as; the attributes of the competitors' products that made them desirable, the competitors' production process that produce cheaper products, and the source type and quality of their raw material.

Organisations benchmark for several different reasons. Stapenhurst (2009) contends that organisations choose to benchmark for one of the following reasons:

- As part of an improvement culture.

- To short-cut the improvement process.
- Target/budget setting.
- As a driver for improvement.
- To solve problems.
- As a requirement of business excellence models.
- To build up a network of like-minded people.
- To target a competitor's weak points.

The significance of benchmarking depends on its usefulness to the organisation. In this regard, there are several advantages of benchmarking such as building a concept of maintaining continuous improvement to reach the best performance. Moreover, it concentrates on resources by setting targets related to performance and it increases flexibility that responds to any changes of the customer's needs. Finally, benchmarking provides a good opportunity to bridge the gap in the organisation's performance compared to others.

On the other hand, there are some criticisms of benchmarking. One of the criticisms is that benchmarking means spying on competitors. However, Bubshait and Abuzaid (2009) believe this is not true, describing benchmarking as keeping up with what others in the same industry are doing rather than spying on the competition. Furthermore, they argue that benchmarking is a part of the manager's job description. Another criticism is considering benchmarking as copycatting and those who benchmark as stealing other's ideas. Similarly, Bubshait and Abuzaid (2009) differentiate between benchmarking and copycatting when they claim that managers must not allow benchmarking to prevent them from being creative and innovative as copycatting reduces creativity and focuses on old ideas.

4.6.7 Kaizen

Kaizen is a combination of two Japanese words "Kai" means change and "Zen" which means for the better (Palmer, 2001). Also, Lolidis (2006, p. 2) contends that Kaizen means "continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers". According to Barnes (1996). Kaizen is a philosophy of never being satisfied with what was accomplished last week or last year. Similarly, Womack, Jones, and Roos (1990), believe that with Kaizen, the job of improvement is never finished and the status quo is always challenged.

Kaizen is a Japanese philosophy that encourages continuing small improvements due to continuous effort. These small improvements occur as a result of cooperation between all people within the organisation. Imai (1986) states that after the Second World War the

Japanese industry managed to implement Kaizen successfully. Toyota Motor Company was the pioneer, it started using Kaizen to lead its effort to become the automotive market leader globally by assuring incremental changes, low cost targets, and empowering the employees. Furthermore, the war destroyed the resources in Japan which encouraged Kaizen to be initiated. The Japanese companies began to investigate the best way to minimize waste and maximise the production process efficiency (Maarof & Mahmud, 2016). Imai was the person who introduced the concept of Kaizen which comprises different activities related to continuous improvement. These activities which help improvements are called the "Kaizen umbrella" that consists of activities such as customer orientation, Total Quality Management (TQM), robotics, Quality Control Circles (QCC), suggestion system, automation, discipline in the workplace, Total Preventive Maintenance (TPM), Kanban, Quality improvement, Just-In-Time (JIT), zero defects, productivity improvement and new product development (Imai, 1986).

Imai (1986) argued that the Kaizen philosophy is based on three pillars namely; housekeeping, waste elimination, and standardisation. He added, three factors must be considered in order to ensure the success of activities on Kaizen's three pillars as follows:

1.Visual management,
2.The role of the supervisor,
3.The importance of training and creating a learning organization.

The implementation of Kaizen needs the adoption of the "Plan-Do-Check-Action (PDCA) cycle" by companies in order to find solutions to their problems. The planning stage focuses on identifying areas that require improvement. When the employee has identified the needed improvement, they can commence the Kaizen implementation by using several techniques to improve the areas that suffer from problems such as the "five whys" technique and the value stream mapping. By using these techniques, the company can identify the activities that cause waste and accordingly need improvement. Once the data has been collected and weaknesses identified, the following step is to set attainable goals.

4.7 Factors influencing the adoption of MAIs

Many studies conducted following disagreements in the mid-1980s state that MA has lost its relevance. These studies investigated factors influencing MA development. For instance, Askarany and Smith (2004) carried out a survey study in order to explore the influence of

contextual factors on the diffusion of innovations. They examined 13 contextual factors aiming to find their impact on six administrative innovations in terms of the decision to implement /or not the innovations. The contextual factors chosen from relevant literature included:

1. Employee awareness of the benefits of an innovation
2. Employee awareness of the ready availability of an innovation
3. Cost of implementation and maintenance of the innovation
4. Dissatisfaction with the current system
5. Institutional pressures for innovation
6. Lack of confidence in the ability of innovation
7. A recognised need for change
8. The degree of uncertainty associated with the outcomes of the innovation
9. The amount of investment needed for an innovations implementation
10. The time involved to implement the new technique (s)
11. Clear commitment from senior management towards the project
12. The existence of a widely recognised ' champion' of the implementation
13. The employment of management consultants to facilitate implementation

Askarany and Smith (2004) selected the six most recently developed cost and administrative innovations namely: Activity based costing (ABC), Activity based management (ABM), Balanced- scorecard (BSC), Benchmarking, Strategic management accounting (SMA), and Target costing (TC). The study found that five out of thirteen contextual factors played an important role in the diffusion process. moreover, four contextual factors positively affected administrative change namely; awareness of the benefits of innovation, awareness of the availability of innovation, management commitment to implementation of an innovation and management consultants on implementation of an innovation. Meanwhile, the lack of confidence in the ability of the new technique is the only factor that negatively affected administrative innovations adoption.

Similarly, Malmi (1999) conducted a study to explore the driving forces behind the diffusion of MAPs. The study focused on the diffusion of the ABC innovation in Finland. The study

adopted demand and supply sides to collect data required by the study. The results indicated that the most relevant perspective to explain the diffusion of MAIs in the early stage is the efficient choice perspective, while a combination between the efficient choice and the fashion perspectives has a significant influence in the take-off stage of diffusion of MAIs. In the final stage, the diffusion of MAIs can be explained by the efficient-choice and the fad/mimetic perspectives which shows that the motivations of change over the time of their diffusion. In other words, the diffusion of ABC process starts from inside the organisation (efficient choice), then alternates to outside driving force (efficient choice and fashion) and in the end, comes back to the adopting organizations (efficient-choice and fad).

Clarke, Thorley, and Stevens (1999) specified barriers impeding MA change in Ireland namely: lack of cooperation between the business community and the academia, the lack of necessary accounting professional educational for qualified accountants, executive MBA programs, and the lack of information sharing with competing firms related to adopted beneficial changes in their accounting systems.

Innes and Mitchell (1990) conducted a study investigating factors that influence MA change in the electronics sector. They grouped the factors into three groups namely: motivators, catalysts and facilitators. Motivators include a competitive market, the organisational structure, the production technology and the short product life cycle, while the catalysts include poor financial performance, loss of market share, the launch of a competing product, new accountants and organisational change. The facilitators include accounting staff resources, accounting computing resources, degree of autonomy from parent company, authority of accountants and accommodation of statutory accounting requirements.

Granlund and Lukka (1998) carried out a study which included developing a frame work comprised of both economic and institutional perspectives to examine the extra-organisational power and its influence on MAPs. They classified the drivers of convergence coming from organisational pressure into four categories as following:

1- Economic pressures include global economic fluctuations, increased competition, advanced production technology and advanced information technology.

2- Coercive pressures include transnational legislation (e.g. European Union), transnational trade agreement (e.g. GATT/WTO, NAFTA, APEC, EU), harmonisation of the financial accounting legislation, transnationals' (especially global firms') influence on their subsidiaries and headquarters influence in general.

3- Normative pressures include management accountants' professionalization (networking, etc.), and university research and teaching.

4- Mimetic processes include imitation of leading companies' practice and international/ global consultancy industry.

Yazdifar and Askarany (2010) in their comparative study that included the UK, Australia, and New Zealand suggested that top management commitment and support is an essential factor in adopting and implementing MAIs. The study mentioned both the roles of human resources intra and extra- organisation in the adoption and implementation process. Moreover, the financial support availability still appears to be important. In addition, the study stated that parent companies still play a role in the adoption and implementation process of MAIs.

Brown, Booth, and Giacobbe (2004) examined four factors (top management support, internal support, size, and use of consultants) and three technological factors (higher levels of overhead, product complexity and diversity, and relative advantage) in order to examine the role of these factors in the ABC adoption decision in Australian firms. The study found that all four organisational factors and two out of three technological factors (product complexity and diversity, and relative advantage) indicate a positive result in the ABC adoption process. In addition, three out of the seven factors (higher levels of top management support and internal support, and larger organizational size) gave a partial explanation behind differences between firms that did not consider ABC actively and firms that evaluated it.

In Jordan Nassar et al. (2011) conducted a study aiming to assess the role of supply factors on making the decision of implementing (or not) MAIs in the Jordanian manufacturing sector. The study focused on seven factors namely; consultant companies, accounting education in Jordanian schools and universities, professional accounting bodies in Jordan, conferences seminars and workshops, co-operation between universities (academics) and companies (professionals), specialist management accounting journals, and accounting research in Jordan. The study indicated that the most important factors leading the implementation decision of MAIs to take place among the Jordanian manufacturing sector were consultant companies and accounting education. In contrast, lack of co-operation between universities (academics) and companies (professionals) in Jordan, lack of conferences, seminars and workshops in Jordan and lack of local consultant companies were the main reason behind not implementing MAIs.

A field study undertaken in South Africa by Waweru et al. (2004) covered four retail firms in order to understand the process of MA change in these firms. The study suggested that the two major contingent factors encouraging MA change were the intensified global competition and changes in technology. The shortage of resources required to fund change, change resistance within employees, and the fear of change were the dominant factors that impeded MA change.

Joshi (2001) examined the MAPs in use in India through surveying 60 large and medium sized industrial firms. The study found that the main factor influencing adoption of MAIs is the size of the organisations. In addition, the conservative attitude of Indian management, autocratic leadership, and long-term orientation were other factors that influenced adoption of MAIs. In China, (Wu et al., 2007) found that the type of ownership played a role in structuring MAS in China when they studied both state-owned and joint venture with foreign companies. The results indicated that joint ventures with foreign companies used MAIs more than local state-owned companies. In a different and more recent study, Joshi et al. (2011) examined how MAPs diffuse and are adopted among listed firms in the Gulf Cooperation Council (GCC) countries. The study contends that the most influential organisational factors in MA change were power and politics.

Allahyari and Ramazani (2011) examined independent variables that impede MA change within different sized (small, middle, large, and very large) manufacturing firms in Iran aiming to gain a better understanding of the MA change process. The study tried to examine seven factors namely: lack of accounting employees, lack of competition resources, management stability, problems in management, lack of accounting power, being assured of meeting legal requirements, and lack of independence from the parent company. The results indicated that the lack of accounting employees, lack of independence from the parent company and the lack of calculation resources have a significant influence on MA change.

In the Libyan context, Abulghasim (2006) studied MAPs among Libyan state- owned firms. He found that the most significant factors that impeded the diffusion of MASs were: shortage of modern text books and publications, MA education, lack of training programs, lack of competent operations managers, lack of an active professional MA society, the loss of existing foreign companies, social, political and cultural obstacles, and the lack of financial resources. In addition, other factors were considered less influential on the diffusion of MAPs such as: lack of MA studies, the lack of top management support, and lack of English

language speakers. Similarly, Alkizza (2006) conducted a study to explore the MAPs in use in the Libyan context. He adopted Innes and Mitchell's (1990) framework in his study. The study reported that MAPs in Libya were motivated by four factors: change in the state regulations, change in the firm's strategic goals, increase in market competition, and change in the organisational structure. The catalysts of change were: the loss of market share and poor financial performance. The availability of academically qualified accountants who have some ability in developing accounting systems, the availability of adequate computing resources, the autonomy of management from the parent company before becoming a unitary firm, the authorisation of accountants to change and improve the internal accounting methods, and the help of external accounting and computing advisors were the facilitators.

In the same context, Leftesi (2008, p. 217) found that the first six items which negatively influence the diffusion of MAPs within Libyan manufacturing companies were related to institutional factors: lack of an active professional MA society (ranked 1), lack of local training programmes on advanced techniques (ranked 2), lack of relevant courses on such advanced techniques in academic institutions (ranked 3), lack of software packages relevant to advanced techniques (ranked 4), lack of up-to date publications about advanced techniques (ranked 5) and absence of Libyan companies that have adopted advanced techniques (ranked 6). Following the institutional factors in ranking is a group of items related to the attributes of the adopter namely: the lack of relevant employee skills because of insufficient training provided by the company (ranked 7), lack of financial resources (ranked 8), lack of decision making autonomy at lower levels (ranked 11), company ownership type (ranked 12), and insufficient support from top management (ranked 13). Finally, most of the items that are regarded as the least barriers are related to the attributes of advanced MAPs, starting with no significant problems with the current system (ranked 14), lack of confidence in the value of advanced techniques (ranked 14), lack of compatibility of the advanced techniques with the existing system (ranked 15), high cost to implement these advanced techniques (ranked 16), these advanced techniques are too complex (ranked 18), benefits from advanced techniques are difficult to observe (ranked 19), and no significant benefits perceived from adopting advanced techniques (ranked 21). On the other hand, four factors namely the availability of resources, the availability of training, top management support and company size positively influenced the adoption of MAPs.

4.8 Factors employed for the analysis of data in this study

Innes and Mitchell (1990) argue that MA change did not occur as a result of one individual originating factor. It happened due to an association of a range of factors with each specific development. Therefore, the change in MA is a sophisticated process comprising a contribution of various factors. These different factors can be classified into three main categories as follows:

- Environmental factors
- Macro- context factors (Institutional/ external factors)
- Micro- organisational factors (Contingent / internal factors)

4.8.1 Environmental factors

Sharma and Suva (2000), state that the environmental factors include political, economic, and social dimensions. These factors are usually out of company's control; however, the company has to manage taking them in to account to remain viable. According to Laitinen (2003) social and political instability contributes to the change of MA systems. While Armstrong (1985) contends that economic troubles were responsible for changes in management control strategies. Furthermore, Innes and Mitchell (1990) believe that accounting change can occur because of the influence of social, political and economic factors. In the same context, Anderson and Lanen (1999) studied the impact of political and economic instability on MAPs in India, particularly the influence of the liberalisation of the economy in 1991. They found that the change in the environment outside the organisation led to a change in MAPs.

In this study, environmental factors were discussed in detail by means of interviewing people who were in position to discuss deeply the impact of political and economic change in Libya that started in February 2011.

4.8.2 Macro- context factors (Institutional / external factors)

The external environment of the business where the company operates might be certain or uncertain, plain or compound, stable or moving (Fisher, 1995). However, studying the external environment mainly represents looking at the uncertainty level. Uncertainty is described as the lack of availability of information required to make suitable decisions. Thus, in order to improve the decision-making process, more detailed information is needed to eliminate environmental uncertainty. Many macro factors drive the change process such as

economic pressures, coercive pressures, normative pressure, and mimetic pressure (Granlund & Lukka, 1998).

These factors are consistent with the study's framework, which adopts the NIS theory to understand and explain the macro/ external factors that may cause MA change. The following sub-sections explain all these factors in more detail.

1. Economic pressures: according to Granlund and Lukka (1998, p. 157) economic pressures comprises many different economic factors such as; global economic fluctuations, recessions, and deregulation of markets; increased competition; advanced production technology (e. g., JIT); and advanced manufacturing technology (e. g., integrated systems such as SAP, internet).

2. Coercive Pressures: this includes of two groups of factors. The first group represents factors driving conversions such as; transnational legislations (e.g., European Union); transnational trade agreements (e.g., GATT/WTO, NAFTA, and EU), harmonisation of the financial accounting legislations, and the headquarters' influence in general. The second group represents factors driving divergence such as; national legislation, national institutions/ regulations (labour unions and financial institutions) (Granlund & Lukka, 1998).

3. Normative pressures: Two normative factors may drive convergence; management accountants' professionalization and university research and teaching while national cultures and corporate cultures are considered as divergence driving factors.

4. Mimetic processes: according to Granlund and Lukka (1998), memetic factors driving convergence are; imitation of leading company's practice and international/ globally consultancy industry.

Regarding the Libyan context, Alkizza (2006) examined the external factors that cause change. Based on Innes and Mitchell's (1990) model, he reported that there are four motivators that affect MAPs in Libya as follows; change in the state regulations, change in the firm's strategic goals, increase in market competition, and change in the organisational structure. The catalysts of change were: the loss of market share and poor financial performance. The facilitators were; the availability of academically qualified accountants who have some ability in developing accounting systems, the availability of adequate computing resources, the autonomy of management from the parent company before

becoming a unitary firm, the authorisation of accountants to change and improve the internal accounting methods, and the help of external accounting and computing advisors.

In this study, eight institutional factors were chosen as they were considered to have significant influence on adopting MAIs in Libya namely:

1- Conferences, seminars, consultations, and workshops.

2- Cooperation between universities (academic) and companies (professionals.

3- Accounting research in Libya.

4- Accounting education in Libya.

5- Management accounting training in Libya.

6- Professional accounting bodies in Libya.

7- Headquarters and governmental regulations.

8- Specialist management accounting journals.

4.8.3 Micro-organizational Factors (Contingent /Internal Factors)

Micro organisational factors refer to factors that exist inside the organisation. These factors comprise organizational structure, managerial policies, production technology, employees, problems of existing techniques, and deterioration of financial performance (Alhashmi, 2014). In terms of organisational structure, Abdel - Kader and Luther (2008) argue that this factor is considered one of the most significant factors that influence the MAPs. Similarly, Haldma and Laats (2002) found that there is evidence that the change in MAPs was linked with alteration in organisational characteristics such as organizational structure. In the same vein, Otley (1980) contends that the accounting system is significantly affected by the organisational structure. In their study, Innes and Mitchell (1990) focused on the role of organisational structure in the process of MA system's change. They concluded that the decentralisation level is a main facilitator regarding MA change. With regard to managerial policies, Miller (1992), stated that applying managerial policies requires reliable information related to planning, managing, controlling and directing the work to enhance the operations and alteration in strategies. Production technology is the process of transforming inputs to outputs (Macy & Arunachalam ,1995). Furthermore, Daft and Macintosh (1978) classified technology into four main categories namely; programmable, technical-professional, craft, and research employees and stated they represent major factors that may influence MA

change. Problems of existing techniques emerged because cost structure has changed due to use of modern technology in production. This leads to a redistribution of the cost structure from heavily based on direct cost into indirect. Therefore, organisations which do not have suitable allocation system of overheads will face problem caused by the high rate of technology change in the production process. Where deterioration of financial performance occurs due to defective financial performance it produces warnings to the organisation management in order to take the right steps that will improve the performance and the productivity. These steps are part of change process when the organisation adopts new MA systems aiming to avoid any future financial deterioration. Thus, the new adopted MAPs and methods are needed to achieve a change decision by the top management. Innes and Mitchell (1990) describe the deterioration of financial performance as a catalyst that pushes the adoption new MAPs and methods in the unstable world of high technology organisations. Similarly, Haldma and Laats (2002) reported that failure to receive required information to help in taking decisions can be considered as an important catalyst in developing the cost and MA system.

Contingent factors employed in this study are derived mainly from Innes and Mitchell's (1990) study, in addition to another several studies such as (Haldma & Laats, 2002; Cobb et al, 1995; Chenhall et al, 1981). The study includes thirteen contingent factors that considered serve the objective of this study as follows:

Variable	source
Company structure (centralisation and decentralisation)	Innes & Mitchell (1990)/ Merchant (1981)
Company size	Haldma & Laats (2002)/ Merchant (1981) / Chenhall et al (1981)
The availability of adequate accounting staff	Innes & Mitchell (1990) / Haldma & Laats (2002) / Cobb et al (1995)
Using a computer system for MA purposes	Innes & Mitchell (1990)
The authority attributed to the accounting function	Innes & Mitchell (1990)
The competitiveness of the market	Innes & Mitchell (1990) / Haldma & Laats (2002) / Cobb et al (1995)
Production technology	Innes & Mitchell (1990) / Haldma & Laats (2002)
Product cost structure	Innes & Mitchell (1990) / Haldma & Laats (2002)
The loss of market share	Innes & Mitchell (1990)
Arrival of new accountants	Innes & Mitchell (1990)

Deterioration in profitability	Innes & Mitchell (1990)
Top management support	Cobb et al (1995)
Adequate financial resources	Haldma & Laats (2002)

4.9 Hypotheses of the study

To achieve the study's objectives, it is essential to make hypotheses and test them to discover whether they are true or not. Following the study framework combining (NIS) and contingency theories; the hypotheses were formed to test variables that inferred from both theories by classifying these variables into three major groups namely; the contingency variables, institutional variables, and a combination between contingency and institutional variables. Internal pressure was represented by contingency variables, while factors that derived from NIS represented the external pressure. The formation of the hypotheses is conducted in this chapter, while the results of the test of these hypotheses will be outlined in chapter seven. The overall number of the study's hypotheses is 21 divided into thee groups, each group of independent variables comprises seven hypotheses. The rationale for dedicating seven hypotheses in each group is to test the collective impact of independent variables in the group on the selected seven MAIs namely; ABC, ABM, BSC, TC, life cycle costing, Benchmarking, and kaizen.

4.9.1 Hypotheses relating to the relationship between the contingency factors and the adoption of MAIs:

This group comprises 13 independent variables related to the contingency factors namely; company structure **(**centralisation**), c**ompany's size, the availability of adequate accounting staff, using a computer system for MA purposes, the authority attributed to the accounting function, the competitiveness of the market, production technology, product cost structure, the loss of market share, arrival of new accountants, deterioration in profitability, top management support, and adequate financial resources.

All these variables were chosen from the relevant literature linked with this study's framework and serving the objectives of this study. The collective impact of the independent variables included in this group will be tested by forming hypotheses that examine the relationship between each factor and its impact on the seven selected MAIs. Therefore, there will be seven separate hypotheses in order to test the impact of the contingency variables on

every MAI separately by using a multiple regression test. The hypotheses are formed as follows:

H1: There is a positive relationship between the contingent factors and the adoption process of ABC.

H2: There is a positive relationship between the contingent factors and the adoption process of ABM.

H3: There is a positive relationship between the contingent factors and the adoption process of BSC.

H4: There is a positive relationship between the contingent factors and the adoption process of TC.

H5: There is a positive relationship between the contingent factors and the adoption process of Life cycle costing.

H6: There is a positive relationship between the contingent factors and the adoption process of Benchmarking.

H7: There is a positive relationship between the contingent factors and the adoption process of Kaizen.

4.9.2 Hypotheses relating to the relationship between the institutional factors and the adoption of MAIs:

The institutional factors have been identified after reviewing the literature in terms of factors that may influence the MA change and adopting MAIs in line with NIS theory. Several variables were selected to be tested in order to discover their influence on adopting MAIs in Libya. This group of factors includes eight different factors representing independent variables namely; conferences, seminars, consultations and workshops, co-operation between universities (academics) and companies (professionals), accounting research in Libya, management accounting training programmes, accounting education in Libya, professional accounting bodies in Libya, headquarters and government regulation, and specialist management accounting journals,

This group of variables was used to form hypotheses 8 to 14 as follows:

H8: There is a positive relationship between the institutional factors and the adoption of ABC.

H9: There is a positive relationship between the institutional factors and the adoption of ABM.

H10: There is a positive relationship between the institutional factors and the adoption of BSC.

H11: There is a positive relationship between the institutional factors and the adoption of TC.

H12: There is a positive relationship between the institutional factors and the adoption of Life cycle costing.

H13: There is a positive relationship between the institutional factors and the adoption of Benchmarking.

H14: There is a positive relationship between the institutional factors and the adoption of Kaizen.

4.9.3 Hypotheses relating to the relationship between a combination of contingency & institutional factors and the adoption of MAIs:

This group of hypotheses represent a combination of contingency and institutional factors in order to test the collective impact of all the 21 independent factors on adopting MAIs.

H15: There is a positive relationship between a combination of contingency & institutional factors and the adoption of ABC.

H16: There is a positive relationship between a combination of contingency & institutional factors and the adoption of ABM.

H17: There is a positive relationship between a combination of contingency & institutional factors and the adoption of BSC.

H18: There is a positive relationship between a combination of contingency & institutional factors and the adoption of TC

H19: There is a positive relationship between a combination of contingency & institutional factors and the adoption of LCC

H20: There is a positive relationship between a combination of contingency & institutional factors and the adoption of Benchmarking.

H21: There is a positive relationship between a combination of contingency & institutional factors and the adoption of Kaizen.

4.10 Summary

This study adopts a theory's triangulation that comprises contingent and NIS theories. A hybrid institutional theoretical framework involving contingent and NIS was built to be beneficial for understanding the dynamic of MA change in both macro and micro organisational levels. This understanding may help the researcher to determine the factors that influence the adopting of MAIs. Also, this framework is used to answer the research questions such as what are possible key drivers that may accelerate the adoption of MAIs. Contingency variables were used to understand the process of change within an organisation or at a micro level, while NIS was used to gain insights related to the external environment or at macro level that includes political, economic and social pressure exerted on the organisations.

Chapter Five: Research Methodology

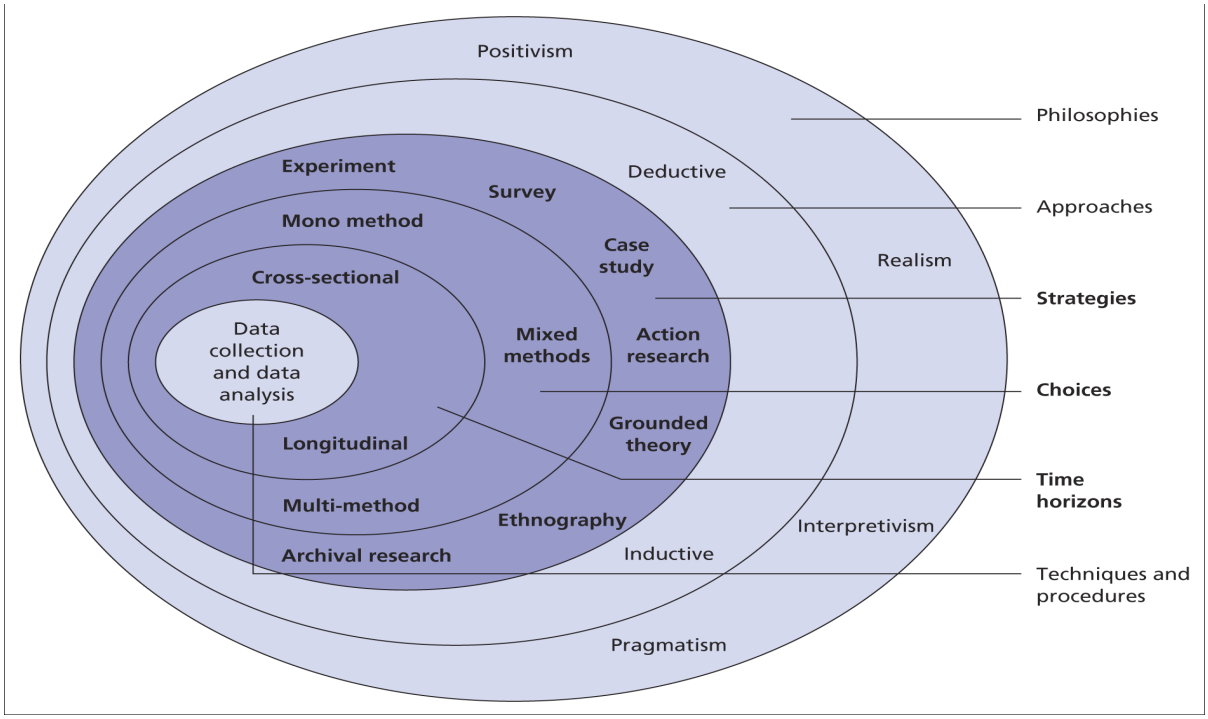
5.1 Overview

This chapter aims to discuss the study's methodology and the data collection method. Procedures for conducting the study and the rationale for the study, its philosophy, approach, strategy, choice, and data collection method will be explained.

This chapter starts with the "research onion" (figure 5.1) which will be used as a guide. Then, the philosophical assumptions of the main paradigms will be considered in some detail, the methodological choice in this thesis (mixed methods), the research design, and the detailed steps that have been undertaken to design, test, and translate the questionnaire. The main data collection instrument adopted in this mixed methods study is a questionnaire, and in-depth interviews is used as a complementary data collection instrument.

In terms of terminology, there is no complete agreement among researchers about the term methodology as it is not easy to distinguish between the term method and methodology. The Oxford dictionary defines methodology as 'A system of methods used in a particular area of study or activity'. Collis and Hussey (2009, p. 67) define methodology as "an approach to the process of the research, encompassing a body of methods" while they define a method as "a technique for collecting and/or analysing data".

Figure 5.1 Research Onion.



Source: (Saunders, Lewis, & Thornhill, 2012, p. 128)

5.2 Philosophical assumptions of the main paradigms

A research paradigm is a philosophical framework that guides how scientific research should be conducted (Collis & Hussey, 2009, p. 55). There is a change over time in how people look at reality and knowledge, and according to this, new paradigms have appeared as a result of the inadequacies of previous paradigms. There are several main paradigms in the relevant literature such as: positivism, realism, interpretivism, and pragmatism (Bryman, 2012; Collis & Hussey, 2009; Creswell, 2012; Saunders, Lewis, & Thornhill, 2012).

The first main paradigm is positivism. In this regard Bryman (2012, p. 28) argues that positivism comprises such principles as:

-Only phenomena and hence knowledge confirmed by the senses can genuinely warranted as knowledge.

-The purpose of a theory is to generate hypotheses that can be tested and that will thereby allow the examinations of laws to be assessed.

-Knowledge is arrived at through the gathering of facts that provide the basis for laws.

-Science must (and presumably can) be conducted in a way that is value free.

-There is a clear distinction between scientific statements and normative statements and a belief that the former is the true domain of the scientist.

Positivism originally came from natural science. It assumes that there is only one objective reality in social science, and it includes a deductive process that gives an explanatory concept in order to achieve a good grasp of social phenomena (Collis & Hussey, 2009).

The second main paradigm is interpretivism or phenomenalism. It is a term that often indicates an alternative to the positivist paradigm which has been dominant for long time (Bryman, 2012, p. 30). It emerged because of the criticism that positivism faced. The main pillars of interpretivism are; reality is subjective, multiple, and is in our minds (Collis & Hussey, 2009). The research which adopted interpretivism comprises an inductive method aiming to offer understanding based on an interpretation of social phenomena in specific conditions.

The third main paradigm is pragmatism. It was mentioned as a research paradigm by some social scholars such as (e.g., Tashakkori & Teddlie, 2009; Johnson & Onwuegbuzie, 2004, 2007; Cameroon 2011; Greene 2007; Feilzer 2010; Morgan, 2007). It emerged as an attempt to overcome the paradigms war during the 1980s by suggesting a mixed paradigm including a qualitative and quantitative approach in one paradigm. The main concept of pragmatism is

that the researcher must be free to choose the relevant method between different paradigms in order to serve the aim of their research and to answer the research questions. Apart from the philosophical debate related to reality, using multiple paradigms leads to a complementary process where the weaknesses of one paradigm can be covered by the strength of another (Collis & Hussey, 2009).

Johnson, Onwuegbuzie, and Turner (2007) contend that pragmatism provides an epistemological justification and reasoning for combining approaches and methods. Therefore, pragmatism is the most helpful philosophy for a researcher who conducts mixed methods research. Furthermore, it has a solid ground in terms of mixed methods or multiple methodologies. Pragmatism allows the researcher to be free of mental and practical constraints imposed by the ‘‘forced choice dichotomy between post-positivism and constructivism’’ (Creswell & Clark, 2007, p. 27).

5.2.1 Ontology and human nature

Eriksson & Kovalainen (2015, p14) introduce some key philosophical questions that to be answered by philosophical concepts as follows:

Ontology: What is there in the world?

Epistemology: What is knowledge and what are the sources and limits of knowledge?

Methodology*:* How can knowledge about a given issue or problem be gained?

Method*:* What are the specific ways of data collection and analysis that can be used?

Paradigm: What are the conceptual and/or methodological models that relate to a scientific discipline during a particular period of time?

To begin with ontology, it has been defined by Crotty (1998, p.10) as "the study of being". Blaikie (1993. p. 6) defines ontology as the 'science or study of being". While Eriksson and Kovalainen (2015, p.14) put a broader definition of ontology as “the ideas about the existence of and relationship between people, society and the world in general”. Marsh and Stoker (2002, p. 11) try to distinguish between ontology and epistemology as ‘ontology is concerned with what we can know about the world and epistemology is concerned with how we can know it’. The essential point regarding ontology’s assumptions is the question of whether reality is objective and external to the individual, or is reality subjective existing as a product of individual consciousness (Crotty, 1998; Morgan & Smircich, 1980). These assumptions affect the way the researcher will obtain knowledge. Therefore, how to acquire knowledge

will influence the process of conducting the research "methodology" (Ryan, Scapens, & Theobold, 2002).

Ontology is divided into two main positions: realism and idealism. Realists assumes that the reality is external to and independent of the researcher. In addition, that it can be found within objects and it has concrete structure. However, idealists suppose that the reality exists within the researchers' minds or among the subjects and the understanding of the researchers' can construct reality (Collis & Hussey, 2003).

Collis and Hussey (2009) believe that ontology is not confined to two extreme positions namely; objectivism and subjectivism, however, that there are many different positions in between these two positions that researchers can adopt. Moreover, Morgan and Smircich (1980) proposed six ontological assumptions about reality regarding different schools of thinking in social science as shown in table 5.1.

Table 5. 1 Basic assumptions characterizing the subjective- objective debate within social science

Subjectivist approach **Objectivist approach**

Coreontological assumptions	Reality as a projection of human imagination	Reality as a social construction	Reality as a symbolic discourse	Reality as a Contextual field of information	Reality as a concrete process	Reality as concrete structure
Assumptions about human nature	Man as pure spirit, conscious being	Man as a social constructor, the symbol creator	Man as an actor, the symbol user	Man as an information processor	Man as an adaptor	Man as a responder
Basic epistemological stance	To obtain phenomenological insights, revelation	To understand how social reality is created	To understand patterns of symbolic discourse	To map contexts	To study systems, process, change	To construct a positivist science
Some favoured metaphors	Transcendental	Language game accomplishment, text	Theatre, culture	Cybernetic	Organism	Machine
Research methods	Exploration of pure subjectivity	Hermeneutics	Symbolic analysis	Contextual analysis of gestalten	Historical analysis	Lab experiments, survey

Source: Morgan and Smircich (1980, p.492)

A few years later Tomkins and Groves (1983) presented ontological assumptions related to accounting research based mainly on Morgan and Smircich's six ontological assumptions. In a more recent study, Nimtrakoon (2009) adopted the perception of six ontological assumptions in social science in previous studies such as that by (Morgan & Smircich ,1980; Tomkins & Groves, 1983; Ryan et al, 2002) and created a combination between these studies

in “Six Ontological Assumptions in Finance and Accounting Research”. Table 5.2 shows the ontology, epistemology, the example of the finance and accounting research, and methodology based on Six Ontological Assumptions in Finance and Accounting Research.

Table 5. 2 Six Ontological Assumptions in Finance and Accounting Research

Objective  **Subjective**

Ontology	Reality as a concrete structure	Reality as a concrete process	Reality as a contextual field of information	Reality as a symbolic discourse	Reality as a social construction	Reality as a projection of human imagination
Epistemology	To identify the social structure using a positivistic research style with an emphasis on the empirical analysis	To understand The system, The process and change	To understand and map the contexts in a holistic fashion (cybernetic)	To understand the nature and patterning of the symbols through which individuals negotiate their social reality	To understand how social reality is created	To understand the way in which human beings shape the world from inside themselves
The example of the Finance and Accounting Research	A study trying to establish the truth of the hypothesis that current cost data is more useful than historical cost statements to financial analysts when valuing a company’s shares	The impact of changes in the real-world environment in terms of the effects accounting reports have and how they are used	Accounting research that tries to provide a large model showing the interconnections between the environment and parts of an organization being examined, in particular accounting practices	The study of the role of accounting in giving meanings to organizational activity, providing norms of behaviour and structuring day-to-day social practices in organizations and society	The accounting research that seek to establish how individual accountants make sense of accounting rules or standards, or how individual make sense of accounting information they receive	Accounting research that explores the depth of individual feelings of actors when they are faced with the complexity of their reactions to accounting information
Methodology	- Precise and highly structured or predetermined procedures for data collection such as lab experiments and surveys - Mathematical or statistical techniques - Quantitative validation of the hypotheses tested	- Still emphasis on measurement and stable statistical functions - Using quantitative measures or standard qualitative classifications - Historical analysis	- Still be regarded as in mainstream accounting research - Quantitative techniques still remain an important role but only partial role in the analysis and understanding - Contextual analysis	- Scientific method becomes inappropriate - Naturalistic research methods are required	- Ethnomethodology and other similar approaches	- Phenomenology

Source: Nimtrakoon (2009, p.80)

Table 5.2 illustrates that reality as a concrete structure represents pure objectivism, while reality as a projection of human imagination represents extreme subjectivity. Moreover, when we move from left to right the first three assumptions considered as objective where the reality is external and its epistemology is based on positivism and the dominant methodology is quantitative. On the other hand, the last three ontological assumptions were classified as subjective and its epistemology is based on phenomenology or interpretivism and the dominant methodology is qualitative where the reality can be structured by the researchers.
In the current study, the nature of the research is related to MA change and the change is a process over time, in addition the researcher seeks to provide a large model showing the interconnections between the environment and parts of an organization being examined, in particular accounting practices. Therefore, the philosophy that will underpin this study must avoid the two extreme ends and take a position in between. The purpose of the study, dealings with internal, external, and environmental factors means the ontological position should be closer to objectivism rather than subjectivism. With regard to epistemology, the target is to be closer to positivism than interpretivism and acquiring knowledge by understanding the systems, process and change, in addition to understanding and mapping the contexts in a holistic fashion.

The adopted ontological position in this study to achieve the aim of this study is based on the second and third ontological assumptions shown in table 5.2.

5.2.2 Epistemology

Epistemology is defined as "'the theory of knowledge embedded in the theoretical perspective and thereby in the methodology" (Crotty, 1998, p.3). Epistemology is concerned with many issues for example; "how one might begin to understand the world and communicate this as knowledge" to others Burrell and Morgan (1979, p. 1), "with what we accept as valid knowledge. It comprises studying the relationship between the researcher and that which is researched" Collis and Hussey (2009, p. 59), what is the relationship between the researcher and that researched (Creswell, 1994).
The two extreme ontological assumptions – objective and subjective ontology lead to two epistemological positions on knowledge; positivism and interpretivism;

Positivism confined knowledge to observable and measurable phenomena. It assumes that the measurement is objective and independent of the researcher. In other words, positivists think that the researchers are not able to acquire knowledge of any thing, except by observing

phenomena and linking relations between them. Moreover, they contend that researchers should avoid being part of the research and should maintain a neutral and objective position (Collis & Hussey, 2009). On the other hand, interpretivists believe that the reality is constructed by individuals who are engaged in studying the phenomenon and that knowledge exists as part of the researcher's experience and understanding. In other words, interpretivists believe in the power of reason. Moreover, they argue that reasoning is the most important factor in terms of understanding, justifying, and accessing knowledge.

This study is seeking to acquire knowledge from both positivism and interpretivism concepts by taking the middle position between these two sources of knowledge. However, it will be closer to positivism than interpretivism as the nature of the study is focusing mainly on surveying the phenomenon under study in order to obtain objective evidence that will help to answer the questions of the study.

5.2.3 Methodology

Methodology denotes to the entire research process. Adopting a specific approach depends on the chosen philosophical assumptions, which means that making different assumptions leads to different research methodology being employed.

Neuman (2003, p. 68) defines research methodology as "what makes social science scientific". Also, methodology is defined by Teddlie and Tashakkori (2009, p. 339) as "a broad approach to scientific inquiry specifying how research questions should be asked and answered. This includes worldview considerations, general preferences for design, sampling logic, data collection and analytical strategies, guidelines for making inferences, and the criteria for assessing and improving quality". Crotty (1998, p. 3) defines methodology as "the strategy, plan of action, process of design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes".

Creswell and Clark (2007, p. 4) distinguish between methodology and method as:

> "A methodology refers to the philosophical framework and the fundamental assumptions of research. Methods, on the other hand, are more specific. They are techniques of data collection and analysis"

In the same context, Collis and Hussey (2009, p. 73) define methodology as " an approach to the process of research, encompassing a body of method" while they define a method as:

> "a technique for collecting and/or analysing data". Moreover, Creswell and Clark (2007) define methodology as "the framework that governs the entire process of research".

There are many methods that are widely used among researchers in order to conduct research. Creswell (2003) contends that there are three approaches that could be the source of research methodology: quantitative, qualitative, and mixed methods. He pointed out a link between them and the paradigms of data collection and analysis to help people conducting research select a suitable approach for their study.

5.2.3.1. Quantitative approach:

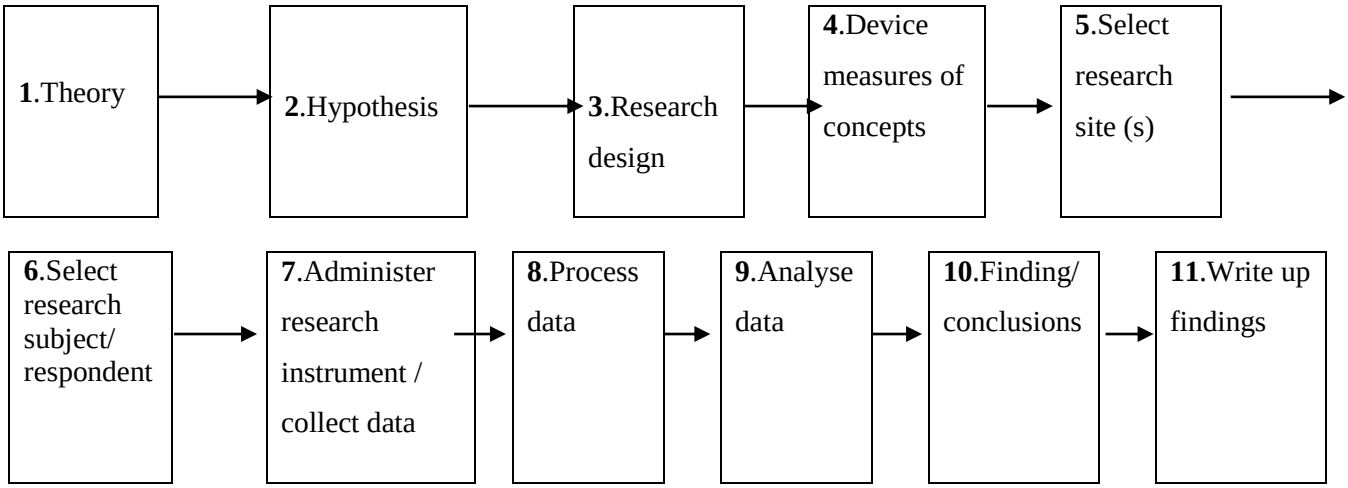
The quantitative approach is based on objectivism as an ontological position and the positivistic paradigm, adopting methodologies such as surveys and experiments, using closed questions to collect data and statistical techniques to analyse it. A quantitative research produces numerical data and uses quantitative data analysis techniques to analyse the data. Creswell (2003, p. 18) defines a quantitative approach as:

> "One in which the investigator primarily uses post-positivist claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories), employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data".

Furthermore, he argues that when the problem is clarifying factors affecting an outcome, the usefulness of an involvement, or understanding the best foretellers of outcomes, in this case the best approach use is quantitative. When testing a theory or attempting to explain it, this is also the best approach to use by means of deductive approach combined with using a sizeable representative sample to collect accurate data in order to generalize the findings to the population. Johnson and Onwuegbuzie (2004) state that quantitative pedants believe that social phenomena must be studied in the same manner as physical scholars study physical phenomena, and the researcher must not be part of the research process. In other words, according to the quantitative approach, social research must maintain objectivity by eliminating any potential researcher biases. Bryman (2012) claims that the deductive process used in a quantitative approach follows these steps:

(1) Theory (2) hypothesis (3) data collection (4) findings (5) hypothesis confirmed or rejected (6) revision of theory. See figure 5.2.

Figure 5.2 Deductive process



Source:(Bryman, 2012, p. 161)

A quantitative approach follows a deductive reasoning that begins with a general truth or hypothesis and ends with a specific conclusion. It starts with theory, and then predicts its results by forming specific hypotheses and in the final stage these hypotheses are tested and the results lead to the confirmation or rejection of the original theory. Accordingly, a quantitative approach is based on deductive reasoning normally being used to test theories.

5.2.3.2. Qualitative approach:

Qualitative research is based on a constructivist, ontological position and an interpretivist (Phenomenological) paradigm. It uses case studies or grounded theory studies as a methodology. The data collection methods used in a qualitative approach mainly depends on open questions to obtain detailed data. The data collected using a qualitative approach is non numerical but in textual form. Denzin and Lincoln (2005) state that:

> "Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them".

Qualitative research uses an inductive approach in order to generate theories. Moreover, qualitative research is exploratory and is beneficial even if the researcher has no idea about the significant variables to test. Creswell (2003) argues that qualitative approach may be useful when the topic is new. However, Bryman (2012) argues that subjectivity, lack of replication, difficulties of generalisation, and lack of transparency are considered the main

challenges that may face researchers who adopt a qualitative approach. In this vein, it might be useful to present the main characteristics, contrasts, and similarities of quantitative and qualitative approaches.

The main characteristics of both quantitative and qualitative approaches are illustrated in Table 5.3.

Table 5.3 Quantitative research versus qualitative research

Quantitative research	Qualitative research
Tests the hypothesis that the researcher begins with	Captures and discovers meaning once the researcher becomes immersed in the data
Concepts are in the form of distinct variables	Concepts are in the form of themes, motifs, generalisation, and taxonomies
Measures are systemically created before data collection and are standardised	Measures are created in an ad hoc manner and are often specific to the individual setting or researcher
Data is in the form of numbers, precisely measured.	Data are in the form of words and images from documents, observations, and transcripts.
Theory is largely casual and is deductive.	Theory can be casual or non-casual and is often inductive.
Procedures are standard, and replication is assumed	Research procedures are particular, and replication is very rare.
Analysis proceeds by using statistics, tables, or charts and discussing how what they show relates to the hypothesis	Analysis proceeds by extracting themes or generalisation from the evidence and organising data to present a coherent, consistent picture.

Source: (Neuman, 2003, p. 145)

A qualitative approach follows inductive reasoning which generalise findings based on individual cases. It is the opposite of deductive reasoning going from the specific to the general and inferring an explanation or building a theory. The inference of the inductive is based mainly on observation while deductive inferences are based mainly on theory. Accordingly, a qualitative approach is based on inductive reasoning being used to create theories.

Regarding contrasts and similarities between quantitative and qualitative research, Table 5.4 shows the main contrast between both approaches.

Table 5.4 Some contrasts between quantitative and qualitative research

Quantitative	Qualitative
Numbers	Words
Point of view of researcher	Points of view of participants
Researcher distant	Researcher close
Theory testing	Theory emerges
Static	Process
Structured	Unstructured
Generalisation	Contextual understanding
Hard, reliable data	Rich, deep data
Macro	Micro
Behaviour	Meaning
Artificial settings	Natural settings

Source: Bryman (2012, p. 408)

On the other hand, Bryman (2012, p. 409) describes the similarities between quantitative and qualitative research as follows:

- Both are concerned with answering research questions.
- Both are concerned with relating data analysis to the research literature.
- Both are concerned with variations.
- Both treat frequency as a springboard for analysis.
- Both seek to ensure that deliberate distortion does not occur.
- Both argue for the importance of transparency.
- Both must address the question of error.
- Research method should be appropriate to the research questions.

According to the previous discussion related to the contradiction and similarities between both approaches and because of paradigms war during the 1980s, a new approach has emerged and it has gained popularity among social science researchers as an acceptable method combining both the quantitative and qualitative approaches. The new approach is known as mixed methods research.

5.2.3.3. Mixed methods approach:

To avoid the weaknesses of qualitative and quantitative methods, there were calls to adopt a multi strategy research which integrates qualitative and quantitative research. For instance, a

quantitative research approach to qualitative research or qualitative research approach to quantitative research (Wu, 2003). Recently, the term "Mixed Methods Research" MMR become the most accepted name among researchers to describe the combination of two approaches in one study.

A mixed methods approach is helpful to attain the best of both the qualitative and quantitative approaches. For example, mixed methods could be useful when the researcher wants to generalize the findings and extend the application of the detailed information obtained about a phenomenon or concept (Creswell, 2003).

Saunders et al. (2012, p. 152) define the mixed methods approach as: "the general term for when both quantitative and qualitative data collection techniques and analysis procedures are used in a research design". Moreover, Johnson et al. (2007, p. 123) defined mixed methods research as "the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration".

A mixed method approach combines quantitative and qualitative methods in order to overcome the differences and weaknesses of both methods. The main purpose and central idea of mixed methods is to combine both qualitative and quantitative approaches in order to obtain better perception of the research topic than using a mono method (Azorín & Cameron, 2010). On the other hand, Creswell (2003) argued that mixed methods are more difficult to execute than mono method. Yet, he stated that it can be used if it is the only approach relevant to answer the research question.

Mixed model research combines the data collection techniques and analysis actions of qualitative and quantitative research. It also integrates quantitative and qualitative approaches at other stages of the research such as in writing the research questions. In other words, it is possible to change quantitative data into text, which can be analysed qualitatively. Similarly, qualitative data can be quantities which changed into numerical data then can be analysed statistically (Saunders et al., 2012).

The rationale behind using between-method triangulation is that it increases validity and reduces threats which may be introduced from biases that occur in any mono method. By using a mixed methods approach, the strengths of one approach cover the weaknesses of the

other. For instance, surveys may develop our thinking of specific phenomenon while case study methods can give a more comprehensive contextual understanding of survey consequences and provide a clearer explanation than result of a survey (Creswell, 2003).

Rouzies (2013) states that there is a consensus between authors to classify mixed methods into two vital dimensions: the first dimension is the order of execution, the second is the priority of methods. Data can be collected sequentially or concurrently. Sequential design means that the researcher collects data in phases, whereas in a concurrent design, quantitative and qualitative data are collected at the same time.

A mixed methods approach is used when the researcher wants knowledge based on a pragmatic paradigm. Pragmatic knowledge requires collecting data of both a quantitative and qualitative nature sequentially. This is because the researcher needs to collect various types of data to obtain a clear understanding of the research problem. The research starts with a sizeable survey to generalize findings in the population. In the following phase, the researcher concentrates on in-depth interviews to attain detailed information from interviewees (Creswell, 2003).

Azorín and Cameron (2010) state that when the data is collected in phases, apart from whether the qualitative or the quantitative data is collected first, the concatenation is related to the objectives of the researcher. Therefore, when qualitative data is collected prior to the quantitative data, the aim is to explore the topic under study first and after that to pursue this exploration with quantitative research that enables the researcher to study a sizeable sample so that findings could be deduced to a population. On the other hand, when quantitative data is collected before qualitative data, the aim is to examine the variables in a sizeable sample and then conduct an extra in-depth exploration of limited cases within the qualitative phase.

Greene, Caracelli, and Graham (1989) pointed out four purposes of using mixed methods; complementary, development, initiation and expansion. Similarly, Creswell (2003) stated that using mixed methods in research achieves:

- Mixing numeric data from a quantitative method and the detailed nominal data from qualitative research.

-Exploring point of views of participants in order to develop and test a sample population.

-Attaining statistical results from a quantitative research sample then continuing to examine these results in further depth.

-Including good characteristics of both qualitative and quantitative purposes in one method.

5.3 The methodological choice in this thesis

To achieve its objectives and to answer its questions, this study adopts a mixed methods approach. This decision was based on many aspects such as: the adoption of a mixed methods approach is effective in management literature as it helps provide consensus information from quantitative approaches such as survey analysis and organisational performance, while supporting these views with qualitative approaches such as interviews (Creswell, 2012).

The current study adopted a survey approach targeted at senior accountants, financial managers, executive managers of Libyan manufacturing, and non-manufacturing organisations, and academic staff from several higher educational institutions. According to Bryman (2012), the use of a survey approach will help identify the views of a number of respondents within a short time. Given this advantage, the current study adopts such an approach. The survey helps identify the current MAPs in use and it gives a good idea of factors influencing the adoption of MAIs. The current study adopts an interview analysis aimed at determining the role of different factors that affect the diffusion of MAIs. According to Creswell (2012), the use of a qualitative interview to support the quantitative questionnaire is vital as it helps identify the underlying reasons for specific concepts and helps identify specific themes. This method is useful as it presents an in-depth view and helps the researcher to pose a multitude of questions to the respondents based on the direction of the interview.

Philosophically, this study tries to take a middle position between objectivism and subjectivism. However, it leans towards objectivism in order to serve the study objectives. This led to adopting a mixed methods research paradigm and quantitative methods is dominant in terms of collecting and analysing data.

5.3.1 Mixed methods research as a methodology

Bryman (2012, p. 628) states that the term mixed methods research is used as simple shorthand to stand for research that integrates quantitative and qualitative research within a single project. It has become a widely-accepted methodology among researchers to conduct social research. Furthermore, mixed methods research has become the third main research approach, together with quantitative and qualitative research (Johnson et al., 2007).

Denzin (1978, p. 291) was the first author who suggested how to triangulate methods. He defines triangulation as "the combination of methodologies in a study of the same phenomenon". He categorised triangulation into four types as follows: data, investigator, theory, and methodological triangulation.

Modell (2009) contends that the concept of triangulation was originally used in geometry to determine a position in space in relation to fixed verifiable positions.

Bryman (2006) claims that before conducting mixed methods research, the researcher must find explanations to questions posed by several authors. These questions can be summarised as following:

- Will the data be collected concurrently or sequentially?
- Will the priority be given to the quantitative or qualitative approach?
- How will the integration be done? Exploration, triangulation, or explanation...
- When does the process of the method combination start?
- Is the study employing more than one method?

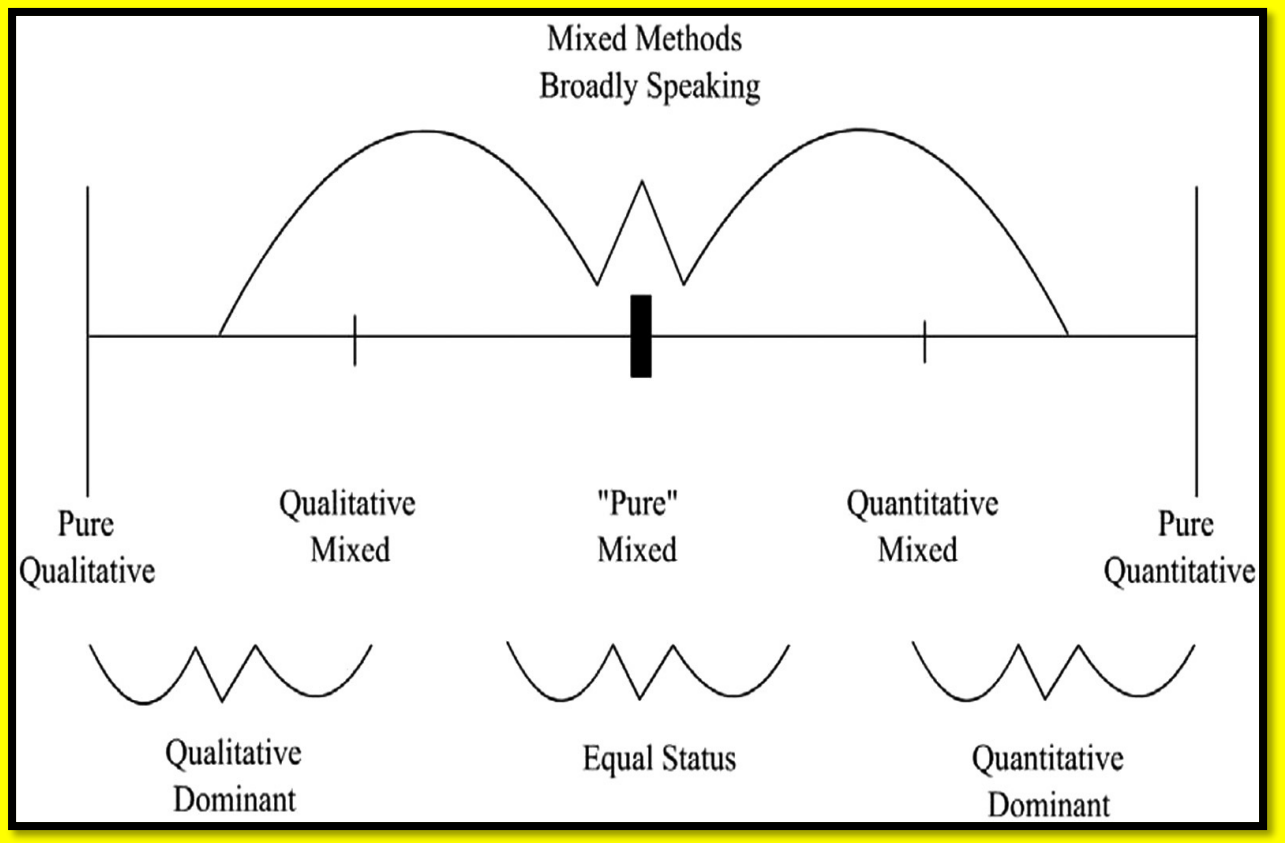
Answering the previous questions specifies the type of mixed methods design. According to Johnson et al. (2007), there are three major types of mixed research: equal status, qualitative dominant mixed methods research, and quantitative dominant mixed methods research (see figure 5.3). Equal status or pure mixed methods is in the middle between quantitative and qualitative methods. The researcher who chooses this type of mixed methods believe that he will gain the best insights from including in his research the same amount of data from both qualitative and quantitative approaches.

Qualitative dominant mixed methods research can be coded as QUAL + QUAN research. This type of research can be defined as mixed research in which one relies on a qualitative, constructivist-poststructuralist-critical view of the research process, while concurrently recognizing that the addition of quantitative data and approaches are likely to benefit most research projects (Johnson et al., 2007, p. 124) . Quantitative dominant mixed method is the third type of mixed methods research. It is coded as QUAN +QUAL research and it can be defined as mixed research in which one relies on a quantitative, post positivist view of the research process, while concurrently recognizing that the addition of qualitative data and approaches are likely to benefit most research projects (Johnson et al., 2007, p. 124).

The major criticism that mixed methods research faces is the lack of a philosophical foundation. However, many mixed methods authors (Cameron, 2011; Feilzer, 2010; Johnson & Onwuegbuzie, 2004; Morgan, 2007; Tashakkori & Teddlie, 1998; Teddlie & Tashakkori, 2009) argue that pragmatism is the most suitable philosophy to help mixed methods research

to build its philosophical foundation. According to Johnson et al. (2007), pragmatism provides epistemological reasoning and a rational for mixing methods.

Figure 5.3 Types of mixed methods



Source: (R. B. Johnson et al., 2007, p. 124)

Pragmatism aims to investigate a specific question, theory or phenomenon with the convenient method rather than employ a particular method or eliminate others, and pragmatists do not usually focus on which methods should be used, instead they focus on the method that achieves their goals (Feilzer, 2010).

With regard to timing of the data collection process in mixed methods research, there are two possibilities of doing so either concurrently or sequentially. Concurrent data collection means collecting quantitative and qualitative data in one phase at the same time. In addition, this type of data collection method is often pre-planned. On the other hand, sequential data collection means collecting either quantitative or qualitative data in the first phase, followed by collecting the other type of data in the second phase and it could be pre-planned or imposed by the lack of data when the researcher planned to use a mono method research.

In studies conducted by student's data is often collected concurrently in a single-phase due to the shortage of time and resources.

5.3.2 Mixed methods research in this study

The questions of this study forced the researcher to adopt mixed methods research. Question number one in this study, "To assess the status and the adoption rate of traditional and MAIs in manufacturing and non-manufacturing Libyan organisations" implies that a descriptive study must be undertaken, while objective number two; "To explore factors that influence the adoption of MAIs in Libyan organisations" refers to an explanatory and exploratory study.

The quantitative method could not fulfil the exploratory objectives and qualitative methods are unable to help to conducting a descriptive study. A quantitative study could be helpful in terms of the relationship between variables, cause and effect issues, and objective statistical findings. However, it is deficient in exploring the study's phenomenon. On the other hand, the qualitative method is unable to provide an objective numerical data although it can give deep understanding of the research phenomenon, and contextual notions related to the research questions. However, it is closer to quantitative than qualitative, because the study looks at determination, the relationship between factors, cause and effect relationship, and influences. Based on this, the quantitative method in this study is the main (dominant) approach complemented by a qualitative approach.

To accomplish the main study objective and answer the core question exploring factors that influencing the adoption of MAIs in Libya, the researcher needs to employ mixed methods research to collect and analyse relevant data which might serve the aim of the study. Furthermore, adopting mixed methods research makes this study more reliable, offering a comprehensive description, being able to generalise its results, and making it more easily understandable.

5.3.3 Research design

When a researcher decides to adopt mixed methods research as a research methodology, he /she must choose a strategy on how to combine the two different methods (quantitative and qualitative). The researcher must also, choose a way of complementing these approaches in order to overcome weaknesses and to gain the advantages of each method. To complement strengths, collected data must give suitable information which helps to answer the question of the study and to be relevant to the purpose of the study (Johnson et al., 2007). The key issue of mixed methods design is the significance of the research objectives and questions. It is essentially based on a pragmatic foundation which follows the notion of employing what is practical in terms of solving study questions.

Creswell (2012) argues that mixed methods designs can be one of two types:
(A) Fixed mixed methods designs: they are mixed methods studies where the use of quantitative and qualitative methods is predetermined and planned at the start of the research process, and the procedures are implemented as planned.
(B) Emergent mixed methods design: they are mixed methods studies where the use of mixed methods arises due to issues that develop during the process of conducting the research. Emergent mixed methods design generally occurs when a second approach (quantitative or qualitative) is added after the study is underway because one method is found to be inadequate. According to this classification, this study can be described as fixed mixed methods study as the researcher intended to adopt the mixed methods research from the beginning of this study based on the research objectives.

There are three important decisions which arise when the researcher decides to commence mixed methods study the timing decision of the study, the weighting decision of the study, and the mixing decision of the study. These three issues shape the design of mixed methods research and it will be discussed in detail later in this chapter.

In general, Creswell and Clark (2011, p. 68) suggest six main mixed methods research designs which can help researchers to design their own research. They classified these six designs into two groups, the first group is called basic mixed methods and it comprises four designs which are the convergent parallel design, the explanatory sequential design, the exploratory sequential design, and the embedded design. The second group called multiple design and it comprises two designs: the transformative design and the multiphase design.

The explanatory sequential design refers to the type of design when the researcher collects and analyses quantitative data that is the main method for solving the study's question in the first stage. The second stage starts when the researcher collects and analyse qualitative data. The researcher will issue his quantitative results first, following that he uses the qualitative findings to help in explaining the quantitative findings (Creswell, 2003; Creswell & Clark, 2011).

The exploratory sequential design refers to the type of design when the researcher collects and analyse qualitative data in the first stage. Following that in the second stage the researcher collects and analyses quantitative data to examine the qualitative findings with respect to quantitative results. This kind of design helps to explore the relationship between

indefinite variables, generalising qualitative results, and examining the theory under development (Creswell & Clark, 2011).

The embedded design refers to the type of design when the researcher collects and analyses data traditionally by using traditional quantitative methods in collecting and analysing quantitative data. In the same way, the qualitative data is gathered and analysed. Then, the researcher may add qualitative results to a quantitative design or add quantitative findings to a qualitative design to improve the outputs of the design. This kind of design is mostly undertaken when the study contains different questions which needs different types of data (Harrison, 2013).

The transformative design refers to the design when the researcher uses a design with a theoretical framework. All other decisions (interaction, priority, timing, and mixing) are made within the context of the transformative framework (Creswell & Clark, 2011).

The multiphase design refers to the design when the researcher uses both a sequential and a concurrent way in achieving the overall program objective. This type of designs helps to evaluate a program by using quantitative and qualitative methods over time to assist processing, adaptation, and evaluation of a particular program (Creswell & Clark, 2011).

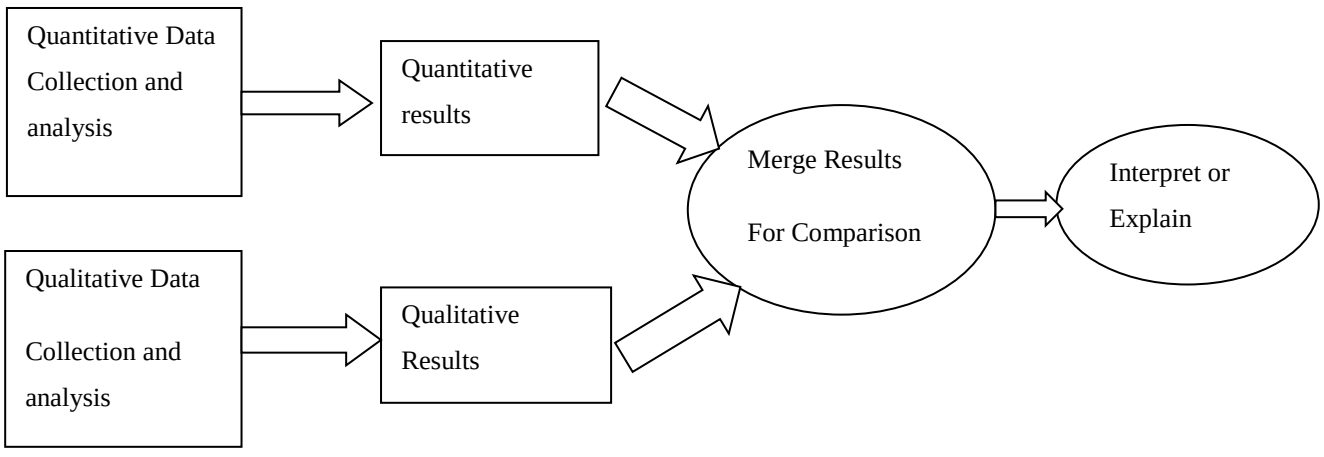
The convergent design is based on collecting quantitative and qualitative data concurrently, analysing them separately and mixing the data either during the interpretation stage or during data analysis stage (Creswell, 2003; Creswell & Clark, 2011; Harrison, 2013). Creswell and Clark (2011) state that we use this type of design if the time is limited and the researcher wants to collect data in one visit to the field. Furthermore, the researcher can employ this design when he has good quantitative and qualitative research skills and when the quantitative and qualitative data have the same value in terms of solving the research problem.

The type of research design that is employed in this research is the convergent design. The rationale behind this decision is based on its aim, its usage, its procedures, and its strength and challenges. The aim of the convergent design: This type of design is the most common design used in mixed methods research. The researcher uses this design aiming to triangulate different methods through comparing quantitative statistical findings with findings resulting from a qualitative approach. Moreover, quantitative findings are complemented by qualitative findings producing greater understanding of the phenomenon under study.

When to use the convergent design: The researcher can use the convergent design when he has limited time to collect data and he has to collect data in one visit to field. Also, the researcher can employ this design if he has both good quantitative and qualitative skills. In addition, the researcher uses this design when he thinks that quantitative and qualitative data has equal importance in terms of understanding the study problem. Finally, this type of design can be used if the researcher can deal with an abundance of data collection and analysis.

The convergent design procedures: The convergent design comprises four main steps (see figure 5.4). The first step occurs when the researcher starts collecting quantitative and qualitative data related to the research topic. These two types of data are collected simultaneously but not jointly. Therefore, each data type is collected separately and given the same value regarding its role in obtaining a good understanding of the research problem. The second step starts when the researcher commences data analysis. They analyse quantitative data quantitatively and separately from qualitative data which is being analysed qualitatively. In the third step, the researcher merges the data analysed separately in order to compare the results. In the fourth step, the researcher translates the common result from combining the approaches through explaining how the two approaches converge or diverge from each other aiming to achieve complete understanding to the study's objective.

Figure 5.4 The Four steps of the Convergent Parallel Design



Strengths of the convergent design: The convergent design is popular among new researchers conducting mixed methods research. Furthermore, collecting data in one stage for both approaches increases its efficiency. This design is also flexible in terms of separating data

collection and analysis for each approach which enables a research team to cooperate with quantitative and qualitative experts to achieve the study's purpose.

Challenges in using the convergent design: The convergent design faces some challenges despite its popularity among mixed methods research. Creswell and Clark (2011, p. 80) state some of these challenges as follows:

> • Much effort and expertise is required, particularly because of the concurrent data collection and the fact that equal weight is usually given to each data type. This can be addressed by forming a research team that includes members who have quantitative and qualitative expertise, by including researchers who have quantitative and qualitative expertise on graduate committees, or by training single researchers in both quantitative and qualitative research
>
> • Researchers need to consider the consequences of having different samples and different sample sizes when merging the two data sets. Different sample sizes may arise because the quantitative and qualitative data are usually collected for different purposes (generalization vs. in-depth description, respectively).
>
> • It can be challenging to merge two sets of very different data and their results in a meaningful way. Researchers need to design their studies so that the quantitative and qualitative data addresses the same concepts. This strategy facilitates merging the data sets.
>
> • Researchers may face the question of what to do if the quantitative and qualitative results do not agree. Contradictions may provide new insights into the topic, but these differences can be difficult to resolve and may require the collection of additional data.

5.3.3.1: The timing decision of this study

Timing means the choice, judgment, or control of when something should be done. In mixed methods research it refers to the order of using quantitative and qualitative approaches in collecting and analysing data. Therefore, it is important to specify in what order it will be done. Harrison (2013) argues that timing in mixed methods designs refers to the order in which both data parts are used by the researcher. In terms of timing in the mixed methods research process, it can be classified into two types:

(1) Sequential mixed methods research;

(2) concurrent (simultaneous)mixed methods research (Morse, 1991; Saunders et al., 2012). Sequential mixed methods research comprises more than one phase of collecting or/ and analysing the data. In this vein, Saunders et al. (2012, p. 167) state that:

> "In a double phase research design, this leads to two alternative mixed methods research strategies, either a sequential exploratory research design (qualitative followed by quantitative) or a sequential explanatory research design (quantitative followed by qualitative)"

Creswell and Clark (2011) add another type of timing which is "Multiphase combination timing". This type takes place when the researcher conducts multiple stages that comprise concurrent and/or sequential timing over a study's program. On the other hand, in concurrent (also named "parallel") mixed methods research the researcher employs both quantitative and qualitative approaches in one phase. The two types of data are collected, analysed, and interpreted simultaneously.

According to Harrison (2013) the choice of either sequential or concurrent timing is based on the type of research design. He suggests that convergent designs use concurrent mixed methods research in collecting data process, explanatory and exploratory designs use sequential mixed methods research in collecting data process, and either sequential or concurrent mixed methods research can be used with the embedded designs.

This study adopts convergent mixed methods design as illustrated above. Convergent design includes concurrent data collection and analysis as a part of the overall design. The reason for this decision is the limited time and resources available for PhD research in terms of data collection and analysis processes. Creswell and Clark (2007) contend that concurrent mixed methods design is more suitable for mixed methods research when the purpose is to attain an advantage by triangulating data or embedding results. In this context, this study aims to get triangulation and supplementarity.

5.3.3.2: The weighting decision in this study

After the timing decision has been made, the following step is to decide which approach is more important in this study. Is it quantitative or qualitative or do both of them having equal importance?

Answering these questions decides the weighting or priority of the data. Priority refers to the relative importance or weighting of the quantitative and qualitative methods for answering the study's questions (Creswell & Clark, 2011, p. 65). In a concurrent design, according to Creswell and Clark (2007), the researcher has two options related to the weighing decision. The first option is to give equal weigh to both approaches, and the second is to give more weight to either quantitative or qualitative.

Prioritising one approach is a process depending on several factors such as research experience and preferences, study questions, study purpose, and contextual issues.

This study gives the priority to the quantitative approach. This decision is based on the study aim to examine the factors that influence the adoption of MAIs in Libya. The qualitative approach will supplement the quantitative approach to achieve the study aim and purpose by using interviews which will offer good insight to achieve the study objectives and questions. A qualitative approach is used because of the lack of information related to the phenomenon under study.

The quantitative approach will be dominant to assess factors that influence the adoption of MAIs in Libya using the questionnaire as a main data collection instrument complemented by in-depth interviews in order to attain more understanding of the study problem. Therefore, the research design choice in this study is a concurrent divergent mixed methods study with dominant quantitative approach complemented by a qualitative approach.

5.3.3.3: The decision of mixing data in this study

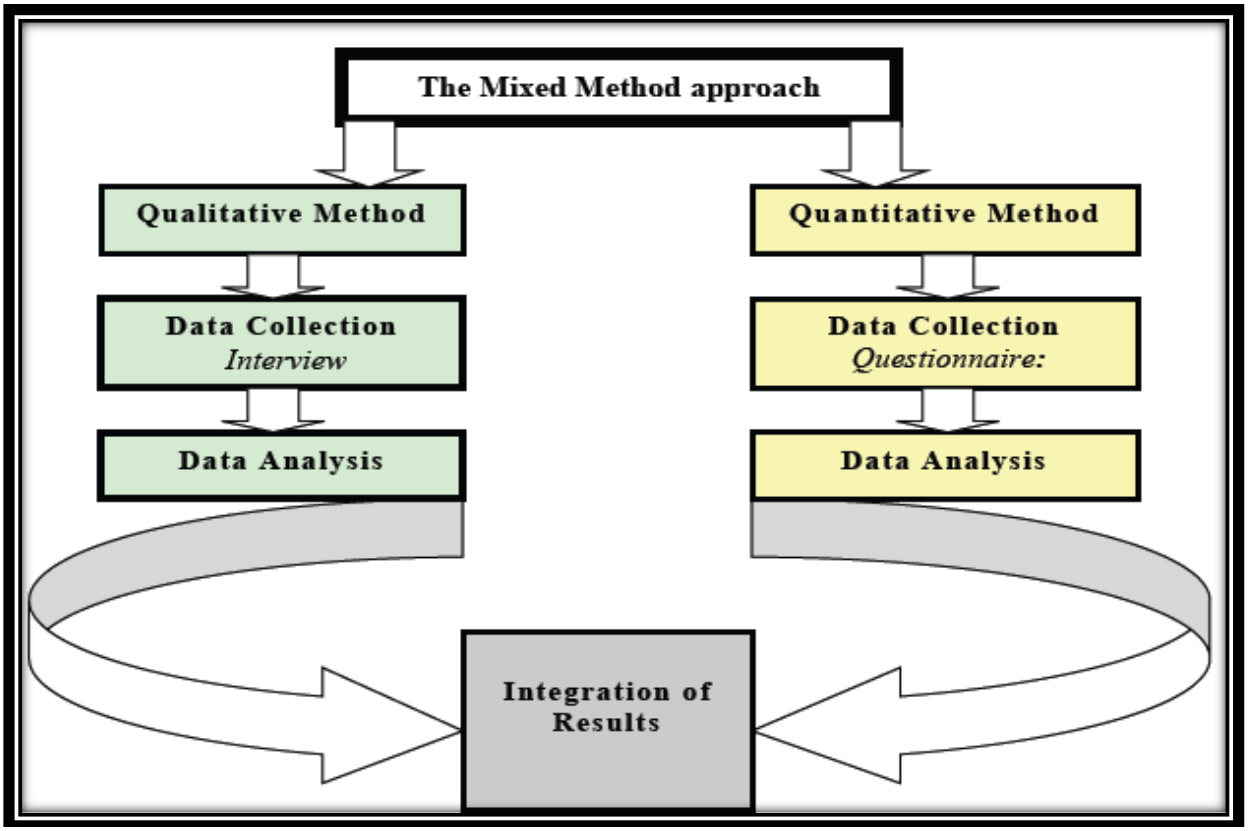
It is important to decide when and how both types of data will be combined and the results to be mixed. Unless there is a clear link between the quantitative and qualitative approaches in terms of the mixing process, the study will be considered a multiple study even if it employs both strands. In this context Greene et al. (1989) reviewed 57 studies based on mixed methods articles . They found that 44% of these articles did not integrate the data, the integration during the interpretation phase was 32%, the integration during analysis and interpretation phase was 9%, and 16% of the overall articles were not reported. Following that, Bryman (2006) analysed the content of 232 articles using mixed methods and the analysis during the 10 years from 1994 to 2003. He found that only 10 articles were designed to answer specific questions and quantitative and qualitative approaches were used to answer clear research questions.

Creswell and Clark (2011, p. 66) contend that there are two concepts which are helpful with regard to understanding the mixing process. The first concept is the point of interface or the stage of integration; they suggest four stages where the mixing process could take place as follows: interpretation, data analysis, data collection, and design. In the research context, they state that to achieve an interface process the researcher needs to use one or more of the following strategies: (1) merging the two data sets, (2) connecting from the analysis of one set of data to the collection of a second set of data, (3) embedding of one form of data within a larger design or procedure, and (4) using a framework (theoretical or program) to bind

together the data sets. In the same vein, Moran-Ellis, Alexander, Cronin, Dickinson, Fielding, Sleney, and Thomas (2006) assume that integration can be conducted in different points in the study process. They argue that integration produces a particular inter meshed relationship between methods and/or data while, crucially, retaining the modalities of the different paradigmatic approaches. It is the outcome of this inter- meshing, rather than the process that achieves it, which can then be positioned epistemologically. Saunders et al. (2012) argue that the level of integration is based on the type of research mixed choice, if the mixed methods research is used in a complementary manner, the data will be collected, analysed and presented separately to confirm and complement the findings. In contrast, if the aim of mixing both approaches is to obtain a more integrated result, the qualitative data will be quantitised, and the quantitative data will be qualitised. However, in mixed methods practice fully integration is rare.

This thesis, the aim of employing mixed methods research is to complement quantitative data as it is the dominant approach with qualitative data. Therefore, as it shown in figure 5.5 quantitative and qualitative data will be collected and analysed separately then the output of both approaches used in the interpretation stage to help understanding and integrate the results.

Figure 5.5 Integration process



5.4 The purpose of mixed methods research

The main question which is posed to any researcher who is intending to conduct a mixed methods research is; why and when will using mixed methods research be beneficial?

The simple answer for this question is; the researcher conducts mixed methods research when he could not obtain complete understanding of the problem by using a mono-method, or when he cannot answer the research questions that way (Creswell, 2013; Creswell, Klassen, Plano Clark, & Smith, 2011; Denzin, 1978; Greene et al., 1989; Harrison, 2013; Jick, 1979; Johnson & Onwuegbuzie, 2004; Johnson et al., 2007). Johnson and Onwuegbuzie (2004) believe that mixed methods research aims to build bridges between quantitative and qualitative methods not to replace any of these approaches, as well as aiming to increase the strengths and reduce the weaknesses of the quantitative and qualitative methods when they are employed in a mono study.

Greene et al. (1989, p. 259) give five purposes for mixed methods as follows:

1- Triangulation seeks convergence, corroboration, correspondence of results from the different methods.
2- Complementarity seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method.
3- Development seeks to use the results from one method to help develop or inform the other method, where development is broadly construed to include sampling and implementation, as well as measurement decisions.
4- Initiation seeks the discovery of paradoxes and contradictions, new perspectives of frameworks or the recasting of questions or results from one method with questions or results from the other method.
5- Expansion seeks to extend the breadth and range of inquiry by using different methods for different inquiry components.

Creswell and Clark (2011) state that mixing two methods can overcome the weaknesses of either method used separately. Moreover, they believe that adopting a mixed methods approach will be beneficial as follows:

• Mixed methods research provides more comprehensive evidence from studying a research problem than either quantitative or qualitative research alone.

• Mixed methods research helps answer questions that cannot be answered by qualitative or quantitative approaches alone.

• Mixed methods research encourages researchers to collaborate across the sometimes-adversarial relationship between quantitative and qualitative researchers.

• Mixed methods research encourages the use of multiple worldviews or paradigms rather than the typical association of certain paradigms for quantitative researchers and others for qualitative researchers.

• Mixed methods research is "practical" in the sense that the researcher is free to use all methods possible to address a research problem.

5.5 The weaknesses of mixed methods research

As a result of being a new approach, mixed methods research has some weaknesses beside its strengths; mixed methods research was blamed for its lack of philosophical foundation. This section discusses the main weaknesses of this method. Johnson & Onwuegbuzie (2004) contend that it is not easy for one researcher to conduct mixed methods research consisting of collecting and analysing both types of data qualitative and quantitative, they suggest that this kind of research may instead need a group of researchers. An important shortcoming in mixed methods research mentioned by Jick (1979) is the difficulty in replicating the study over different cases. Other issues with mixed methods research is that it is costly, as a result of employing different forms of data and consumes more resources and time (Creswell & Clark, 2011; Johnson & Onwuegbuzie, 2004). Moreover, mixed methods research requires the researcher to be have knowledge and skill that enables him to deal with more than one approach in terms of collecting and mixing different types of data especially in concurrent studies (Johnson & Onwuegbuzie, 2004). Additionally, Creswell et al. (2011) focus on sampling in mixed methods research, they argue that the researcher must be careful because samples in a concurrent design differ from those in a sequential design. In a concurrent design, the researcher should collect a large enough sample so that the analysis can be generalised across the field. Furthermore, during the analysis stage and the phase of interpretation, it is likely in a concurrent design when the researcher commences merging the data, some findings contradict others. In this case, an alternative solution must be used to overcoming these differences by collecting additional data or revising the collected data. Finally, in some aspect of mixed methods research, the role of researcher is to sort out some issues as a result of lack in unified procedures to be followed such as data integration, how to quantify qualitative data, how to qualify quantitative data, and how to do compromise between contradictory results (Johnson & Onwuegbuzie, 2004).

5.6 Data collection instruments

Data to be used in research can be obtained from two major sources: primary and secondary data. Primary data refers to data that collected by the researcher to conduct his research including all types of data whether it is a survey or empirical data (Collins & Hussey, 2003). Secondary data refers to data that was collected by others for different reasons and it can be obtained from many sources such as; governmental documents, stock market publications, journals, films documentary, books and international organisations reports and statistics.

It is undeniable that the result of any study is affected by the choice of data collection techniques and procedures adopted. Therefore, using different methods to collect data is desirable to eliminate 'method effect', and it makes findings more effective and dependable. In addition, the questions of the study impose on the researcher a particular data collection method as suitable for achieving the aim of the study. There are two methods that enable the researcher to collect data: a questionnaire given to a fairly sizeable number of organisations, and case studies for a limited number of organisations (Wu, 2003). This study employs a self-administered questionnaire and in-depth interviews as data collection instruments.

5.6.1 Questionnaire

Collis and Hussey (2009, p. 191) define questionnaires as "a list of carefully structured questions, which have been chosen after considerable testing with a view to eliciting reliable responses from a particular group of people". The questionnaire is the most common technique for collecting data and they are usually used for descriptive or explanatory research, because they are not suitable for exploratory or other research which uses a sizeable number of open – ended questions (Saunders et al., 2012).

The way that the questionnaire is administered decides the design of questionnaire. For instance, self- administered questionnaires are completed by the respondents, and this kind of questionnaire is distributed using internet, intranet, post or e-mail or delivered by hand. The second type of questionnaires is an interview- administered questionnaire when the interviewer records the answer of respondent. The third type of questionnaires is a telephone questionnaire. The final type is structured interviews, and this occurs when the interviewers meet respondents face to face and ask the questions (Saunders et al., 2012).

The process of designing and testing the questionnaire in this study passed through several stages and it took a long time to pass from stage to stage until reaching the final version of

the questionnaire. The first stage is designing and classifying the questions, the second stage is the pre-testing the questionnaire, and the final stage is the translation of the questionnaire from English to Arabic which is more suitable to the Libyan context.

5.6.1.1: Questions Design, Wording, Classifying, and Sequencing

In this study, the questions construction is based on adapted relevant literature (Abrahamson, 1991; Askarany & Smith, 2004; Bjørnenak, 1997; Burns & Scapens, 2000; Chenhall & Langfield-Smith, 1998; DiMaggio & Powell, 1983; Haldma & Lääts, 2002; Hardy, 1996; Innes & Mitchell, 1990; Joshi, 2001; Rogers, 2003).

The process of designing the questionnaire's questions was given extensive attention in order to define the question precisely before the data collection stage. The reason for that is because the questionnaire provides a unique opportunity to collect data from the same source or respondents as it is hard to find the exact person to collect extra data or to give explanations (Saunders et al. (2012). Therefore, there are specific requirements in terms of questionnaire design processes such as what type of data you need to collect to answer your research questions and how you plan to analyse this collected data to achieve the research objectives. In agreement with the previous discussion, Neuman (2003) states that good study questions increase reliability and validity, and writing the study questions needs skill, practice, patience and creativity. Recommendations about designing and structuring the questionnaire were followed, particularly the principles written by Neuman (2003) with regard to things which must be avoided by the researcher when they commence a questionnaire design. In this context, the following procedures were followed to comply with Neuman's principles as far as possible:

- Jargon, slang, and abbreviations have been avoided.
- Ambiguity, confusion, and vagueness have been avoided.
- Emotional language and prestige bias have been avoided.
- Double-barrelled questions have been avoided.
- Leading questions have been avoided.
- Asking questions that are beyond respondents' capabilities have been avoided.

In a self-completion questionnaire, questions can be categorised into many different types. In this context, Bryman (2012) classified questions according to their content as follows:

- Personal factual questions and factual questions about others.
- Informal factual questions.
- Questions about attitude.
- Questions about beliefs.

- Questions about what is normative.
- Questions about knowledge.

On the other hand, Saunders et al. (2012) state that a questionnaire mostly has two types of questions; open ended questions and closed ended questions:

Open ended questions*:* this type of questions is widely used in in-depth and semi-structured interviews. It is beneficial when the researcher is not sure of the answer, and in the exploratory studies. The open-ended questions take the following shape:

* Please write down the most likely reasons behind global warming:

1-.....

2-.....

3-.....

Closed ended questions: this type of questions offers several possible answers. According to Saunders et al. (2012, p. 432) there are six types of closed ended questions:

> "List, where the respondent is offered a list of items, any of which may be selected;
> Category, where only one response can be selected from a given set of categories;
> Ranking, where the respondent is asked to place a list in order;
> Rating; in which a rating device is used to record responses;
> Quantity, to which the response is a number giving the amount;
> Matrix, where responses to two more questions can be recorded using the same gird"

The questionnaire of this study consists of mixture of open and closed ended questions. However, the dominant type is closed- ended questions which are used in different ways such as using a list and a category type in section A and a rating type based on five-point Likert scale. Moreover, the researcher attempts to obtain complete information by giving space for relevant additional answers where it is possible, to be added by the respondents. Finally, the researcher added an extra blank sheet to the end of the questionnaire to give a chance to the respondents to write their points of view or give comments, notes or additional information.

Saunders et al. (2012) contend that when the researcher decides to design questions, he has to choose one of these three ways:

Adopt questions used in other questionnaires, adapt questions used in other questionnaires, and develop their own questions.

This thesis adopts some questions from previous questionnaires, at the same time it adapts some questions that chosen from the literature review from different countries. This is helpful

in terms of comparing this study with others, also it is more reliable and efficient than developing new questions.

The questionnaire was originally prepared in English, and then translated into Arabic. The final version encompasses three sections within six pages: general information about the participant and the organisation, management accounting in use, and factors influencing the adoption of MAIs. These three sections consist of 17 main questions. The details of the three sections are as follows:

Section A: General information

This section is divided into two parts. The first part seeks information about the participant and it comprises five questions. The second part seeks information about the organisation and it comprises seven questions. In this section nominal and ordinal measures were used.

Section B: Management accounting practices (MAPs) in use

This section consists of three parts. Part one is an inquiry about which department and job titles are responsible for completing management accounting tasks. Part two is about MAPs currently in use and their importance. MAPs were classified into five groups; costing systems group, budgeting and control group, performance measurement group, capital investment appraisal technique group, and decision support systems group. Part three is devoted to management accounting innovations (MAIs) in use. Seven MAIs were selected for their use to be affirmed or denied. There are five options to answer the question about MAIs in use given five- point Likert scale; 1= never heard of it, 2= never considered adopting it, 3= considered then rejected, 4= under consideration, and 5= currently in use as a trial / fully implemented.

Section C: Factors influencing the adoption of MAIs

This section comprises of two parts. Part one is about factors that facilitate the adoption of MAIs. This part includes 21 possible factors that may have facilitated the adoption of MAIs in Libya. These factors are measured according to a five-point Likert scale. The scale is ordered as follows: 1= do not facilitate, 2= slightly facilitate, 3= moderately facilitate, 4=significantly facilitate, 5= extremely facilitate. At the end of this part an open-ended option is offered in case the 19 suggested factors do not cover what impacted the person in reality. The option is, others, please specify.

Part two includes 21 suggested factors which may impede the adoption of MAIs.

The same measurement scale is used in this part which is five-point Likert scale. The scale is indicated by 1= do not impede, 2= slightly impede, 3= moderately impede, 4= significantly impede, 5= extremely impede. This part ended by the open-ended option; other, please specify.

In order to enhance the response rate, and assure confidentiality, the researcher issued and signed a cover letter. This covering letter was supported by the supervisor's signature and his personal details. Furthermore, the researcher used a "Consent Form for participation in PhD research" to be signed by the respondents and the researcher to allow the researcher to use the information in the research purposes only. Finally, an ethical approval has been issued by business school Support Office and it has given permission to conduct the research.

5.6.1.2: Questionnaire Pre-testing

When the design stage is completed, the following stage is pilot testing. The pilot test is conducted to refine the questionnaire which facilitates respondents answering it and helps to record data. Moreover, the pilot test process was useful for assessing each question's validity and enhance the reliability of targeted data (Saunders et al., 2012).

Even though most of the questionnaire questions were adopted and adapted from previous studies, the researcher made minor changes to fit the objectives of this research. Many steps were conducted before reaching the data collection stage.

Firstly: the questionnaire was originally written in English, and after several revisions being undertaken with the supervisor, the decision was taken to translate the questionnaire into Arabic by the researcher as he is native Arabic speaker. The translation included the questionnaire and its covering letter as it is part of the questionnaire, guiding questions for semi-structured interviews, and the participant consent form which are all part of the study data collection's package.

Secondly: the pilot test started and included both English and Arabic versions simultaneously. Regarding the Arabic version, it was distributed to two PhD students who are studying in Salford Business School and nine persons in Libya six of whom hold a PhD in accounting from the UK and have good experience in management accounting. As regards the other three persons, two have a Master's degree in accounting and one of them has a bachelor in business administration. In addition, the Arabic and English version were sent to a person in Saudi Arabia who has a PhD from the UK and is titled 'Professor'.

For the English version, after several discussions with the supervisor, the questionnaire was distributed to three PhD students in Salford Business School to assess whether it is

understandable, clear, and relevant to answer the study questions or not. Then, the questionnaire was emailed to five authors from different countries (UK, New Zealand, Ireland, and Italy) who have written regularly cited articles in the area of management accounting. The researcher firstly contacted those authors using the LinkedIn social media network asking for their consent to send the questionnaire. Five out of eight accepted to assess the questionnaire. Following that, the researcher received feedback containing invaluable comments, corrections, and recommendations. According to Saunders et al. (2012) the representativeness and appropriateness of the questions needs to be checked by one or a group of experts to give their opinions and comments on them. Moreover, they recommended that the number of a pilot test should not be less than 10. In addition, they contend that accepting advice related to structure of the questionnaire will help to enhance the content validity.

The feedback obtained from the pilot study showed that the questionnaire in general is understandable and easy to complete. On the other hand, some issues related to clarity of some questions, wording, validity, and layout needed to be adjusted. Therefore, the feedback was considered and accordingly some amendments were made to overcome the shortcomings of the questionnaire. On completion of the pilot stage, the questionnaire was enhanced and developed and had become ready to use as a main data collection instrument for this study.

5.6.1.3: The Translation of the Questionnaire

The questionnaire was originally designed and written in English. However, the field study target is Libya and the respondents are native Arabic speakers. This fact forced the researcher to translate the questionnaire from English into Arabic.

According to Usunier (1998) there are four types of translation techniques: direct translation, back translation, parallel translation, and mixed techniques. Firstly, direct translation can be achieved by translating the source questionnaire to a target questionnaire. This type of translation is easy to do and it is not costly, however, it may cause several differences between the source and the target questionnaire. Secondly, back translation refers to translating the source questionnaire to a target questionnaire to the source questionnaire again. In this type, there are two source questionnaires and comparing them the researcher can create a final version. Using this type of translation, the researcher can explore and correct mistakes that might have occurred during the first translation from source to target, however, conducting this type of translation needs two translators, one a native speaker of the source language while the other one is a native speaker of the target language. Thirdly,

parallel translation refers to the process of translation when it is conducted by more than one independent translator when they translate the source questionnaire to the target questionnaire. A comparison between target questionnaires is done to create the final version. This type of questionnaire is useful in terms of wording of the target questionnaire, however, the researcher has to be careful about lexical, idiomatic, and experiential meaning in the target questionnaire. Finally, mixed techniques mean back translation conducted by two or more independent translators following by comparison of these new translations in order to achieve a final version. This type of translation gives the best integration between source and target questionnaires; however, it is expensive and it may cause some changes in the source questionnaire (quoted in Saunders, et al, 2012, p. 442).

In this study, many steps were conducted to obtain the final version of the questionnaire in Arabic.

- The researcher reviewed previous studies which include translated questionnaires from English into Arabic in the area of management accounting in order to identify the translation of common terms in use in management accounting. The revision process encompassed several studies such as (Abugalia, 2011; Alhashmi, 2014; Hutaibat, 2005; Leftesi, 2008; S. Saleh, 2013).
- The result of this revision shows that there was an agreement about some terms and disagreement about the translation of some other terms. Consequently, the researcher adopted the translation related to the terms where there is agreement. With regard to the disagreement about translating the other terms, the researcher in his attempt to obtain the best translation used the Internet in order to find out the common use of the terms in Arabic publications. In addition, in the Arabic version the researcher put the English terms and its translation in the same line with the Arabic translation aiming to make it clear to respondents who could not understand some terms in Arabic. For instance, it is hard to find a unified translation for some terms such as "benchmarking", "Kaizen costing", and "activity-based management".
- After reviewing previous studies and searching the Internet, the researcher translated the questionnaire directly from English to Arabic. Several considerations were behind using direct translation such as lack of resources, time, and considering the advantages and disadvantages of all types of translations.
- To overcome direct translation's shortcoming, both English and Arabic questionnaires were sent to two people holding PhDs in accounting from British universities asking them to evaluate the translation and make any required corrections.
- After receiving the feedback consisting of some comments and corrections from the translation’s assessors, the necessary amendments were made. Following that, the modified Arabic version was sent to eight people in Libya to test the questionnaire’s wording, clarity, and whether it is understandable. Seven out of eight hold high qualifications in accounting (PhD and Master), and one is an Arabic language expert.

Based on their judgement and opinions, the final corrections were made and the final Arabic version was ready for pre-testing.

- The translation process included translating the covering letter. The covering letter was developed carefully and its purpose was to give details pertaining to the questionnaire in order to increase the rate of response (Saunders et al., 2012).

5.6.2 Interviews

An interview is a method for collecting primary data in which a sample of interviewees are asked questions to find out what they think or feel (Collis & Hussey, 2009, p. 144). This technique is "used as a source for understanding how individuals make sense of their social world and act within it" (May, 2001, p. 129).

Using the interview technique can be beneficial in terms of checking the validity and reliability of collected data and its relevance to the study questions and objectives. Furthermore, interviews can be structured, semi-structured or unstructured. Structured interviews use a questionnaire based on a programmed list of questions, and this kind of interview is known as ‘a quantitative research interview’. In semi-structured interviews, the researcher uses a list of topics or enquiries to collect data, and these topics may change from one interview to another with questions added or cancelled. Unstructured interviews are casual, and described as ‘in-depth interviews’(Saunders et al., 2012). On the other hand, they can be classified as: (1) Standardised interviews; (2) Non-standardised interviews. However, according to May (2001) there are four types of interviews namely: (1) structured interviews; (2) semi-structured interviews; (3) unstructured or focused interviews; (4) group interviews.

It is important to discuss the main differences between these different types of interviews. Structured interviews: This type of interviews is referred to a quantitative interview. It is a kind of survey when the researcher asks specific structured “standard” questions and writes down the interviewee's answers. It is one of the two main ways of administering a survey research instrument (Bryman, 2012).

Semi-structured interviews refers to the situation in which the interviewer has a series of questions that are in the general form of an interview but he is able to vary the sequence of questions (Bryman, 2012, p. 212). Semi structured interviews and unstructured interviews are referred to as qualitative interviews. In this type of interview, the researcher uses a list of topics or questions guide to help him/her to cover the interview subject. This type of interview is usually used in exploratory research and it can be used in explanatory studies as well to obtain in-depth data.

Unstructured/ in depth interviews: they are considered informal interviews. In this type of interviews there is no question guide used in asking questions. However, the interviewee can talk freely and give their opinions and beliefs about issues related to the topic under study. Moreover, in this type of interview the interviewer does not interact or direct the interviewee. The table: 5.5 illustrates the main differences between an ordinary conversation and a structured survey interview.

Table 5.5 Main differences between an ordinary conversation and a structured survey interview

Ordinary conversation	The survey interview
Questions and answers from each participant are relatively equally balanced	Interviewer asks and respondent answers most of the time
There is an open exchange of feeling and opinions.	Only the respondent reveals feeling and opinions.
Judgements are stated and attempts made to persuade the other of particular points of view.	Interviewer is non- judgemental and does not try to change respondent's opinions and beliefs.
A person can reveal deep inner feelings to gain sympathy or as a therapeutic release.	Interviewer tries to obtain direct answer to specific questions.
Ritual responses are common	Interviewer avoids making ritual responses that influence respondents and also seeks genuine answers.
The participants exchange information and correct the factual errors that they are aware of.	Respondent provides almost all information. Interviewer does not correct the respondent's factual errors.
Topics rise and fall and either person can introduce new topics.	Interviewer controls the topic, direction and pace.
The emotional tone can shift from humour, to joy, to affection, to sadness, to anger.	Interviewer attempts to maintain a consistently warm but serious objective tone throughout.
People can evade or ignore questions and give flippant or noncommittal answers	Respondent should not evade questions and should give truthful, thoughtful answers.

Source:(Neuman, 2003, p. 294)

These types of interviews are linked with the two main paradigms, phenomenological and positivistic. The positivistic paradigm is linked with structured interviews and closed-ended questions. On the other hand, the phenomenological paradigm is linked with unstructured interviews (Collins & Hussey, 2003). Beside the research interviews, Neuman (2003, p. 293) states that there are different types of non-research interviews: Job interviews, Assistance interviews (counsellor, lawyer, social worker, medical doctor, etc.), Journalistic interviews, Interrogation or investigative interviews, and Entertainment interviews.

When the researcher combines qualitative and quantitative methods to collect data, this combination of methods is called triangulation. The triangulation method is used to overcome any disadvantage may occur due to using a single data collection method. Table 5.6 illustrates the link between the study type and the type of interview that could be used.

Table 5.6 Uses of different types of interview in each of the main research categories

	Exploratory	Descriptive	Explanatory
Structured		**	*
Semi-structured	*		**
Un-structured	**		

**= more frequent. *=less frequent. Source: Saunders et al. (2012, p. 377)

5.6.2.1: Guiding Questions for Semi-Structured Interviews

This study adopts a mixed methods approach. Accordingly, the researcher decided to undertake some in-depth interviews to gain a better understanding of the research problem. Preparing the guide for questions' as done in three steps. In the first step, the first draft of study guide questions was formulated and discussed with the supervisor in terms of developing and detailing questions. In the second step, the guide questions were developed and divided into six parts, then they were reviewed and refined in the final stage in the formulation of the questions. The final step was the translation of the guide questions from the original version in English to Arabic; the targeted interviewees' language.

The interview guide questions interpret the research questions in more detail. It contains 31 questions divided into six parts as follows: Part (1) Background of the organisation and the interviewee; Part (2) Vision and goals; Part (3) Cost and management accounting systems; Part (4) Management Accounting Change; Part (5) Management Accounting Practices (MAPs); and Part (6) Additional Information.

5.6.2.2: The targeted interviewees

The researcher aimed to conduct interviews with employed interviewees who have a position in Libyan organisations related to management accounting or finance such as financial managers, controllers, internal auditors, head of management accounting or cost departments or executive managers. These people have official positions inside the organisations targeted by the questionnaire and they were asked in the last section of the questionnaire whether they

would like to be interviewed or not. Therefore, respondents who agreed to be interviewed were chosen for the interview process.

Academic staff interviewees were targeted to find out the role of the educational system in general and the accounting education in the process of management accounting change and the adoption of MAIs in particular. The head of the accounting department in three higher education institutions were selected and interviewed.

5.7 Reliability and Validity

It is important to assess the quality of measures used in the study. Reliability and validity are deemed to be good measures to give a good indication whether the study is dependable and consistent as well as whether the results represent the case under study exactly.

5.7.1 Reliability in quantitative and qualitative research

Reliability refers to the absence of differences in the result if the research were repeated (Collis & Hussey, 2009, p. 64). It is also defined as: "dependability or consistency. It suggests that if the same thing is repeated or recurs under the identical or very similar conditions will give the same result" (Neuman, 2003, p. 178). Bryman (2012, p. 169) states that reliability refers to the consistency of the measure of a concept. According to the previous definitions there is common agreement that reliable research is that research which is bias-free, and it is similar to objectivity. In quantitative studies, the study will be reliable when if different researchers replicated the same study they would attain the same findings (Collis & Hussey, 2009).

Neuman (2003) contends that there are three types of reliability as follows:

(1) Stabile reliability refers to reliability over time. This type of reliability poses a question: does the measure deliver the same answer when applied in different time periods?

(2) Representative reliability is reliability across subpopulations or groups of people. It addresses the question: does the indicator deliver the same answer when applied to different groups?

(3) Equivalent reliability stratifies when more than one indicator is used by researchers. It poses the question: does the measure yield consistent results across different indicators?

Similarly, Bryman (2012) specified three factors that affect the reliability of measurement: Stability, Internal reliability, and Inter-observer consistency.

Reliability in quantitative research means that numerical findings generated by a specific indicator do not change as a result of characteristics of the measurement process or measurement instrument itself (Neuman, 2003). Reliability in quantitative research can be tested by means of statistical instruments (Tashakkori & Teddlie, 1998).

Reliability in qualitative research means consistency in terms of making observations over time by using different techniques such as interviews, participation, photographs, and document studies. Therefore, consistency in qualitative research is equivalent to stability in quantitative research (Neuman, 2003). However, in qualitative research reliability is not easy to be achieved.

In the current study, mixed methods research is adopted in order to enhance the reliability and a pilot study was done. In addition, the data obtained from the questionnaire was analysed using SPSS software. Hair, Anderson, Black, Babin, and Anderson (2010) state that measuring reliability provides a good indication to the consistency degree. Moreover, they specify the alpha value as follows:

* 0.90 to 1.0— excellent;

* 0.80 to 0.89— good;

* 0.70 to 0.79— acceptable;

*0.60 to 0.69— questionable;

* 0.50 to 0.59— poor; and

* Below 0.50- Unacceptable

In this study, Cronbach's Alpha value for MAIs that contains 7 items is 0.859 which can be classified as good (See table 5. 7)

Table 5.7 Reliability statistics of MAIs

Cronbach's Alpha	Number of Items
0.859	7

Regarding factors that may facilitate the adoption of MAIs decision, the study comprises 21 variables. The reliability statistics have been tested and it shows that the value of Cronbach's Alpha is 0.834. While the test of the reliability for statistics of factors that may impede the adoption of MAIs including 21 variables shows that the value of Cronbach's Alpha is 0.838 (see chapter six)

5.7.2 Validity in quantitative and qualitative research

Validity refers to the bridge between a construct and the data (Neuman, 2003, p. 184). Also, validity can be defined as "the extent to which the research findings accurately reflect the phenomena under study" (Collis & Hussey, 2009, p. 65). Bryman (2012, p. 171) states that "validity refers to the issue of whether an indicator (or set of indicators) that is devised to gauge a concept really measures that concept".

Neuman (2003) argues that validity is harder to accomplish than reliability. Furthermore, the researcher cannot guarantee absolute validity although it differs among measures; some validities are higher than others. Collis and Hussey (2009) contend that validity can be evaluated in different ways; however, the most popular is face validity. The aim of using face validity is to confirm that the measure employed by the researcher measures what was supposed to be measured not something else. On the other hand, Tashakkori and Teddlie (1998) suggest that there are two main types of validity in quantitative research. The first type is external validity which refers to the ability of the researcher to generalize the research results to other cases or other groups of people. The second type of validity is internal validity which refers to the extent of confidence about the findings of the research with regard to relationship between variables and the degree of systemic error. Modell (2005) contends that there are three types of validity; external validity, internal validity, and construct validity.

There is a vital relationship between reliability and validity. Neuman (2003, p. 186) explains the relationship between them as:

> "Reliability is necessary for validity and is easier to achieve than validity. Although reliability is necessary to have a valid measure of concept, it does not guarantee that a measure will be valid. It is not a sufficient condition for validity. Validity and reliability are usually complementary concepts, but in some special situations they conflict with each other. Sometimes, as validity increases, reliability is more difficult to attain, and vice versa. This occurs when the construct has a highly abstract and not easily observable definition. Reliability is easiest to achieve when the measure is precise and measurable".

In mixed methods research, evaluating the validity of the research is harder to achieve than in mono method research. In this context, Onwuegbuzie and Johnson (2006) suggest that in mixed methods studies it is better to use the term legitimation rather than validity. However, Creswell and Clark (2011) contend that using term validity is more suitable in mixed methods studies.

To achieve external validity, the researcher must use a sample that represents the population in order to generalise the research findings over the population. Therefore, in this study, the sample was chosen to represent the study population in terms of variety of sectors and, of ownership and in organisation's size.

5.8 Research sample and population

This section describes the study's population and how it was selected in order to achieve the study's objectives. This section consists of sampling techniques, sampling design, target population, sample size, and time horizon.

To begin with, this study focuses on manufacturing and non-manufacturing Libyan companies whether they are private or state-owned. However, this study is confined to medium and large companies working in Libya in different sectors. The number of employees is the main factor to classify the size of the company. The decision behind excluding small companies is made after reviewing the relevant literature and reaching the conclusion that small organisations are unlikely to have adopted MAIs (Ahmad, 2012).

5.8.1 Sampling techniques and sampling design

Bryman (2012, p. 187) defines a sample as "the segment of the population that is selected for investigation. It is a subset of the population". Similarly, Collis & Hussey (2009, p. 77) define the sample as a subset of a population in a positivist study; a random sample is chosen to provide an unbiased subset of the population.

In this context, Teddlie and Yu (2007) classified sampling techniques for social and behavioural science into four types as follows; Probability Sampling, Purposive Sampling, Convenience Sampling, and Mixed Methods Sampling. While Saunders et al. (2012) categorised sampling techniques into two main types: Probability sampling (representative sampling) and non-probability sampling. Probability sampling can be defined as*:* a sample that has been selected using random selection so that each unit in the population has a known chance of being selected. While non-probability sampling refers to a sample that has not been selected using a random selection method (Bryman, 2012, p. 187). Table 5.8 shows the differences between probability and purposive sampling.

In general, probability sampling is usually employed by researchers who chose the quantitative approach seeking to follow survey research strategies and it is based on a large sample in order to generalise the results over the population. While a non-probability sample is commonly used by researchers who adopted a qualitative approach aiming to explore facts

related to the phenomenon under study (see table 5.8). The purpose of a non-probability sample is to focus on a number of cases or interviewees to obtain deep rich data. If the researcher decides to conduct in-depth/ semi structured interviews the number of cases/ interviewees should be between five and twenty five (Saunders et al., 2012).

In this study, as it is a mixed methods study, the researcher uses probability sampling techniques in choosing the targeted units; in addition, he uses non-probability sampling to conduct in-depth interviews as they are conducted according to the desire of the questionnaire's respondents who are accepted to being interviewed.

Table 5.8 Differences between probability and purposive sampling

Dimension of Contrast	Purposive Sampling	Probability Sampling
Other names	Purposeful sampling Non-probability sampling Qualitative sampling	Scientific sampling Random Sampling Quantitative sampling
Overall purpose of sampling	Designed to generate a sample that will address research questions	Designed to generate a sample that will address research questions
Issue of generalizability	Sometimes seeks a form of generalizability (transferability)	Seeks a form of generalizability (external validity)
Rationale for selecting cases/units	To address specific purposes related to research questions, the researcher selects cases she or he can learn the most from	Representativeness The researcher selects cases that are collectively representative of the population
Sample size	Typically, small (usually 30 cases or less)	Large enough to establish representativeness (usually at least 50 units)
Depth/breadth of information per case/unit	Focus on depth of information generated by the cases	Focus on breadth of information generated by the sampling units
When the sample is selected	Before the study begins, during the study, or both	Before the study begins
How selection is made	Utilizes expert judgment	Often based on application of mathematical formulas
Sampling frame	Informal sampling frame somewhat larger than sample	Formal sampling frame typically much larger than sample
Form of data generated	Focus on narrative data Numeric data can also be generated	Focus on numeric data Narrative data can also be generated

Source: Teddlie and Yu (2007, p. 84)

5.8.2 Target population:

This study is examining the factors influencing the adoption of MAIs in Libya in medium and large size manufacturing and non-manufacturing companies whether they are private, state-owned companies. The reason for choosing large and medium size organisation is that the size has an impact in terms of the adoption process of MAIs, and the larger organisations are more likely to implement MAIs than smaller ones (Abdel-Kader & Luther, 2008).

Population*:* basically, the universe of units from which the sample is to be selected (Bryman, 2012, p. 187). Also, a population is known as: a precisely defined body of people or objects under consideration of statistical purposes (Collis & Hussey, 2009, p. 77). Therefore, the target population includes the top financial persons or those who are responsible for MA activities in these institutions or anyone else capable to fill in the questionnaire; furthermore, it includes the individuals who are not in an executive position but connected with the study subject such as academic staff, and the individuals who hold professional qualifications in accounting and particularly in MA. For the interviews, as it mentioned above the interviewees were chosen because of their interest in participating in this study.

5.8.3 Sample size

There is no consensus among researchers about the suitable sample size. However, Owen & Jones (1994) consider that a large sample is that sample which includes several items and exceeds 30. The targeted sample in this study covers manufacturing and non-manufacturing companies that operate in Libya. A total of 250 questionnaires were distributed in the period from the beginning of October 2015 to mid-January 2016. All the questionnaires were delivered and collected by hand and three assistants participated in the distribution process. 121 questionnaires representing 121 different organisations were returned. 18 questionnaires were eliminated, 13 for incompleteness and 5 because the companies were small. The response rate can be calculated as shown in table 5.9.

Table 5.9 Response rate

Description	Sample	Response rate (%)
Total number of questionnaires distributed	250	100
Total number of returned questionnaire	121	48.4
(-) Incomplete questionnaires	(18)	(7.2)
Total number of useable questionnaires	103	41.2

The response rate was 41.2 % considered to be satisfactory for two reasons:

Firstly: Saunders et al. (2012) state that the likely response rate for self- administered questionnaires in business studies is between 30-50 %.

Secondly: The response rate in this study is higher than other studies which have similar objectives and investigating MAPs in different countries such as Ahmad (2012) 16.1%, Nimtrakoon (2009) 29.9 %, Hutaibat (2005) 38%, and Wu (2003) 19.1 %. However, the response rate is slightly less than similar studies conducted in Libya such as Abugalia (2011) 52.8%, Alkizza (2006) 48.2%, Leftesi (2008) 53%, and Al Kisher (2013) 64.5 %.

5.8.4 Time horizon for this study

A cross- sectional study is conducted once and it is called "the snapshot" time horizon (Saunders et al., 2012). The researcher carries out a cross-sectional study when there is a lack of time availability and limited resources. It designed to collect research data in different conditions, however, over the same period of time (Collis & Hussey, 2009). On the other hand, a longitudinal study is adopted when the researcher aims to collect data at more than one point in time. It is usually employed to examine variables over a long period.

In this study, a cross-sectional time horizon was adopted, and the quantitative data was collected in the period of about three months including a visit to Libya between the 8th of December 2015 and the 12thof January2016 in order to finalise the quantitative data collection and to commence semi- structured interviews.

5.9 Summary

This chapter gives insight into the research methodology of this study. It shows that the study adopted a middle ontological position closer to objectivism. With regard to epistemology, knowledge is acquired by employing positivism and interpretivism, however, the study relies mainly on positivism, interpretivism is used as complementary approach. Therefore, this study is closer to positivism than interpretivism.

In terms of methodology, this chapter reviewed different types of methodologies and discussed in detail mixed methods research as it is the adopted methodology in this study. Following that, this chapter shed light on data collection instruments and reliability and validity. The final section of this chapter contains information related to research sampling techniques and design in addition to the targeted population, the sample size and the time horizon for this study.

Chapter Six: Descriptive Analysis of the Questionnaire

6.1 Overview

This chapter aims to conduct a descriptive analysis of the data from questionnaires in order to answer the first question of this study:

Q1- What is the status of the adoption of TMAPs and MAIs in manufacturing and non-manufacturing Libyan organisations?

This chapter comprises eight sections. The next section presents the data screening. Section 6.3 gives general information related to respondents' while section 6.4 overviews the profile of the respondents' companies. In section 6.5, the details about MAPs in use among manufacturing and non-manufacturing companies is provided. Section 6.6 shows the status and the adoption rate of MAIs in Libya. Section 6.7 sheds light on factors influencing the adoption of MAIs. Finally, section 6.8 summarises this chapter.

6.2 Data screening

After questionnaire forms were collected, they were given a serial number from 1 to 121. The following step was reviewing every questionnaire form separately in order to ascertain whether all questions were answered and to assure that the respondent company was among the population of the study (medium and large companies). During this process, 18 questionnaires were excluded leaving 103 usable questionnaires. The contents of the 103 valid questionnaires were entered into SPSS software in order to produce introductory descriptive statistics which is helpful in terms of assuring accuracy, missing data values, normality and outliers.

To ease the data entry process and to detect any missed values, all valid questionnaires were given the same number of the case in SPSS software to help comparing electronic cases with original source of data (the questionnaire it was from). This process facilitated re-entry of any missed data values when they were detected. Regarding outliers and normality, the data related to the status of MAIs in Libya and the factors that influence the adoption of MAIs were tested. According to Hair et al (2010), the value ±1.96 is considered a cut-off point for

both Kurtosis and Skewness. This test was conducted to explore the ratio of Skewness and Kurtosis, which were in the acceptable range as is shown in Tables 6.1, And 6.2.

Table 6. 1 Descriptive statistics for factors facilitating the adoption of MAIs

Factor	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Business dependency	103	1.46	.501	.178	.238	-2.008	.472
Number of the employees	103	3.85	1.132	-.410	.238	-1.285	.472
The availability of adequate accounting staff	103	3.95	.974	-.746	.238	-.060	.472
Using computer systems for MA purposes	103	4.41	.747	-1.118	.238	.734	.472
The authority attributed to the accounting function	103	3.88	.820	-.432	.238	-.211	.472
The competitiveness of the market	103	3.70	1.074	-.581	.238	-.375	.472
Production technology	103	3.57	1.151	-.712	.238	-.269	.472
The loss of market share	103	2.71	1.265	.036	.238	-1.140	.472
Competent accountants	103	3.95	1.033	-.937	.238	.453	.472
Deterioration in profitability	103	2.92	1.234	-.105	.238	-.938	.472
Top management support	103	4.23	.843	-1.269	.238	1.962	.472
Conferences, seminars and workshops	103	3.47	1.127	-.081	.238	-.928	.472
Co-operation between universities (academics) and companies (professionals)	103	3.38	1.246	-.416	.238	-.807	.472
Accounting research in Libya	103	3.47	1.119	-.192	.238	-.906	.472
Accounting education in Libya	103	3.84	1.118	-.845	.238	-.043	.472
Management accounting training programmes	103	4.07	1.012	-1.121	.238	.729	.472
Adequate financial resources	103	3.75	1.055	-.600	.238	-.223	.472
Professional accounting bodies in Libya	103	2.96	1.335	.148	.238	-1.265	.472
Product's cost structure	103	2.80	1.240	.146	.238	-1.080	.472
Headquarters and government regulation	103	3.6990	.88379	-.496	.238	-.370	.472
Specialist Management accounting journals	103	3.12	1.331	-.065	.238	-1.238	.472
Valid N (list wise)	103						

Table 6. 2 Descriptive statistics for factors impeding the adoption of MAIs

Factor	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Lack of skilled employees	103	4.17	.912	-1.147	.238	1.074	.472
Lack of local training programmes in MAIs	103	4.15	.833	-.696	.238	-.170	.472
Lack of support from top management	103	4.03	.923	-.745	.238	-.206	.472
Lack of software packages relevant to MAIs	103	3.99	.891	-.998	.238	.970	.472
Lack of courses related to MAIs in academic institutions	103	3.89	.949	-.977	.238	.798	.472
Lack of employee awareness of the benefits of MAIs	103	3.81	.981	-.679	.238	.077	.472
Lack of confidence in the value of MAIs	103	3.70	1.046	-.885	.238	.219	.472
Headquarters and government regulation	103	3.70	.884	-.496	.238	-.370	.472
Lack of the competitiveness of the market	103	3.61	1.012	-.601	.238	.106	.472
centralization	103	3.56	1.109	-.471	.238	-.573	.472
Lack of trust in change	103	3.47	.988	-.494	.238	-.036	.472
Lack of financial resources	103	3.41	1.124	-.272	.238	-.709	.472
Company size	103	3.38	1.121	-.583	.238	-.254	.472
Lack of decision making autonomy at lower levels	103	3.29	1.044	-.296	.238	-.521	.472
Lack of management accounting research in Libya	103	3.19	1.112	-.394	.238	-.809	.472
Lack of conferences, seminars and workshops about MAIs	103	3.13	1.073	-.256	.238	-.610	.472
Lack of co-operation between universities (academics) and companies (professionals)	103	3.09	1.130	-.175	.238	-.705	.472
Lack of up to date publications about MAIs	103	2.97	1.224	.056	.238	-1.048	.472
Lack of an active MA society	103	2.94	1.008	-.409	.238	-.833	.472
Complexity of MAIs	103	2.81	1.067	-.096	.238	-.679	.472
High operational cost of MAIs	103	2.79	1.169	.127	.238	-.799	.472
Valid N (list wise)	103						

6.3 Respondents' profile

The questionnaire form starts with section (A) aiming to collect general information about the respondents by answering part 1 questions A1 to A5, and part 2 questions from A6 to A 12 aims to gather information about the organisations. Tables 6.3 to 6.10 give the main

characteristics of the respondents, their job title, details about work experience, gender, age, and qualifications.

6.3.1 Job title

It can be seen from table 6.3 that the largest group of the respondents, 36.9%, occupy financial accountant positions, while financial mangers came the second with 32 %, followed by internal auditors which represent 15 % of the respondents. Other positions represent 9.7%, and cost accountants represent just 3.9 %. The least represented job title is management accountant, which represents 1.9% of all respondents. The targeted respondents were the financial managers and/or internal auditors. However, in many cases the questionnaires were passed to other people because of lack of time available for financial managers and internal auditors or the questionnaires were passed to people who may best answer them.

Table 6. 3 Job title

Job title	Frequency	Percent	Valid Percent	Cumulative Percent
Financial accountant	38	36.9	36.9	36.9
Cost accountant	4	3.9	3.9	40.8
Management accountant	2	1.9	1.9	42.7
Financial manager	33	32.0	32.0	74.8
Internal auditor	16	15.5	15.5	90.3
Other	10	9.7	9.7	100.0
Total	103	100.0	100.0	

6.3.2 Work experience

Data related to work experience in the current position reveals that 29.2 % of respondents have 5 years or less experience while the majority 52.4 % have experience ranging between 6 and 15 years, and 18.4 % of respondents have more than 15 years in this position (See table 6.4)

Table 6. 4 Work experience in this position

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 3 years	12	11.7	11.7	11.7
3-5 years	18	17.5	17.5	29.1
6-10 years	37	35.9	35.9	65.0
11-15 years	17	16.5	16.5	81.6
More than 15 years	19	18.4	18.4	100.0
Total	103	100.0	100.0	

With regard to work experience in the organisation, table 6.5 shows that the majority of respondents 56.3 % have 10-year experience or less, while the rest of respondents 43.7 % have more than 10-year experience in this organisation.

Table 6. 5 Work experience in this organisation

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 3 years	7	6.8	6.8	6.8
3-5 years	17	16.5	16.5	23.3
6-10 years	34	33.0	33.0	56.3
11-15 years	30	29.1	29.1	85.4
More than 15 years	15	14.6	14.6	100.0
Total	103	100.0	100.0	

More than half of respondents 58.3 % have overall experience exceeding 15 years. 28.2 % have experience of between 11 to 15 years, the rest of respondents 13.6 % have just 10 years' overall experience or less. See table 6.6.

Table 6. 6 Overall experience

	Frequency	Percent	Valid Percent	Cumulative Percent
3-5 years	3	2.9	2.9	2.9
6-10 years	11	10.7	10.7	13.6
11-15 years	29	28.2	28.2	41.7
More than 15 years	60	58.3	58.3	100.0
Total	103	100.0	100.0	

6.3.3 Gender

The analysis shows in table 6.7 that the vast majority of the respondents are men 86.4 % while women represent a small minority 13.6 % among all respondents. This ratio is not surprising in Libya and in Middle Eastern countries due to the dominant culture in these countries. Similar studies conducted in Libya or other Arab countries give the same or similar low ratio.

Table 6. 7 Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	89	86.4	86.4	86.4
Female	14	13.6	13.6	100.0
Total	103	100.0	100.0	

6.3.4 Age

The respondents' age was divided into four categories. No respondents were found less than 25 years of age. In the second category comprising ages between 25 and 35 were 18.4 % of the respondents, 36.9 % had ages between 36 and 45, while 44.7 % of respondents were older than 45. The reason for an older age being dominant among respondents of this study is that the questionnaire targeted high positions within the organisations. See table 6.8.

Table 6. 8 Participant's age

	Frequency	Percent	Valid Percent	Cumulative Percent
25- 35	19	18.4	18.4	18.4
36- 45	38	36.9	36.9	55.3
Older than 45	46	44.7	44.7	100.0
Total	103	100.0	100.0	

6.3.5 Academic qualification

According to the results included in table 6.9, almost all respondents held a Bachelor / High institution or higher qualification, 65 % had a bachelor/ high institution, 28.2 % a Master's degree, and 4.9 % had a PhD. Only 1.9 % of the respondents held qualifications below University level. This result increases the reliability of the data obtained by the questionnaires.

Table 6. 9 Participant's qualification

	Frequency	Percent	Valid Percent	Cumulative Percent
High school level/ Medium diploma	2	1.9	1.9	1.9
Bachelor / High institution	67	65.0	65.0	67.0
Master	29	28.2	28.2	95.1
PhD	5	4.9	4.9	100.0
Total	103	100.0	100.0	

6.3.6 Field of study

With regards to field of study, table 6.10 shows that the overwhelming majority 73.8 % have an accounting qualification. Next came respondents who have a business administration qualification, 11.7 %, finance represents 11.7 %, economics 1.9 %, and other 1 %. This result also enhances and supports the reliability of collected data,

Table 6. 10 Respondent's field of study

	Frequency	Percent	Valid Percent	Cumulative Percent
Accounting	76	73.8	73.8	73.8
Business administration	12	11.7	11.7	85.4
Economics	2	1.9	1.9	87.4
Finance	12	11.7	11.7	99.0
Other	1	1.0	1.0	100.0
Total	103	100.0	100.0	

6.4 Profile of the firms

This section sheds light on participant's companies in terms of its ownership type, business dependency, business type, age, size, total revenue, and privatisation.

6.4.1 Ownership type

The ownership type is illustrated in table 6.11. The state-owned organisation (100 % owned by the state) represents 47.6 % out of all participating organisations. 24.3 % of participating organisations are 100% owned by the private sector. The remainder are distributed between mixed ownership between the state and the private sector 7.8 %, ownership divided between the state and a foreign partner 17.4 %, and ownership between private sector and a foreign partner 2.9%. The dominance of state owned organisations and the absence of an influential free market is because of the planned economic policy and socialism that was adopted in Libya in previous decades (See chapter two).

Table 6. 11 Company's ownership

	Frequency	Percent	Valid Percent	Cumulative Percent
State owned Organisation (100% owned by the state)	49	47.6	47.6	47.6
Private organisation (100% owned by the private sector)	25	24.3	24.3	71.8
Mixed ownership between the state and the private sector	8	7.8	7.8	79.6
Joint venture (ownership divided between the state and a foreign partner	18	17.4	17.5	97.1
Joint venture (ownership divided between the private sector and a foreign partner)	3	2.9	2.9	100.0
Total	103	100.0	100.0	

6.4.2 Dependency of business

Regarding the dependency of the business, table 6.12 shows that 54.4 % of respondents worked for independent or parent companies while 45.6 % of respondents worked in subsidiaries.

Table 6. 12 Business dependency

	Frequency	Percent	Valid Percent	Cumulative Percent
Independent / parent company	56	54.4	54.4	54.4
Subsidiary company	47	45.6	45.6	100.0
Total	103	100.0	100.0	

6.4.3 Type of business

As shown in table 6.13, the respondents working in four main types of businesses: services, manufacturing, oil and gas, and construction. The service sector comprised the highest percentage of respondents (49.5) % and it includes:

- Finance (including banking and insurance) 15.5 %;
- Information technology (including telecom, telephone and Internet) 11.7 %;
- Transport (including road, sea, and air transport) 2.9 %;
- Commerce (including retail, whole sale, import and export trading 6.8%;
- Hotel 3.9 %;
- Health services 8.7%.

It is followed by the manufacturing sector which represents 28.2 % of all respondents. The oil and gas sector came third with 14.6 %, and finally, the construction sector with 7.8 %.

Table 6. 13 Business type

	Frequency	Percent	Valid Percent	Cumulative Percent
Industrial	29	28.2	28.2	28.2
Oil and Gas	15	14.6	14.6	42.7
Construction	8	7.8	7.8	50.5
Finance (including banking and insurance)	16	15.5	15.5	66.0
Information technology (including telecom, telephone and Internet)	12	11.7	11.7	77.7
Transport (including road, sea, and air transport)	3	2.9	2.9	80.6
Commerce (including retail, whole sale, import and export trading	7	6.8	6.8	87.4
Hotel	4	3.9	3.9	91.3
Health service	9	8.7	8.7	100.0
Total	103	100.0	100.0	

6.4 .4 Age of the participant companies

The age of the respondents' companies is shown in table 6.14. From the table, we can conclude that more than half of the companies 57.3 % have been operating more than 15 years. No company was started less than 5 years ago, and 42.7 % have been operating between 5 to 15years.

Table 6. 14 Business age

	Frequency	Percent	Valid Percent	Cumulative Percent
5-10 years	18	17.5	17.5	17.5
11-15 years	26	25.2	25.2	42.7
16-20 years	24	23.3	23.3	66.0
More than 20 years	35	34.0	34.0	100.0
Total	103	100.0	100.0	

6.4.5 Size of the participant companies

Table 6.15 shows that the majority of respondents 59.2 % were working in medium size companies (which had between 50 to 500 employee), while large companies 40.8 %, represent the rest of respondents who participated in this study.

Table 6. 15 Size of the participant's companies

	Frequency	Percent	Valid Percent	Cumulative Percent
50-100	17	16.5	16.5	16.5
101-200	23	22.3	22.3	38.8
201-500	21	20.4	20.4	59.2
More than 500	42	40.8	40.8	100.0
Total	103	100.0	100.0	

6.4.6 Total revenue of the participant companies

To discover the amount of the revenues, this section is scaled into six options:
Less than 1 million LD; from 1 to 5; from 6 to 15, from 16 to 30, more than 30 million LD, and the last option is (I do not know). Surprisingly, 21.4 % of the respondents chose this last option (I do not know) although they were in a position that enabled them to know, such as financial manager, financial accountant, and internal auditor. The highest rate is 25.2 % for the option of more than 30 million LD. The lowest rate 8.6 % is for the option 16 to 30. 1 to 5 million LD was chosen by 9.7 % and 6 to 15 million LD was chosen by 16.5 %. See table 6.16.

Table 6. 16 Business revenue in (million LD)

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 1	10	9.7	9.7	9.7
1- 5	19	18.4	18.4	28.2
6-15	17	16.5	16.5	44.7
16- 30	9	8.7	8.7	53.4
More than 30	26	25.2	25.2	78.6
I do not know	22	21.4	21.4	100.0
Total	103	100.0	100.0	

6.4.7 Privatisation

The respondents were asked to indicate whether their companies have privatised after 1990 or not. The result in table 6.17 indicates that just 8.7 % of the all companies were privatised in 1990.

Table 6. 17 Privatised after 1990

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	9	8.7	8.7	8.7
No	94	91.3	91.3	100.0
Total	103	100.0	100.0	

6.5 MAPs in use

Section B in the questionnaire investigates MAPs in use and its importance in order to find out the status of adopted traditional MAPs in Libya.

Table 6.18 shows the result that comprises the number, percentage, and the rank of 31 MAPs included in this study. In this table, the MAPs in use were classified into three groups in terms of ranking: the first group comprises four MAPs that considered being highly adopted; the second group comprises 13 MAPs that were moderately adopted, and the third group comprises remaining 14 MAPs having low adoption rate. The ranges of the three categories that represent the classification of different MAPs were calculated as follows:

Firstly, the most used MAP was adopted by 88 organisations, and the least used MAP was adopted by 3 organisations. The range between the highest and lowest adoption rate was calculated in order to get the length of each category by dividing the range by 3.

Secondly, after calculating the length of each group: (88- 3) / 3 (Number of categories) = 28.33. Next the ranges of the high, moderate, and low adoption within the categories were defined as follows:

28.33 (length of the category) + 3 (lowest adoption rate) = 31.33 (maximum adoption rate in the lowest category).

28.33 (length of the category) + 31.33 (maximum adoption rate in the lowest category) = 59.66 (maximum adoption rate for mode rate category).

28.33 (length of the category) + 59.66 (maximum adoption rate for moderate category) = 88 (maximum adoption rate for high adoption category).

Table 6. 18 The ranking of MAPs in Libyan manufacturing and non-manufacturing companies

MAPs	Number	Use Rate %	Rank
High adoption rate			
Cash budget	88	85.4	1
Budget variance analysis	78	75.7	2
Capital budgeting	66	64.1	3
Return on investment (ROI)	66	64.1	4
Moderate adoption rate			
Sales budget	57	55.3	5
Full (absorption) costing	56	54.4	6
Variable costing	55	53.4	7
Master budget	55	53.4	8
Meeting budget target	49	47.3	9
Cost-volume-profit analysis	48	46.6	10
Payback period	48	46.6	11
Production budget	45	43.7	12
Customer satisfaction	41	39.8	13
Direct materials budget	40	38.8	14
Direct labour budget	40	38.8	15
Residual Income (RI)	36	35	16
Product profitability analysis	34	33	17
Low adoption rate			
Employees satisfaction	31	30.1	18
Standard costing	30	29.1	19
Net Present Value (NPV)	27	26.2	20
Division profit	25	24.3	21
Accounting Rate of Return(ARR)	21	21.4	22
Internal Return Rate (IRR)	19	18.4	23
Product life-cycle analysis	17	16.5	24
The share price	16	15.5	25
Overhead budget	15	14.6	26
Flexible budget	14	13.6	27
Economic value added (EVA)	12	11.7	28
Customer profitability analysis	5	4.9	29
Zero- based budget	5	4.9	30
Sensitivity analysis	3	2.9	31

In addition to classification based on ranking, the 31 MAPs were classified into five groups according to its role as follows: costing systems three MAPs, budgeting and control ten

MAPs, performance evaluation nine MAPs, capital investment appraisal four MAPs, and decision support systems five MAPs.

To describe the ranking of MAPs according to the role classification, let us start with the budgeting and control group with two MAPs in the high adoption rate category; cash budget ranked 1, capital budget ranked 3 with adoption rate of 85.4%, and 64.1% respectively. Sales budget ranked 5, master budget ranked 7, production budget ranked 12, direct materials budget ranked 14, and direct labour budget ranked 15 in the moderate adoption category with adoption rate of 55.3%, 53.4%, 43.7%, 38.8% and 38.8% respectively.

The performance evaluation group has two MAPs in the high adoption category, budget variance analysis ranked 2, return on investment ranked 4 with an adoption rate of 75.7%, and 64.1% respectively, whereas meeting budget target ranked 9, customer satisfaction ranked 13, and residual income ranked 16 in the moderate adoption category with adoption rate of 47.3%, 39.8%, and 35% respectively.

The costing systems group has two MAPs in the moderate adoption category, full costing ranked 6 and variable costing ranked 7 with adoption rate of 54.4% and 53.4% respectively. And the capital investment appraisal group has one MAP in the moderate adoption category, payback period ranked 11 with adoption rate of 46.6%.

With regard to the decision support group, there are two MAPs in the moderate adoption category; cost-volume analysis ranked 10 and product profitability analysis ranked 17 with adoption rate of 46.6% and 33% respectively. The other 14 MAPs are classified in the low adoption rate category.

In general, although the result shows that the majority of MAPs are in use in Libyan manufacturing and non-manufacturing companies and the adoption rate of traditional tools is higher than advanced MAPs, this result indicates that the adoption rate of traditional MAPs in Libya resembles results in previous studies conducted in Libya and developing nations and is lower than studies undertaken in developed countries.

In developing countries Abdel Al and McLellan (2011) conducted a study in Egypt, they found that Egyptian manufacturing organisations rely heavily on TMAPs; however, the adoption rate of MAIs was low and slow. Similarly, Sulaiman, Ahmad, and Alwi (2004) investigated the adoption rate of CMAPs and TMAPs in four different Asian countries

namely; China, India, Singapore, and Malaysia. They reported that there was lack of using CMAPs in all four countries and the use of TMAPs is very high because of their benefits.

In more recent study, Mclellan (2013) examined the adoption rate of both CMAPs and TMAPs in the Gulf Cooperative Council Countries (GCC). They concluded that the traditional financial performance MA tools such as budgeting, variance analysis and profit based performance were all highly adopted. The more recently developed cost management and PE tools such as ABC and the BSC had a low adoption rate. Moreover, Ahmad (2012) contended that TMAPs were commonly in use among Malaysian companies while the adoption rate of advanced tools was low. In another developing country, Hutaibat (2005) conducted a study to investigate the state of MAPs within Jordanian industrial companies. The study revealed that industrial companies were still using TMAPs rather than CMAPs.

In developed countries, Angelakis, Theriou, and Floropoulos (2010) investigated the extent of adoption pf MAPs in Greece and Finland. They found that TMAPs were marginally more implemented than CMAPs even though the implementation level of CMAPs was the same level as other countries. The following sections discuss this result in more detail and compares it with that of some previous studies undertaken locally and internationally.

6.5.1 Costing techniques

The first part of section B in the survey was devoted to the cost system that includes three MAPs; variable costing, full costing, and standard costing. The respondents were asked to answer whether their companies use any of the mentioned MAPs or not. In addition, the respondents were asked to specify the importance of each MAP in use. The rationale behind calculating both the usage/adoption rate and the importance of the MAPs is to correlate the adoption rate with the benefits gained from these MAPs, as they are not always similar. Based on the above discussion, the result of each group of section B (MAPs in use) is illustrated in two tables, the first table shows the adoption rate of MAPs, and the second shows the importance of the adopted MAPs. It can be noticed from table 6.19 that the highest adoption rate among the costing group is full costing the MAP ranked 6 with adoption rate 54.4%, followed by variable costing ranked 7 with an adoption rate 53.4%, and finally standard costing ranked 19 with an adoption rate 29.1%. According to table 6.18, Variable and full costing techniques were classified as moderately adopted MAPs, while standard costing technique was classified as a low adopted MAP.

Table 6. 19 The adoption rate of costing MAPs

Technique	Yes		No		Rank
	percentage %	Frequency	percentage %	Frequency	
Full (absorption) costing	54.4	56	45.6	47	6
Variable costing	53.4	55	46.66	48	7
Standard costing	29.1	30	70.9	73	19

In the Libyan context, this result is in accordance with previous studies in terms of MAPs priority. In other words, all previous studies show that full costing has the highest adoption rate followed by variable costing and finally standard costing. Alkizza (2006) reported that the adoption rate of full costing was 65%, variable costing 60.8%, and standard costing 34.5%. In another study, Leftesi (2008) found that the adoption rate of full costing was 96.3%, 71.6% for variable costing, and 32.1% for standard costing. More recently, Abugalia (2011) concluded that adoption rate of full costing, variable costing and standard costing were 79%, 61%, and 44.6% respectively. The reason for the adoption rate of Leftesi's study is that it studied the manufacturing sector only, while other studies surveyed different sectors in Libya and the result showed less difference between them.

In developing countries, in Malaysia, Ahmad (2012) found that the adoption rate of variable costing and full costing were 52% and 48% respectively. Wu (2003) found the adoption rate of joint venture and state-owned enterprises in China as follows: variable costing JVs 49%, SOE 63%, full costing JVs 43%, SOE 67%, and standard costing JVs 63%, SOE 65%.In Egypt, Abdel Al and McLellan (2011) reported that the adoption rate of absorption cost and, variable costing are classified as having a low adoption rate with 33% and 31% respectively.

Table 6.20 shows the importance of the costing MAPs in use based on a mean value. It indicates that the most important average among costing system group is variable costing ranked 1 and its mean is 2.71, followed by full costing ranked 2 and its mean 2.64, and the least important average is standard costing ranked 3 and its mean 1.96.

Table 6. 20 The importance of costing MAPs

	Variable costing	Full costing	Standard costing
Valid	103	103	103
Missing	0	0	0
Mean	2.71	2.64	1.96
Median	3.00	3.00	1.00
Std. Deviation	1.701	1.583	1.552
Rank	1	2	3

6.5.2 Budgeting MAPs

The budgeting group comprises ten MAPs as shown in table 6.21. Cash budget has the highest adoption rate in this group and it come first among all other MAPs in this study with 85.4%, followed by capital budget 64.10%, sales budget 55.3%, master budget 53.4%, production budget 43.7%, direct material and direct labour budget both have same adoption rate 38.8%. Zero-based budget has the lowest adoption rate 4.9%.

According to the classification of MAPs, cash budget, and capital budgeting are classified as highly adopted MAPs. Sales budget, master budget, production budget, direct materials budget, and direct labour budget are classified as moderately adopted MAPs. Only overhead budget, flexible budget, and zero- based budget are considered low adopted MAPs (see table 6.18).

Table 6. 21 The adoption rate of budgeting MAPs

Technique	Yes		No		Rank
	percentage %	Frequency	percentage %	Frequency	
Sales budget	55.3	57	44.7	46	5
Production budget	43.7	45	56.3	58	12
Cash budget	85.4	88	14.6	15	1
Direct materials budget	38.8	40	61.2	63	14
Direct labour budget	38.8	40	61.2	63	14
Overhead budget	14.6	15	84.5	88	26
Master budget	53.4	55	46.6	48	8
Capital budgeting	64.10	66	35.0	36	3
Flexible budget	13.6	14	86.4	89	27
Zero- based budget	4.9	5	95.1	98	30

Regarding the importance of budgeting's MAPs, it can be noticed from table 6.22 that there is no significant difference between the order of the adoption rate of this group's MAPs and its importance except flexible budgeting comes before overhead budget in importance.

Table 6. 22 The importance of budgeting and control MAPs

	Sales budget	Production budget	Cash budget	Direct material budget	Direct labour budget	Overhead budget	Master budget	Capital budget	Flexible budget	Zero-Based Costing
Valid	103	103	103	103	103	103	103	103	103	103
Missing	0	0	0	0	0	0	0	0	0	0
Mean	2.75	2.42	3.88	2.13	2.12	1.36	2.69	3.00	1.42	1.13
Median	3.00[a]	1.76[a]	4.26[a]	1.62[a]	1.63[a]	1.17[a]	2.40[a]	3.35[a]	1.30[a]	1.05
Std. Deviation	1.679	1.683	1.388	1.493	1.477	.938	1.704	1.639	1.098	.605
Rank	3	5	1	6	7	9	4	2	8	10

In more detail, the only two techniques that have a "mean" of three or above are cash budget 3.88 and capital budget 3.00. Sales budget, master budget, production budget, direct material, and direct labour have means 2.75, 2.69, 2.42, 2.13, and 2.12 respectively. Flexible budget, overhead budget, and zero- based budget have means less than 2.

This result is consistent with other studies in Libya in terms of the importance of budgeting MAPs which have top rankings in all previous studies such as (Leftesi, 2008; Alkizza, 2006; Abughalia, 2011; Zobi, 2011). The reasons behind the common use of budgeting MAPs among Libyan companies are the legal requirements of the government and the perception of managers that controlling and evaluating performance in this way protects them against accountability. Moreover, the findings of this study show that most budget MAPs are highly or moderately adopted by Libyan companies, the exception being the low adoption of overhead budget, flexible budget, and zero- based budget MAPs.

In developing countries, the results are similar to this study's results with regard to the high rank of budgeting MAPs. McLellan and Mustafa (2013) concluded that the top ranked MAPs adopted by firms in GCC countries are the budgeting MAPs

6.5.3 Performance measurement /evaluation techniques

This group contains nine MAPs and the results shown in table 6.23 indicate that more than half of the respondents' companies use at least two techniques to measure their performance. Budget variance analysis has the highest adoption rate 75.7%, followed by return on investment technique 64.1%. Meeting budget target came third in this group with 47.3% and customer satisfaction occupied the fifth place with 39.8%. Economic value added, the share price and division profit have the lowest adoption rate in this group with 11.7%, 15.5%, and 24.3% respectively.

Table 6. 23 The adoption rate of performance evaluation MAPs

Technique	Yes		No		Rank
	percentage %	Frequency	percentage %	Frequency	
Return on investment (ROI)	64.1	66	36	37	4
Residual Income (RI)	35	36	65	67	16
Economic value added (EVA)	11.7	12	88.3	91	27
The share price	15.5	16	84.5	87	25
Division profit	24.3	25	75.7	78	21
Customer satisfaction	39.8	41	59.8	62	13
Budget variance analysis	75.7	78	24.3	25	2
Employees satisfaction	30.1	31	69.9	72	18
Meeting budget target	47.3	49	52.7	54	9

In terms of importance, according to table 6.24, budget variance analysis MAP is the only one that has a mean value above 3 (3.56), while all other performance evaluation MAPs are below average. However, return on investment, meeting budget target, and residual income have mean values above 2 with values 2.93, 2.44, and 2.16 respectively. In addition, employees' satisfaction, division profit, the share price, and economic value added have mean value less than 2.

This result is inconsistent with previous studies, Leftesi (2008) and Abugalia (2011) who reported that performance measurement practices were not common among Libyan companies and they reported that Libyan companies may use budget MAPs instead in terms of performance evaluation.

Table 6. 24 The importance of performance evaluation MAPs

	Return on investment	Residual income	Economic value added	The Share price	Division profit	Customer satisfaction	Budget variance analysis	Employees satisfaction	Meeting budget target
Valid	103	103	103	103	103	103	103	103	103
Missing	0	0	0	0	0	0	0	0	0
Mean	2.93	2.03	1.36	1.46	1.67	2.16	3.56	1.73	2.44
Std. Deviation	1.573	1.465	1.037	1.127	1.301	1.558	1.625	1.222	1.582
Rank	2	5	9	8	7	4	1	6	3

6.5.4 Capital Investment appraisal techniques

There are four MAPs in this group. None were popular and they all have adoption rates below 50%. Table 6.25 shows that 46.6 % of companies use payback period as a capital investment measurement, 26.2% use Net Present Value (NPV), 21.4% use Accounting Rate of Return (ARR), and 18.4% use Internal Return Rate (IRR).

Table 6. 25 The adoption rate of capital investment appraisal MAPs

Technique	Yes		No		Rank
	percentage %	Frequency	percentage %	Frequency	
Payback period	46.6	48	53.4	55	11
Net Present Value (NPV)	26.2	27	72.8	76	20
Internal Return Rate (IRR)	18.4	19	80.6	84	23
Accounting Rate of Return(ARR)	21.4	21	77.7	82	22

Table 6.26 shows that all four MAPs were below the average or not important.

Table 6. 26 The importance of capital investment appraisal MAPs

	Payback period	Net present value	Internal return rate	Accounting rate of return
Valid	103	103	103	103
Missing	0	0	0	0
Mean	2.45	1.75	1.54	1.60
Median	2.52	1.35	1.22	1.25
Std. Deviation	1.619	1.326	1.227	1.278
Rank	2	3	5	4

6.5.5 Decision support systems

Five MAPs were listed in the decision support systems group. This group has the lowest adoption rate compared to other groups and none of its MAPs are in the high-adopted category. However, cost-volume-profit analysis has the highest adoption rate in this group with 46.6%, followed by product profitability analysis 33% and both are classified as moderately adopted MAPs, while product life-cycle analysis, customer profitability analysis, and sensitivity analysis have adoption rates 16.5%, 4.9% and 2.9% respectively and they are classified as low adopted MAPs.

Table 6. 27 The adoption rate of decision support MAPs

Technique	Yes		No		Rank
	percentage %	Frequency	percentage %	Frequency	
Cost-volume-profit analysis	46.6	48	53.4	55	10
Product life-cycle analysis	16.5	17	83..5	86	23
Product profitability analysis	33	34	67	69	17
Sensitivity analysis	2.9	3	97.1	100	31
Customer profitability analysis	4.9	5	95.1	98	29

The importance of decision support MAPs is below average and some of them are not at all important such as sensitivity analysis, customer profitability analysis, and product life-cycle analysis.

Table 6. 28 The importance of decision supports MAPs

	Cost-volume-profit analysis	Customer profitability analysis	Sensitivity analysis	Product profitability analysis	Product life-cycle analysis
Valid	103	103	103	103	103
Missing	0	0	0	0	0
Mean	2.45	1.14	1.08	2.08	1.43
Median	1.86[a]	1.10[a]	1.06	1.48	1.19
Std. Deviation	1.631	.627	.458	1.619	1.025
Rank	1	4	5	2	3

6.6 The status of the adoption of MAIs in Libya

This section aims to investigate the extent of use of "MAIs" in the Libyan environment in order to achieve the second part of the study's first objective by "assessing the status and the adoption rate of MAIs".

The respondents were asked to answer the question B3 by ticking one of the listed statements which best describe the status of MAIs in their organisations. A five-point Likert scale was used; 1 (never heard of it), 2 (never considered to adopt), 3 (considered then rejected), 4 (under consideration), and finally 5 (adopted and currently in use). Seven MAIs were chosen from relevant literature and previous studies after considering what might suit less developed countries such as Libya.

The result indicates that the adoption rate of MAIs is lower than traditional MAPs. Furthermore, the adoption is still in its infancy compared to developed countries. Based on the "mean" value shown in table 6.29, the MAIs were put in order from highest to lowest adoption rate. ABC technique comes first, adopted by 30.1% of respondents' organisations and trialled by 5.8% of respondents' organisations. Kaizen costing came second with an adoption rate of 21.4 % and as trial 21.4% followed by Benchmarking in the third place with 22.3% adoption rate and 5.8% as a trial. Target costing came fourth with 14.6 % adoption rate and 4.9 as a trial. Life cycle costing, Balanced Scorecard, Activity-Based Management occupy places from 5 to 7 respectively.

This finding reveals that although the adoption rate of MAIs is low, however, it is still higher than the adoption rate in other studies in the same area that were undertaken in Libya earlier.

Table 6. 29 Status of MAIs in Libya

Technique	N	Adoption rate %	Mean	Std. Deviation
Activity-Based Costing	103	30.1	3.69	1.858
Kaizen costing	103	21.4	2.84	1.919
Benchmarking	103	22.3	2.83	1.997
Target Costing	103	14.6	2.79	1.684
Life-cycle costing	103	11.7	2.50	1.596
Balanced Scorecard	103	3.9	2.47	1.454
Activity-Based Management	103	10.7	2.44	1.619
Valid N (list wise)	103			

This result is inconsistent with previous studies conducted in Libya such as by Alkizza (2006), Abugalia (2011), (Leftesi, 2008), and Alhashemi (2014). According to Abugalia (2011) the mean value of target costing, life-cycle costing, and ABC is 1.52, 1.20, and 1.08 respectively. Furthermore, Leftesi (2008) found that the adoption rate of MAIs investigated in his study were as follows: target costing 13.6%, life-cycle 3.7%, ABC 0%, ABM 0%, BSC 0%. Similarly, Alkizza (2006) reported that the adoption rate of MAIs in Libya were: ABC 0%, BSC 0%, target costing 8.9%, and life-cycle costing 3.8%.

In another developing country, Hutaibat (2005) conducted a study to investigate the status of MAPs within Jordan's industrial companies. The study revealed that industrial companies are still using TMAPs rather than MAIs and the adoption rate of new MA techniques as follows: ABC 0.8%, Benchmarking 30.8%, BSC 1.5%, Target costing 13.5%, TQM 51.9%, ABM 4.5%, Life-cycle costing 3.8%, Kaizen costing 16.5%. More recently, Nassar et al. (2011) studied the diffusion of MAIs in the Jordanian industrial sector. They found that the adoption rate of MAIs were as follows; Benchmarking 36.20 %, target costing 32.75%, BSC 31.03%, ABC 25.86%, and ABM 10.34%.

Abdel Al and McLellan (2011) suggested that the adoption rate of MAIs in Egypt is lower than TMAPs, except for product profitability analysis, which represented the only MAIs moderately adopted with an adoption rate of 41%. ABC has an adoption rate of 13%, ABM has an adoption rate of 11%, while target costing is the least adopted MAI with a rate of 2%.

In some developed countries, Yazdifar and Askarany (2010) conducted a comparative study that investigating the diffusion of MAIs in the UK, Australia and New Zealand. The adoption rate of MAIs in the UK was; ABC 15.2% and as a trial 12.1%, ABM 15.2% and as a trial 9.1, BSC 31.8 % and as a trial 13.6%, Benchmarking 34.8% and as a trial 12.1%, Target costing 16.7 % and as a trial 9.1%. While adoption rate in New Zealand was ABC 4.2% and as a trial 12.7%, ABM 16.9% and as a trial 5.6%, BSC 21.4 % and as a trial 4.3%, Benchmarking 35.2% and as a trial 9.9 %, Target costing 18.3 % and as a trial 2.8 %. Finally, in Australia the adoption rate of MAIs was ABC 23.4% and as a trial 5.2%, ABM 13% and as a trial 4.5%, BSC 28.6 % and as a trial 11.7%, Benchmarking 46.8% and as a trial 11.7%, Target costing 17.9 % and as a trial 5.5%.

6.7 Factors influencing the adoption of MAIs

Section (C) examined factors that influenced the adoption of MAIs in Libya. It was divided into two parts. Part one dealt with factors that may facilitate the adoption of MAIs and part two investigated factors that may impede the adoption of MAIs. Before starting the analysis of these factors, it is important to mention that the Skewness and Kurtosis of the variables were tested in section 6.2 and the result was acceptable (see tables 6.1 and 6.2).

To answer the second question of this study; "What are the factors that may influence the adoption of MAIs in Libyan organisations?"

two types of data were collected quantitative data and qualitative data. Quantitative data was collected using 103 useable questionnaires, while qualitative data was collected by conducting ten interviews aiming to obtain additional data related to the study's aim.

This section aims to allow the respondents to choose one of a five-point Likert scale in order to specify the importance of factors that may facilitate or impede the adoption of MAIs. The analysis process was conducted in accordance with the study's framework based mainly on contingent and institutional theories.

6.7.1 Factors facilitating the adoption of MAIs

In this part, the respondents were asked to specify the importance of each factor in terms of facilitating the adoption process by choosing one of a five-point Likert scale put in order from 1= Do not facilitate to 5= extremely facilitate.

Table 6.30 shows the details of 103 usable questionnaires regarding the factors' importance and ranking according to its mean. However, tables 6.31 and 6.32 present factors that belong to contingency and institutional factors.

After reviewing the relevant literature and similar studies conducted in the same area, 21 factors were chosen to assess the most influential factors that may facilitate adopting MAIs in Libya. These factors are contingent (13) factors and institutional (8) factors. The discussion related to table 6.30 will be based on the nature of each factor whether it belongs to contingency or institutional theory in order to assess the influence of both theories on adopting MAIs.

Table 6. 30 Factors facilitating the adoption of MAIs

Factor	N	Sum	Mean	Rank
Using computer systems for MA purposes	103	454	4.41	1
Top management support	103	436	4.23	2
Management accounting training programmes	103	419	4.07	3
The arrival of new accountants	103	407	3.95	4
The availability of adequate accounting staff	103	407	3.95	5
The authority attributed to the accounting function	103	400	3.88	6
Company size	103	397	3.85	7
Accounting education in Libya	103	396	3.84	8
Adequate financial resources	103	386	3.75	9
The competitiveness of the market	103	381	3.70	10
Headquarters and government regulation	103	381.00	3.69	11
Production technology	103	368	3.57	12
Accounting research in Libya	103	357	3.47	13
Conferences, seminars and workshops	103	357	3.47	14
Co-operation between universities (academics) and companies (professionals)	103	348	3.38	15
Specialist Management accounting journals	103	321	3.12	16
Professional accounting bodies in Libya	103	305	2.96	17
Deterioration in profitability	103	301	2.92	18
Product's cost structure	103	288	2.80	19
The loss of market share	103	279	2.71	20
Company structure	103	150	1.46	21
Valid N (list wise)	103			

To assess the influence of the factors that belong to contingency and institutional theories on the adoption of MAIs within Libyan organisations, the factors were divided into two groups as it shown in table 6.31, which contains contingent factors, and table 6.32, which contains institutional factors. It can be seen from table 6.31 that there are 9 factors related to contingency theory which have significant influence on adopting MAIs with mean values ranges between 3.57 to 4.41. Moreover, 8 of these factors are among the top ten factors that have most influence on the adoption of MAIs process.

Table 6. 31 Contingency factors

Factor	Mean	Rank
Using computer systems for MA purposes	4.41	1
Top management support	4.23	2
The arrival of new accountants	3.95	4
The availability of adequate accounting staff	3.95	5
The authority attributed to the accounting function within the organization	3.88	6
Company size	3.85	7
Adequate financial resources	3.75	9
The competitiveness of the market	3.70	10
Production technology	3.57	12
Deterioration in profitability	2.92	18
Product cost structure	2.80	19
The loss of market share	2.71	20
Company structure (Centralisation and Decentralisation)	1.46	21

With regard to factors related to institutional theory, table 6.32 shows the mean values and ranks of these factors. The mean value in this group ranges between 4.07 and 2.96, which is lower than the mean value of contingency group. Moreover, there are just 2 institutional factors among the top ten factors that have most influence on adopting MAIs with in Libyan organisations and ranked 3 and 8, while the other 6 factors ranked between 11 and 17.

Table 6. 32 Institutional factors

Factor	Mean	Rank
Management accounting training programmes	4.07	3
Accounting education in Libya	3.84	8
Headquarters and governmental regulations	3.69	11
Accounting research in Libya	3.47	13
Conferences, seminars and workshops	3.47	14
Co-operation between universities (academics) and companies (professionals)	3.38	15
Specialist Management accounting journals	3.12	16
Professional accounting bodies in Libya	2.96	17

This result gives the implication that the contingency factors are the most influential facilitators in the adoption and implementation process.

This result is consistent with Leftesi's (2008) study. He found that the dominant motivations that affect the adoption of MAIs in Libyan manufacturing companies are related to the

demand side, followed by institutional. In the same context, Alkizza (2006) suggested similar findings when he found that the availability of moderately skilled accountants and adequate financial resources, the authority of accountants, and encouraging top management are the facilitators that help most in MA change in the Libyan context.

6.7.2 Factors impeding the adoption of MAIs

Table 6.33 shows the details of 103 questionnaires testing 21 factors that might impede the adoption of MAIs. The ranking of these factors is based on the mean value and it shows that 8 factors belonging to contingency theory and 2 factors belonging to institutional theory make up the top 10 factors that may impede the adoption of MAIs.

Table 6. 33 Factors impeding the adoption of MAIs

Factor	N	Sum	Mean	Rank
Lack of skilled employees	103	430	4.17	1
Lack of local training programmes in MAIs	103	423	4.11	2
Lack of support from top management	103	415	4.03	3
Lack of software packages relevant to MAIs	103	411	3.99	4
Lack of courses related to MAIs in academic institutions	103	401	3.89	5
Lack of employee awareness of the benefits of MAIs	103	392	3.81	6
Lack of confidence in the value of MAIs	103	381	3.70	7
Lack of the competitiveness of the market	103	371	3.60	8
Centralisation	103	367	3.56	9
Lack of trust in change	103	357	3.47	10
Lack of financial resources	103	351	3.41	11
Headquarters and governmental regulations	103	348	3.38	12
Lack of decision making autonomy at lower levels	103	339	3.29	13
Company size	103	331	3.21	14
Lack of management accounting research in Libya	103	329	3.19	15
Lack of conferences, seminars and workshops about MAIs	103	322	3.13	16
Lack of co-operation between universities (academics) and companies (professionals)	103	318	3.09	17
Lack of up to date publications about MAIs	103	306	2.97	18
Lack of an active MA society	103	303	2.94	19
Complexity of MAIs	103	289	2.81	20
High operational cost of MAIs	103	287	2.79	21
Valid N (list wise)	103			

To assess the impact of the contingency and institutional factors in terms of impediment, all factors were grouped in two tables. Table 6.34 comprises a group of factors that belong to the contingency factors and table 6.35 contains factors that belong to institutional factors.

Table 6. 34 Factors impeding the adoption of MAIs (contingency factors)

Factor	Mean	Rank
Lack of skilled employees	4.17	1
Lack of support from top management	4.03	3
Lack of software packages relevant to MAIs	3.99	4
Lack of employee awareness of the benefits of MAIs	3.81	6
Lack of confidence in the value of MAIs	3.70	7
Lack of the competitiveness of the market	3.60	8
Centralisation	3.56	9
Lack of trust in change	3.47	10
Lack of financial resources	3.41	11
Lack of decision making autonomy at lower levels	3.29	13
Company size	3.21	14
Complexity of MAIs	2.81	20
High cost of MAIs implementation	2.79	21

The contingency factors group contains 13 factors that have mean value ranges between 2.79 and 4.17 and 11 out of 13 have a significant influence in terms of hindering the adoption of MAIs with mean values from 3.21 to 4.17. Solely 2 factors (Complexity of MAIs, and High cost of MAIs implementation) were considered to have a low influence in the adoption of MAIs with a mean value of 2.81 and 2.79 respectively.

On the other hand, the institutional group (table 6.35) contains 8 factors with mean value ranges between 2.94 to 4.11. In this group, 6 factors have an important impact on the adoption process of MAIs with mean values between 3.09 and 4.11, while 2 factors do not have strong impact as they have mean value less than 3.0.

Table 6. 35 Factors impeding the adoption of MAIs (Supply side)

Factor	Mean	Rank
Lack of local training programmes in MAIs	4.11	2
Lack of courses related to MAIs in academic institutions.	3.89	5
Headquarters and governmental regulations	3.38	12
Lack of management accounting research in Libya	3.19	15
Lack of conferences, seminars and workshops about MAIs	3.13	16
Lack of co-operation between universities (academics) and companies (professionals)	3.09	17
Lack of up to date publications about MAIs	2.97	18
Lack of an active MA society	2.94	19

With regard to impediment, the influence of contingent factors is relatively higher than that of institutional factors according to the mean values. Just as factors that facilitate the adoption of MAIs are dominated by the contingent factors having a higher influence than institutional factors, the same is true for impeding factors.

This result is consistent with Alkizza (2006) study where he reported that the loss of market share and poor financial performance were the catalysts of change. On the other hand, this result is inconsistent with the studies conducted by Leftesi (2008) and Abulghasim (2006)**,** both studies found that institutional factors have higher influence than other factors with regard to factors impeding the adoption of MAIs.

6.8 Summary

This chapter gives details obtained from the 103 useable questionnaire forms that describe the participants' personal information and information about their companies. These companies represent the manufacturing and non-manufacturing sectors in order to achieve the study's objectives descriptively.

The first question is to assess the adoption rate of traditional and advanced MAPs in manufacturing and non-manufacturing Libyan companies. In order to answer this question, 31 TMAPs were chosen from the relevant literature, and classified into 5 groups. The results show that all MAPs are in use and the adoption rate of traditional MAPs is classified into 3 categories namely; highly adopted MAPs, moderately adopted MAPs, and low adopted MAPs. Moreover, the results found that the adoption rate of TMAPs is lower than that found in previous studies in other developing countries and in Libya.

The findings also show that the adoption rate of TMAPs differs from one group to the other. The highest group in terms of the adoption rate is budgeting and control, followed by performance evaluation, capital investment appraisal comes third. The lowest adoption rate among these groups is the decision support group.

The second part of question one is to assess MAIs in manufacturing and non-manufacturing Libyan companies. The adoption rate of MAIs in this study is lower than the adoption rate of TMAPs. Although the adoption rate of MAIs is low, however, it is higher than the adoption rate of previous studies conducted in the Libyan context. The second question was posed to explore factors that may impede or facilitate the adoption of MAIs in Libyan firms.

Regarding factors influencing the adoption of MAIs, factors were divided into two types; factors that facilitate and factors impede the adoption of MAIs. Factors facilitating the adoption of MAIs comprise 21 variables and factors impeding the adoption of MAIs also comprise 21 variables.

The results indicated that the most facilitating factors were: Using computer systems for MA purposes, top management support, MA training programmes. In terms of factors impeding the adoption of MAIs, the most important were: Lack of skilled employees, Lack of local training programmes in MAIs, Lack of support from top management.

Chapter Seven: Empirical Analysis and Hypotheses Test

7.1 Overview

This chapter is devoted to the testing of the study's hypothesis. It comprises seven sections starting with the introduction, followed by the assumptions relating to hypothesis analysis. The third section reviews the method of data analysis. Section four presents the hypotheses testing through testing hypotheses relating to the contingency variables, hypotheses relating to institutional variables, and hypotheses relating to a combination of contingency & institutional factors. The fifth section reviews the analysis of the interviews. The sixth section discusses the results and the final section is the summary.

7.2 Assumptions of hypotheses analysis

There are some statistical assumptions to be tested before starting the main analysis in order to avoid any unwanted results related to distortion or bias. The main assumptions discussed in this section are normality, and multicollinearity.

7.2.1 Normality

Normality refers to the normal distribution of collected data. According to Hair et al. (2009) there are two types of statistical methods related to normality tests namely univariate normality (for a single variable) and multivariate normality (a combination of two or more variables) . The collected data can be measured using SPSS software through Kolmogorov-Smirnov and Shapiro-Wilk tests. If the result indicates that the sig value is greater than or equal to 0.05, this means that the distribution of the collected data is normal. On the other hand, if the sig value is less than 0.05, it indicates that the distribution of the sample under test is non- normal (Fields, 2005).

Seven dependent variables were tested and the result as illustrated in table 7.1 show that none of them has a sig value greater than or equal to 0.05. Therefore, the assumption of normality does not apply.

Table 7. 1 Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ABC	.246	103	.000	.838	103	.000
ABM	.325	103	.000	.778	103	.000
BSC	.334	103	.000	.812	103	.000
TC	.359	103	.000	.781	103	.000
Life-cycle costing	.369	103	.000	.753	103	.000
Benchmarking	.330	103	.000	.755	103	.000
Kaizen costing	.340	103	.000	.767	103	.000

Furthermore, and in order to measure normality statistically, both Skewness and Kurtosis tests were conducted. Hair et al. (2009) contend that in order to consider the distribution as normal, the Skewness and Kurtosis values must equal zero. Therefore, values above or below zero indicates a departure from normality. In this study, these values for dependent variables did not equal zero as is shown in table 7.2.

Table 7. 2 Test of skewness and kurtosis

Technique	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ABC	103	3.69	1.858	.036	.238	-1.566	.472
Kaizen costing	103	2.84	1.919	.761	.238	-1.067	.472
Benchmarking	103	2.83	1.997	.720	.238	-1.205	.472
TC	103	2.79	1.684	.922	.238	-.558	.472
Life-cycle costing	103	2.50	1.596	1.212	.238	.259	.472
BSC	103	2.47	1.454	.937	.238	-.263	.472
ABM	103	2.44	1.619	1.126	.238	.079	.472

After conducting normality tests, the result indicates that the distribution of sample is non-normal and the non-normality has a bad effect on the sample. However, Hair et al. (2009) claim that the negative effects of non-normality on a small sample size (less than 30) could have a substantial effect on the result. On the other hand, large sample size increases the statistical power because of sampling error reduction. Thus, this study with 103 cases can be considered a larger sample size; therefore, the negative impact from non-normality may be negligible.

7.2.2 Multicollinearity

Multicollinearity is the degree to which the other variables can explain a variable in the analysis (Hair et al. 2009). Moreover, multicollinearity shows to what extent there is correlation between the independent variables. A problem results during assessing the significance of each independent variable if there is a strong correlation between two variables. Therefore, this assumption should be tested before undertaking regression analysis. Variance inflation factor (VIF) tests and tolerance are the main measures to check multicollinearity. Tolerance can be defined as the amount of variability of the selected independent variable not explained by the other independent variables, while the VIF is the opposite of the tolerance value. Moreover, Hair et al. (2009) suggest that the value of the VIF should not exceed 10 to be acceptable, and the value of tolerance should be more than 0.1.

This study employed the tolerance and VIF tests to assess multicollinearity. The result indicates that the values of VIF for all independent variables were less than 10 and no value of tolerance was recorded below 0.1. Table 7.3 shows all details of the independent values. Therefore, the assumption of Multicollinearity is met.

Table 7. 3 Multicollinearity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-1.04	1.854		-.561	.576		
Business dependency	.011	.426	.003	.025	.980	.673	1.487
Employees number	.132	.172	.080	.764	.447	.803	1.245
The availability of adequate accounting staff	-.100	.228	-.053	-.441	.661	.621	1.610
Using computer systems for MA purposes	-.004	.304	-.002	-.012	.990	.594	1.684
The authority attributed to the accounting function	.260	.281	.115	.927	.357	.577	1.733
The competitiveness of the market	.251	.211	.145	1.189	.238	.596	1.677
Production technology	.145	.200	.090	.723	.472	.574	1.743
Product's cost structure	-.050	.186	-.033	-.267	.790	.572	1.747
The loss of market share	.099	.279	.067	.355	.724	.246	4.063
Arrival of new accountants	.399	.208	.222	1.920	.058	.665	1.503
Deterioration in profitability	-.010	.269	-.007	-.038	.969	.278	3.604

	Top management support	.139	.266	.063	.522	.603	.611	1.638
	Adequate financial resources	-.306	.236	-.174	-1.298	.198	.479	2.089
	Conferences, seminars and workshops	.216	.260	.131	.831	.409	.356	2.813
	Co-operation between universities & companies	-.173	.264	-.116	-.658	.513	.283	3.529
	Accounting research in Libya	-.256	.315	-.154	-.811	.420	.246	4.067
	Accounting education in Libya	-.208	.262	-.125	-.795	.429	.357	2.800
	Management accounting training programmes	.667	.227	.364	2.946	.004	.581	1.721
	Adequate financial resources	-.341	.240	-.193	-1.419	.160	.477	2.095
	Professional accounting bodies in Libya	-.142	.195	-.102	-.728	.469	.451	2.218
	Headquarters and government regulation	.110	.232	.053	.476	.635	.727	1.376

7.3 Data Analysis Methods

There are two types of data analysis methods, parametric and non-parametric methods. Researchers use the parametric method when the data is normally distributed, the sample size is large, and the type of data is metric. On the other hand, Wu (2003, pp. 6-31) argues that there are many reasons supporting the use of non-parametric tests in analysing data.

> **First**, non-parametric tests are the most appropriate tests when the data constitutes sets of ranks or are nominal data.
> **Second**, non-parametric tests make relatively few assumptions about population distributions and thus it is always safe to use them.
> **Third**, non-parametric tests are likely to be the only method that can be used where the sample size is very low unless the distribution of the population is known exactly.
> **Fourth**, non-parametric tests are also much easier to learn, apply and interpret than parametric tests.
> **Fifth**, non-parametric tests have considerable advantages in terms of efficiency and validity when the assumption of normality is not satisfied.
> **Sixth**, if the data are measurements at the ordinal level in the first place, as with sets of ranks, or nominal data, a nonparametric test is the only possibility.

Building on the above discussion, and because of the departure from normality, in addition to which most of the questions were measured on an ordinal scale, this study used non-

parametric tests to analyse the collected data. Spearman's correlation coefficient test was used to find the strength and direction of the relationship between the variables.

Regression analysis is used even though it is a parametric test because there is no non-parametric equivalent test that examine the study hypotheses. Multiple regression analysis models are employed aiming to test hypotheses that assumed prospect factors that influence the adoption of MAIs.

7.4 Hypotheses testing

To test whether the proposed hypotheses were true or not, multiple regressions were undertaken. Independent variables were divided into three groups; variables related to the contingency theory, variables related institutional theory, and variables related to a combination of both types of variables.

7.4.1 Correlation Analysis

Correlation analysis was used in order to describe the strength and direction of the linear relationship between two variables (Pallant, 2007, pp. 126).

The range of correlation coefficients (r) was between -1 and +1. When the correlation coefficient equals +1 or -1, this means that correlation between two variables is perfect. However, when the correlation coefficient equals zero, this means that there is no relationship between two variables under test. Table 7.4 illustrates the strength of the relationship between variables.

Table 7. 4 Pallant's Guidelines on correlation strength

(r) value	Strength of relationship
r = +/- 0. l0 to +/- 0.29	Small
r = +/- 0.30 to +/- 0.49	Medium
r = +/- 0.50 to +/- l.00	Large

Source: Pallant (2007, p. 132)

Correlation analysis was undertaken in order to attain some understanding of the relationship between different variables employed in this study. The correlation test used in this study is Spearman's correlation coefficient. The rationale behind choosing this test was because most collected data is ordinal or ranked. In addition, the distribution of sample data is non-normal.

Table 7. 5 Non-parametric correlation (Spearman's rho) for Contingency variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Company structure	1												
Company Size	.287	1											
Availability of adequate staff	-.104	-.049	1										
Using computer systems for MA	.139	.174	.355	1									
Authority attributed to Accounting	.095	.072	.088	.358	1								
Competitiveness of the market	.010	.009	.170	.267	.322	1							
Production technology	-.266	-.111	.290	.205	.062	.373	1						
Production cost structure	.167	.141	.175	.367	.334	.311	.201	1					
The loss of market share	.071	-.021	.076	.096	.079	.355	.268	.432	1				
Arrival of New accountants	.036	-.105	.281	.206	.124	.255	.065	.205	.262	1			
Deterioration in profitability	.092	-.042	.072	.090	.078	.281	.276	.347	.834	.192	1		
Top management support	-.074	-.250	.333	.198	.079	.211	.208	.048	.063	.379	.133	1	
Adequate financial resources	.067	.116	.212	.254	.470	.222	.201	.342	.244	.094	.257	.039	1

Tables 7.5 and 7.6 show the output of the non-parametric correlation test (Spearman's rho) It can be seen from table 7.5 that the correlation between the independent variables (contingency factors) is between (0.009 and 0.834), this means that the strength of relationship between the independent variable is ranging between small to large and the majority of these relationships were small or medium. The highest correlation value is (0.834) between the loss of market share and deterioration in profitability. This means that there is a strong positive relationship between these two variables, while the lowest correlation value was (.009) between competitiveness of the market and company size.

Table 7.6, contains the correlation for institutional variables. The strength of the correlation relationship is between (.001 and .729). The result shows that the relationship between institutional variables is stronger than that between contingency variables as the strength

between institutional variables mostly ranges between medium and large. Furthermore, the highest correlate relationship (.729) is between co-operation between universities and companies and conferences, seminars & consultations & workshops. while the lowest correlate relationship was between headquarters and governmental regulations and accounting research in Libya.

Table 7. 6 Nonparametric correlation (Spearman's rho) for Institutional Variables

Variable	1	2	3	4	5	6	7	8
Conferences, seminars & consultations & workshops	1							
Co-operation between universities and companies	.729	1						
Accounting research in Libya	.581	.707	1					
Accounting education in Libya	.389	.476	.707	1				
Management accounting training programmes	.160	.276	.369	.502	1			
Professional accounting bodies in Libya	.457	.489	.519	.330	.164	1		
Headquarters and governmental regulations	.195	.020	.001	.145	.086	.171	1	
Specialist Management accounting journals	.584	.589	.490	.260	-.026	.626	.115	

7.4.2 Hypotheses Testing

Prior to conducting hypotheses tests, it is important to see whether the sample size of this study is satisfactory or not. Pallant (2007) contends that a small sample size is when the number of cases is less than 50, whereas a large sample refers to the sample when the number of cases is more than 100. In order to generalise the findings of this study the ratio of respondents to independent variables is important. In this context, Hair et al. (2009) contend that for each independent variable, there must be four respondents to one as a minimum acceptable ratio, and the desirable ration is between 10 and 20 respondents for 1 independent variable. The ratio in this study is about 5:1 and thus the acceptable level of the ratio of the respondents (cases) to independent variables is met.

7.4.2.1 Multiple Regression Analysis relating to contingency factors

Multiple regression analysis is used to test the relationship between a single dependent variable and a set of independent variables (Hair, 2009). In addition, before conducting a multiple regression, it is important to consider the following statistical criteria (Hair, Tatham, Anderson, & Black, 1998):

1- Get the measure of the statistic of overall regression by finding the F value. The P values are considered significant when they are less than 0.05.

2- When the result is found significant, the next step is to assess the relationship between the independent and dependent variables by using R^2 value. R^2 shows the variation's amount of all independent variables associated together. The value of R^2 ranges between 0 and +1.0.

3- The coefficient (beta) represents the impact of the size and the direction (+ or -) of the independence on the dependent variable. The greater impact of the independent variables on dependent variable produces a high beta value.

In this study, the set of independent variables were divided into two groups; a contingency group, and an institutional group. The effect of these two groups on every dependent variable was examined. A third group was added in order to find the influence of both groups when employed together on the dependent variables.

Each group of independent variables represents a separate model, and every single model shows the effect of independent variables on the seven dependent factors. The rationale behind using a multiple regression technique was an attempt to answer the following questions: What is the effect of the independent variables when they used collectively on the

adoption of MAIs? What are the main factors that explain the process of the adoption of MAIs?

Activity-Based Costing

Starting with hypotheses testing, in this model, multiple regression analysis was conducted by testing the effect of the thirteen contingency factors on each of the seven dependent variables starting with ABC and ending with Kaizen. The hypothesis H1 assumes that there is a positive relationship between contingency factors and adopting ABC.

H1: There is a positive relationship between the contingency factors and the adoption of ABC

From table 7.7, the result of multiple regression analysis between the thirteen independent variables and ABC as a dependent variable shows that there are three independent variables that have sig value less than 0.05, which means that this model is significant enough to explain the relationship between the independent variable and the dependent variable (ABC). There are three predictors namely: the arrival of competent accountants, adequate financial resources, and the competitiveness of the market. The sig value of these predictors is 0.028, 0.044, and 0.038 respectively, and the values of R^2 are: 0.047, 0.085, and 0.124 respectively. This means that the arrival of competent accountants accounts for 4.7% of the adoption variance, adequate financial resources accounts for 8.5%, and the competitiveness of the market accounts for 12.4% of the adoption variance. Accordingly, this model is significantly able to predict the independent variable that led to adoption of ABC and H1 is accepted.

Table 7. 7 ABC model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.217[a]	.047	.038	1.823	.047	4.987	1	101	.028
2	.292[b]	.085	.067	1.795	.038	4.169	1	100	.044
3	.353[c]	.124	.098	1.765	.039	4.430	1	99	.038
a. Predictors: (Constant), the arrival of competent accountants									
b. Predictors: (Constant), the arrival of competent accountants, adequate financial resources									
c. Predictors: (Constant), the arrival of competent accountants, adequate financial resources, the competitiveness of the market									

Activity-Based Management

The second hypothesis was formulated as follows:

H2: There is a positive relationship between the contingency factors and the adoption of ABM.

Table 7.8 shows the result of multiple regression analysis between the thirteen independent variables and ABC as a dependent variable. There are two independent variables having a sig value less than 0.05 namely: the loss of market share, and using computer systems for MA purposes. Furthermore, R^2 = 0.081 and 0.117 respectively which means that the percentage of both variables; 8.1% for the loss of market share and 11.75 for using computer systems for MA purposes are good enough to predict the dependent variable, and this model is valid to explain the relationship between the independent variables and ABM. Accordingly, H2 is accepted.

Table 7. 8 ABM model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.283[a]	.080	.071	1.560	.080	8.788	1	101	.004
2	.342[b]	.117	.099	1.536	.037	4.200	1	100	.043
a. Predictors: (Constant), the loss of market share									
b. Predictors: (Constant), the loss of market share, using computer systems for MA purposes									

Balanced scorecard

The third hypothesis was formulated as follows:

H3: There is a positive relationship between the contingency factors and the adoption of BSC.

Statistical result in table 7.9 shows that the loss of market share has R^2 value = .041, and F value = 4.315 which is significant with sig = 0.040. All these values are considered valid to explain the relationship between the independent variables and adopting BSC led to the acceptance of H3.

Table 7. 9 BSC Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.202[a]	.041	.031	1.431	.041	4.315	1	101	.040
a. Predictors: (Constant), the loss of market share									

Target costing (TC)

The fourth hypothesis was formulated as follows:

H4: There is a positive relationship between the contingency factors and the adoption of TC**.**

Table 7.10 comprises the result of the multiple regression analysis regarding contingency variables and TC. The result indicates that the value of F= 0.457 and the value of R^2= 0.063 which means that the predictors can only explain 6.3% of the change, in addition the value of Sig= 0.943 which is much bigger than 0.050. According to this result, this model is not valid to explain the relationship between the independent variables and adopting TC. Therefore, H4 is rejected

Table 7. 10 TC Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.250[a]	.063	-.074	1.746	.063	.457	13	89	.943
a. Predictors: (Constant), Top management support, company size, adequate financial resources, company structure, the loss of market share, using computer systems for MA purposes, arrival of competent accountants, the competitiveness of the market, the availability of adequate accounting staff, product's cost structure, the authority attributed to the accounting function, production technology, deterioration in profitability									

Life cycle costing (LCC)

The fifth hypothesis was formulated as follows:

H5: There is a positive relationship between the contingency factors and adopting LCC.

Similarly, table 7.11 presents the results of the analysis process. In a glance, none of the independent variables has sig value below 0.50. The model summary shows overall values of

all the independent variables in this test. The value of R^2= 0.089 is not significant to predict the dependent variable with overall sig= 0.785. This model is not valid to explain the relationship between the independent variables and adoption of LCC. Thus, H5 is rejected.

Table 7. 11 Life-cycle costing Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.299[a]	.089	-.044	1.630	.089	.672	13	89	.785

a. Predictors: (Constant), Top management support, company size, adequate financial resources, company structure, the loss of market share, using computer systems for MA purposes, arrival of competent accountants, the competitiveness of the market, the availability of adequate accounting staff, Product's cost structure, the authority attributed to the accounting function, Production technology, Deterioration in profitability

Benchmarking

The sixth hypothesis was formulated as follows:

H6: There is a positive relationship between the contingency factors and adopting Benchmarking.

From table 7.12, it can be seen that the result of the multiple regression analysis between the thirteen independent variables and Benchmarking as a dependent variable shows that the sig = 0.495, the F value = 0.962, R^2 = 0.123. Although the value of R^2 at 0.123 means that the contingent variables are accounts for 12.3 % of the adoption variance, the sig value 0.495 is still far higher than the required value to make H6 acceptable. Consequently, the model is un able to predict the dependent variable and H6 is rejected.

Table 7. 12 Benchmarking Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.351[a]	.123	-.005	2.002	.123	.962	13	89	.495

a. Predictors: (Constant), top management support, adequate financial resources, company structure, the loss of market share, using computer systems for MA purposes, company size, arrival of competent accountants, the competitiveness of the market, the availability of adequate accounting staff, Product's cost structure, the authority attributed to the accounting function, production technology, deterioration in profitability

Kaizen

The seventh hypothesis was formulated as follows:

H7: There is a positive relationship between the contingency factors and the adoption of Kaizen.

In the same vein, table 7.13 contains the results of the multiple regression analysis with regard to contingency variables and Kaizen. The result indicates that there are two independent variables that have significant impact on adopting Kaizen. The first variable is "using computer systems for MA purposes", with the value of F= 11.944 and the value of R^2= 0.106, and sig = 0.001. This means that this predictor can explain 10.6 % of the change, in addition the value of Sig= .001 is far below 0.050. The second variable that has significant effect on adopting Kaizen is "production technology", with an F value = 5.886, R^2 = 0.155 which account for 15.5% of the adoption process, and finally the sig value of this variable = 0.017 which significant. Accordingly, this model is valid to explain the relationship between the independent variables and adopting Kaizen. Therefore, H7 is accepted.

Table 7. 13 Kaizen Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.325[a]	.106	.097	1.823	.106	11.944	1	101	.001
2	.394[b]	.155	.139	1.781	.050	5.886	1	100	.017
a. Predictors: (Constant), Using computer systems for MA purposes									
b. Predictors: (Constant), Using computer systems for MA purposes, Production technology									

To sum up, table 7.14 summaries the influence of contingency factors as independent variables on the chosen seven MAIs as dependent variables. The test was conducted to examine the collective influence of a group of thirteen independent variables on each variable of MAIs separately.

Table 7. 14 Hypotheses' test summary

Hypothesis	MAIs	The result	The key influential variables (predictors)
H1	ABC	Accepted	The arrival of competent accountants, adequate financial resources, and the competitiveness of the market
H2	ABM	Accepted	The loss of market share, and Using computer systems for MA purposes
H3	BSC	Accepted	The loss of market share
H4	TC	Rejected	None
H5	Life cycle costing	Rejected	None
H6	Benchmarking	Rejected	None
H7	Kaizen	Accepted	Using computer systems for MA purposes, and Production technology

The result indicates that three hypotheses were rejected namely; H4, H5, H6, while four hypotheses were accepted namely; H1, H2, H3, H7. This means that the contingency variables are not responsible for adopting all MAIs employed in this study. However, contingency variables have an important influence in adopting more than half (57%) of MAIs in this study. The following section looks at the test of the influence of institutional variables on adopting MAIs.

7.4.2.2 Multiple regression analysis relating to institutional factors

The institutional factors' group comprises eight independent variables namely; Conferences, seminars and workshops, co-operation between universities (academics) and companies (professionals), accounting research in Libya, accounting education in Libya, management accounting training programmes, professional accounting bodies in Libya, headquarters and government regulation, specialist management accounting journals. This group of variables was used to test hypotheses eight to fourteen as follows:

ABC

The eighth hypothesis was formulated as follows:

H8: There is a positive relationship between the institutional variables and the adoption of ABC.

To test this hypothesis a multiple regression analysis was undertaken and the result is shown in table 7.15. The result shows that there are two institutional variables which have

significant values that lead to adopting ABC as follows: the first variable, "specialist management accounting journals" has R^2 value = 0.089 which means that the independent variable is account for 8.89 %, and the value of F = 9.881 and the value of sig = 0.002 which is less than 0.05.

The second variable "management accounting training programmes" has R^2 value = 0.125 which means that the independent variable accounts for 12.5 %, and the value of F = 4.066 and sig = .046 which is also less than 0.05. Therefore, H8 is accepted.

Table 7. 15 Model Summary ABC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.299[a]	.089	.080	1.782	.089	9.881	.002
2	.353[b]	.125	.107	1.755	.036	4.066	.046
a. Predictors: (Constant), specialist management accounting journals							
b. Predictors: (Constant), specialist management accounting journals, MA training programmes							
c. Dependent Variable: Activity-Based Costing							

ABM

The ninth hypothesis was formulated as follows:
H9: There is a positive relationship between institutional factors and the adoption of ABM.

This hypothesis assumes that there is a positive relationship between institutional variables and the adoption of ABM techniques. Table 7.16 illustrates that the variable "Conferences, seminars, consultations, and workshops" has a value of R^2 = 0.044, the F value is 4.644 and sig = 0.034. These values support the idea of this hypothesis and this model is valid to explain the relationship between the independent variables and adopting ABM. Therefore, H9 is accepted.

Table 7. 16 Model Summary ABM

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.210[a]	.044	.034	1.591	.044	4.644	.034
a. Predictors: (Constant), conferences, seminars, consultations, and workshops							
b. Dependent Variable: Activity-Based Management							

BSC

The tenth hypothesis was formulated as follows:
H10: There is a positive relationship between institutional factors and the adoption of BSC.

In the same context, this hypothesis assumes that the adoption of BSC can be explained by institutional factors. The multiple regressions analysis' result in table 7.17 shows that the variable "headquarters and government regulation" has an R^2 value = 0.044 which means that the institutional factors are responsible for 4.4% of the adoption. In addition, the sig value is = 0.034, and this value is less than 0.05. Thus, this model is valid to explain the relationship between the independent variables and adopting BSC and this hypothesis is accepted.

Table 7. 17 Model Summary BSC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.209[a]	.044	.034	1.429	.044	4.632	.034
a. Predictors: (Constant), Headquarters and government regulation							

TC

The eleventh hypothesis was formulated as follows:

H11: There is a positive relationship between institutional factors and the adoption of TC.

The result in table 7.18 related to hypothesis 11 shows that the institutional variables do not have a significant impact on the adoption of TC. As can be seen the F value is 0.592, R^2 = 0.048, and the sig value is 0.783. This model is not valid to explain the relationship between the independent variables and adopting TC.

Table 7. 18 Model Summary TC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.219[a]	.048	-.033	1.712	.048	.592	8	94	.783
a. Predictors: (Constant), Specialist management accounting journals, management accounting training programmes, headquarters and government regulation, accounting education in Libya, conferences, seminars and workshops, professional accounting bodies in Libya, co-operation between universities (academics) and companies (professionals), accounting research in Libya									

It is useful to see from table 7.19 that the coefficients related to all institutional variables and none of them have a sig value equal or less than 0.05. Therefore, H11 is rejected.

Table 7. 19 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.722	1.045		2.606	.011
	Professional accounting bodies in Libya	-.168	.178	-.133	-.942	.349
	Headquarters and government regulation	.015	.207	.008	.072	.943
	Specialist Management accounting journals	-.031	.195	-.024	-.159	.874
	Conferences, seminars and workshops	.122	.238	.082	.511	.610
	Co-operation between universities (academics) and companies (professionals)	.088	.242	.065	.362	.718
	Accounting research in Libya	.051	.280	.034	.183	.855
	Accounting education in Libya	.215	.237	.143	.907	.367
	Management accounting training programmes	-.275	.209	-.165	-1.318	.191
a. Dependent Variable: Target Costing						

LCC

The twelfth hypothesis was formulated as follows:

H12: There is a positive relationship between institutional factors and the adoption of life cycle costing.

This hypothesis supposes that the institutional factors positively influence the adoption of life cycle costing. From table 7.20, we can see that F value is 0.569, $R^2 = 0.046$, sig = 0.801. This result indicates that these values will not be accepted as showing a positive relationship between institutional factors and the adoption of life cycle costing.

Table 7. 20 Model Summary LCC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.215[a]	.046	-.035	1.623	.046	.569	.801
a. Predictors: (Constant), Specialist management accounting journals, management accounting training programmes, headquarters and government regulation, accounting education in Libya, conferences, seminars and workshops, Professional accounting bodies in Libya, co-operation between universities (academics) and companies (professionals), accounting research in Libya							

For more details, table 7.21 brows Beta, t, and sig value for all institutional factors separately. From this table, it can be seen clearly that different values of all factors do not support the idea of adopting LCC. Thus, H12 is rejected.

Table 7. 21 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.712	.991		1.728	.087
	Professional accounting bodies in Libya	-.174	.169	-.146	-1.029	.306
	Headquarters and government regulation	.175	.197	.097	.892	.375
	Specialist Management accounting journals	.125	.185	.104	.674	.502
	Conferences, seminars and workshops	.220	.226	.156	.976	.332
	Co-operation between universities (academics) and companies (professionals)	-.230	.230	-.180	-1.002	.319
	Accounting research in Libya	.056	.265	.039	.210	.834
	Accounting education in Libya	-.173	.225	-.121	-.769	.444
	Management accounting training programmes	.183	.198	.116	.925	.357
a. Dependent Variable: Life-cycle costing						

Benchmarking

The thirteenth hypothesis was formulated as follows:

H13: There is a positive relationship between institutional factors and the adoption of benchmarking.

This hypothesis assumes that the institutional factors effect positively the adoption of benchmarking. The result in table 7.22 shows that two institutional factors have sig values that help to adopt benchmarking namely; professional accounting bodies in Libya, and management accounting training programmes. Professional accounting bodies in Libya has F value= 5.479, R^2 = 0.051, and sig = 0.021. while “management accounting training

programmes" has an F value = 7.419, R^2 = 0.117, and sig = 0.008. According to these values, this model is able to predict the dependent variable (benchmarking) and H13 is accepted.

Table 7. 22 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.227[a]	.051	.042	1.955	.051	5.479	.021
2	.342[b]	.117	.099	1.895	.066	7.419	.008
a. Predictors: (Constant), professional accounting bodies in Libya							
b. Predictors: (Constant), professional accounting bodies in Libya, MA training programmes							
c. Dependent Variable: Benchmarking							

Kaizen

The fourteenth hypothesis was formulated as follows:

H14: There is a positive relationship between institutional factors and the adoption of Kaizen.

In table 7.23, the F value = 0.627, R^2 = 0.051, and sig = 0.753, the institutional variables account for just 5.1% of the variance of the dependent variable, in addition, the sig value is far higher than would show that is facilitates the adoption of Kaizen. Therefore, this model is not valid to explain the relationship between the independent variables and adopting Kaizen.

Table 7. 23 Model Summary Kaizen

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.225[a]	.051	-.030	1.947	.051	.627	.753
a. Predictors: (Constant), Management accounting training programmes, Specialist Management accounting journals, Headquarters and government regulation, Accounting education in Libya, Conferences, seminars and workshops, Professional accounting bodies in Libya, Co-operation between universities (academics) and companies (professionals), Accounting research in Libya							
b. Dependent Variable: Kaizen costing							

For further analysis, table 7.24 gives clear trends to values of Beta, t, and sig for every single institutional factor. The result in table 7.24 indicates that institutional factors do not influence positively the adoption of Kaizen costing. Therefore, H14 is rejected.

Table 7. 24 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.747	1.188		2.312	.023
	Professional accounting bodies in Libya	-.228	.203	-.158	-1.122	.265
	Headquarters and government regulation	-.305	.236	-.141	-1.294	.199
	Specialist Management accounting journals	.284	.222	.197	1.280	.204
	Conferences, seminars and workshops	.223	.271	.131	.824	.412
	Co-operation between universities and companies (professionals)	-.075	.275	-.049	-.274	.785
	Accounting research in Libya	-.151	.318	-.088	-.474	.637
	Accounting education in Libya	.005	.270	.003	.019	.985
	Management accounting training programmes	.246	.238	.130	1.037	.303
a. Dependent Variable: Kaizen costing						

To sum up, table 7.25 summarises the findings of undertaking a multiple regression analysis to investigate the collective influence of institutional factors on seven dependent variables (MAIs). The test focused on every dependent variable by putting them separately in seven hypotheses numbered from H8 to H14. The result shows that there are four hypotheses were accepted (H8, H9, H10, H13) related to institutional factors' group while other three hypotheses (H11, H12, H14) were rejected.

Table 7. 25 Hypotheses' test summary

Hypothesis	**MAIs**	**The result**	**The key influential variables (predictors)**
H8	ABC	Accepted	Specialist Management accounting journals, and management accounting training programmes
H9	ABM	Accepted	Conferences, seminars, consultations, and workshops
H10	BSC	Accepted	Headquarters and government regulation
H11	TC	Rejected	None
H12	Life cycle costing	Rejected	None
H13	Benchmarking	Accepted	Professional accounting bodies in Libya, and Management accounting training programmes
H14	Kaizen	Rejected	None

Testing the influence of the contingency variables on adopting MAIs, and the influence of the institutional variables on MAIs separately can only provide a partial explanation of adopting

all MAIs employed in this study. As different ones of both groups of variables are responsible solely for adopting four MAIs. It is essential to test the influence of a combination of contingency and institutional variables on adopting MAIs.

7.4.2.3 Multiple regression analysis relating to a combination of contingency & institutional factors

This section examines the effect of 21 independent variables (related to contingency and NIS theory) on the MAIs. These factors grouped together in order to find the collective influence of a combination of both theories' factors on adoption of MAIs through seven hypotheses from H15 to H21. Hypothesis H15 was formulated as follows:

H15: There is a positive relationship between a combination of contingency & institutional factors and the adoption of ABC.

Table 7.26 shows the multiple regression analysis results related to the influence of contingency and institutional variables on the adoption of ABC. These results show that four variables contribute to the adoption of ABC namely: Specialist management accounting journals, the competitiveness of the market, management accounting training programmes, and competent accountants. The F value of these variables ranges between 3.982 and 9.881, and R^2 is between 0.089 and 0.215 which means that this model is account for up to 21.5% of variances. Also, the sig value for the four predictors is below 0.05 and ranges between 0.002 and 0.049. Accordingly, all these results indicate that the model is valid to explain the relationship between the combinations of contingency/ institutional variables and the adoption of ABC, therefore, this hypothesis is accepted.

Table 7. 26 Model summary ABC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.299[a]	.089	.080	1.782	.089	9.881	.002
2	.384[b]	.147	.130	1.732	.058	6.842	.010
3	.428[c]	.183	.159	1.704	.036	4.363	.039
4	.464[d]	.215	.183	1.679	.032	3.982	.049
a. Predictors: (Constant), specialist management accounting journals							
b. Predictors: (Constant), specialist management accounting journals, the competitiveness of the market							
c. Predictors: (Constant), specialist management accounting journals, the competitiveness of the market, management accounting training programmes							
d. Predictors: (Constant), specialist management accounting journals, the competitiveness of the market, management accounting training programmes, competent accountants							

ABM

The hypothesis related to testing the influence of the combination of variables on ABM was formulated as follows:

H16: There is a positive relationship between a combination of contingency & institutional factors and the adoption of ABM.

With regard to the impact of the combinations of contingency/ institutional variables on the adoption of ABM, hypothesis 16 assumes that there is positive relationship between these variables and the adoption of ABM. Table 7.27 shows that there are two variables responsible for adopting ABM namely: Deterioration in profitability, and using computer systems for MA purposes. With regard to the "deterioration in profitability" variable, its F value is 6.887, $R^2 = 0.064$ which means that predictors can explain 6.4% of the change, and the sig = 0.010 which makes this hypothesis acceptable. Also, the "Using computer systems for MA purposes" variable has an F value = 4.716, $R^2 = 0.106$ which means that predictors can explain 10.6 % of the change, and the sig = .032. These values make this model valid to explain the relationship between the independent variables and the adoption of ABM. Thus, H16 is accepted.

Table 7. 27 Model summary ABM

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.253[a]	.064	.055	1.574	.064	6.887	.010
2	.326[b]	.106	.088	1.546	.042	4.716	.032
a. Predictors: (Constant), deterioration in profitability							
b. Predictors: (Constant), deterioration in profitability, using computer systems for MA purposes							

BSC

In order to find the impact of the contingency and institutional variables on adoption BSC, the hypothesis seventeen was formulated as follows:

H17: There is a positive relationship between a combination of contingency & institutional factors and the adoption of BSC.

This hypothesis assumes that there is a positive relationship between 21 independent variables and the adoption of BSC techniques. Table 7.28 illustrates that there is only one factor among the group which accounts for variances namely "Headquarters and government

regulation", and the value of R^2 of this variable is .044, F value is 4.632 and sig = 0.034. These values support the idea of H17 and it is accepted.

Table 7. 28 Model summary BSC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.209[a]	.044	.034	1.429	.044	4.632	.034
a. Predictors: (Constant), Headquarters and government regulation							

TC

To test the hypothesis eighteen, it was formulated as follows:

H18: There is a positive relationship between a combination of contingency & institutional factors and the adoption of TC

Hypothesis 18 assumes that there is a positive relationship between the independent variables employed in this study and the adoption of TC technique. However, table 7.29 illustrates that value of R^2 is .0.126, F value is 0.558 and sig = 0.934. These values do not support this hypothesis and show that the model is not valid to explain the relationship between the independent variables and TC. Therefore, H18 is rejected.

Table 7. 29 Model summary TC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.356[a]	.126	-.100	1.766	.126	.558	.934
a. Predictors: (Constant), Employees number, conferences, seminars and workshops, MA training programmes , headquarters and government regulation, the loss of market share , the availability of adequate accounting staff, the authority attributed to the accounting function , competent accountants, business dependency , the competitiveness of the market, professional accounting bodies in Libya, top management support, Using computer systems for MA purposes, product's cost structure, production technology, accounting education in Libya, adequate financial resources, specialist management accounting journals, Co-operation between universities (academics) and companies (professionals), deterioration in profitability, accounting research in Libya							

For more details, table 7.30 contains the sig, t, and beta values for all the independent variables. It can be seen that none of the 21 variables has sig value below 0.05, furthermore, the highest value of Beta is 0.212 which supports the result of table 7.29 related to the model summary for TC.

Table 7. 30 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.800	1.867		1.499	.138
	The availability of adequate accounting staff	-.427	.228	-.247	-1.873	.065
	Using computer systems for MA purposes	.172	.310	.076	.556	.580
	The authority attributed to the accounting function	-.103	.281	-.050	-.367	.714
	The competitiveness of the market	.009	.211	.006	.044	.965
	Production technology	.141	.201	.096	.702	.484
	Product's cost structure	.024	.187	.017	.127	.899
	The loss of market share	.251	.279	.188	.899	.371
	competent accountants	-.002	.211	-.001	-.009	.992
	Deterioration in profitability	-.285	.275	-.209	-1.039	.302
	Top management support	-.011	.266	-.005	-.040	.969
	Conferences, seminars and workshops	.170	.262	.114	.651	.517
	Co-operation between universities (academics) and companies (professionals)	.015	.270	.011	.055	.956
	Accounting research in Libya	.110	.317	.073	.346	.730
	Accounting education in Libya	.320	.262	.212	1.220	.226
	Management accounting training programmes	-.325	.238	-.195	-1.366	.176
	Adequate financial resources	-.048	.242	-.030	-.197	.844
	Professional accounting bodies in Libya	-.185	.213	-.147	-.868	.388
	Headquarters and government regulation	.063	.233	.033	.271	.787
	Specialist Management accounting journals	-.051	.225	-.040	-.227	.821
	Business dependency	.148	.429	.044	.345	.731
	Company size	.111	.173	.074	.639	.524
a. Dependent Variable: Target Costing						

LCC

The nineteenth hypothesis **was** formulated as follows**:**

H19: There is a positive relationship between a combination of contingency & institutional factors and the adoption of LCC.

In the same context, hypothesis 19 supposes that the adoption of LCC can be explained by a combination of contingency and institutional variables. Yet, the table 7.31 shows that the value of R^2 is 0.147, the sig value = 0.853 which considered high compared to the desirable value equal to less than 0.05. This result shows that there is no relationship between the independent variables and LCC, accordingly H19 is rejected.

Table 7. 31 Model summary LCC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.384[a]	.147	-.074	1.654	.147	.666	.853

a. Predictors: (Constant), employees number, conferences, seminars and workshops, MA training programmes , headquarters and government regulation, the loss of market share , the availability of adequate accounting staff, the authority attributed to the accounting function , competent accountants, business dependency , the competitiveness of the market, professional accounting bodies in Libya, top management support, using computer systems for MA purposes, product's cost structure, production technology, accounting education in Libya, adequate financial resources, specialist management accounting journals, co-operation between universities (academics) and companies (professionals), deterioration in profitability, accounting research in Libya

Table 7.32 provides extra details related to the independent variables employed in model summary LCC. It makes clear the invalidity of this model to explain the relationship between the independent variable and adopting LCC.

Table 7. 32 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.387	1.748		-.221	.825
	The availability of adequate accounting staff	-.333	.214	-.203	-1.556	.123
	Using computer systems for MA purposes	.254	.290	.119	.876	.384
	The authority attributed to the accounting function	.111	.263	.057	.421	.675
	The competitiveness of the market	.009	.198	.006	.046	.964
	Production technology	.330	.188	.238	1.755	.083
	Product's cost structure	-.033	.175	-.026	-.192	.849
	The loss of market share	.214	.261	.170	.819	.415
	competent accountants	-.017	.197	-.011	-.086	.932
	Deterioration in profitability	-.248	.257	-.192	-.966	.337
	Top management support	.036	.249	.019	.143	.886
	Conferences, seminars and workshops	.196	.245	.138	.799	.427
	Co-operation between universities (academics) and companies (professionals)	-.411	.253	-.321	-1.626	.108
	Accounting research in Libya	.159	.297	.111	.535	.594
	Accounting education in Libya	-.099	.245	-.069	-.404	.687
	Management accounting training programmes	.149	.222	.095	.670	.505
	Adequate financial resources	.073	.226	.048	.321	.749
	Professional accounting bodies in Libya	-.215	.200	-.180	-1.077	.285
	Headquarters and government regulation	.160	.218	.089	.735	.464
	Specialist Management accounting journals	.070	.210	.059	.334	.740
	Business dependency	.414	.402	.130	1.029	.307
	Employees number	.122	.162	.087	.755	.452

a. Dependent Variable: Life-cycle costing

Benchmarking

The hypothesis that tests the adoption of benchmarking was formulated as follows:
H20: There is a positive relationship between a combination of contingency & institutional factors and the adoption of Benchmarking.

Table 7.33 shows that there are three factors that can explain the relationship between the independent variables and the adoption of benchmarking namely: Professional accounting bodies in Libya, management accounting training programmes, and adequate financial resources. All these factors have R^2 values ranging between 0.051 and 0.166, and F values between 5.479 and 7.419, in addition, the sig value is quite low and ranging between 0.008 and 0.021. All these values indicate that these three variables are able and valid to explain the relationship between the independent variables and adopting benchmarking. Thus, hypothesis 20 is accepted.

Table 7. 33 Model summary Benchmarking

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.227[a]	.051	.042	1.955	.051	5.479	.021
2	.342[b]	.117	.099	1.895	.066	7.419	.008
3	.408[c]	.166	.141	1.851	.049	5.838	.018
a. Predictors: (Constant), professional accounting bodies in Libya							
b. Predictors: (Constant), professional accounting bodies in Libya, MA training programmes							
c. Predictors: (Constant), professional accounting bodies in Libya, MA training programmes, adequate financial resources							

Kaizen

Hypothesis 21 was formulated as follows:
H21: There is a positive relationship between a combination of contingency & institutional factors and the adoption of Kaizen.

Table 7.34 shows the model summary for Kaizen that comprises the details of two predictors that responsible for explaining the relationship between the independent variables and Kaizen. These two predictors are: Using computer systems for MA purposes, and production technology. With regard to "Using computer systems for MA purposes" its R^2 value = 0.106, F value = 11.944, and sig = 0.001. While the predictor "Production technology" has R^2 value = 0.155, F value 5.886, and sig = 0.017. All these values show this model is valid and able to

explain the adoption process of Kaizen as a result of the influence of the independent variables. Therefore, hypothesis H21 is accepted.

Table 7. 34 Model summary Kaizen

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.325[a]	.106	.097	1.823	.106	11.944	.001
2	.394[b]	.155	.139	1.781	.050	5.886	.017
a. Predictors: (Constant), using computer systems for MA purposes							
b. Predictors: (Constant), using computer systems for MA purposes, production technology							

To conclude, the analysis of the influence of a combination of contingency and institutional factors on adopting MAIs is shown in table 7.35. The table illustrates that five hypotheses (H15, H16, H17, H20, and H21) were accepted, while two hypotheses (H18 and H19) were rejected. It can be seen that the influence of the combination of the contingency and institutional variables accounts for adopting five MAIs, while the influence of each of the contingency and institutional variables separately are responsible for adopting four MAIs.

Table 7. 35 Hypothesis' test summary

Hypothesis	MAIs	The result	The key influential variables (predictors)
H15	ABC	Accepted	Specialist management accounting journals, the competitiveness of the market, management accounting training programmes, competent accountants
H16	ABM	Accepted	Deterioration in profitability, and using computer systems for MA purposes
H17	BSC	Accepted	Headquarters and government regulation
H18	TC	Rejected	None
H19	Life cycle costing	Rejected	None
H20	Benchmarking	Accepted	Professional accounting bodies in Libya, management accounting training programmes, and adequate financial resources
H21	Kaizen	Accepted	Using computer systems for MA purposes, production technology

Furthermore, table 7.35 also shows the ten key influential variables considered responsible for adopting five MAIs, they are divided between six contingency variables and four institutional variables. The six contingency factors were: the competitiveness of the market, arrival of competent accountants, deterioration in profitability, using computer systems for

MA purposes, adequate financial resources, and production technology. The institutional variables were: specialist management accounting journals, MA training programmes, headquarters and government regulation, and professional accounting bodies in Libya.

From the analysis of three groups of the variables, the result indicates that none of these groups of variables can explain and predict the adoption of TC and LCC. In other words, the 21 variables related to the contingency and institutional theory are unable to account for the adoption of these two MAIs. Therefore, different variables representing different theories were responsible for adopting TC and LCC in the Libyan organisations.

7.5 The analysis of the interviews

This section supplements the quantitative results by offering qualitative data obtained from the interviews. The qualitative data enhanced the variables used in statistical analysis by using them to formulate the guide questions of the interview in order to examine to what extent they are able to cover the questions of this study.

The interviews process comprised three different stages; preparing and conducting the interviews, transcribing the interviews, and analysing the data. The interviewees were chosen according to their position, desire, and knowledge. Before starting every interview, the researcher tried to create and build a comfortable environment and keep the interviewees trust throughout the interview time. The researcher gave a summary related to the topic of the study, the goal and purpose of the study, and an idea of data management and the confidentiality of the interviewing process.

This study aims to grasp deeply the factors that influence the adoption of MAIs by conducting 10 interviews as this study adopted mixed methods research as a methodology. In addition, the aim of interviews is to explore the extent of influence of different factors on adopting MAIs that arose as a result of the political change that occurred in Libya in 2011. As mentioned in chapter five earlier, the interviews' data (qualitative data) will be quantified and mixed with the quantitative data obtained from the questionnaire later in this chapter. Accordingly, this section will not be extended as the interviews were summarised and quantified and put in tables.

7.5.1 interviewees personal information

This section gives statistical overview about the ten interviewees who accepted to be interviewed.

7.5.1.1 Job title

The interviews were conducted with people with different job titles. All of the interviewees were linked to accountancy whether professionally or academically. The researcher did not select the executive persons, because the interviews were optional and based on interviewee consent in writing from the questionnaire form. However, three interviewees who are in academic positions were chosen by the researcher to cover three different higher education institutions. Table 7.36 shows the job title of the ten interviewees. Four of the interviewees were financial managers, three were teaching staff members at higher education institutions in addition to occupying head of accounting department positions. Furthermore, the interviews included one person who is internal auditor in the organisation, one financial consultant, and one financial accountant. Therefore, all interviewees were in position enabling them to answer the guide questions of semi-structured interviews.

Table 7. 36 Job title

Job title	No of interviewees
Financial manager	4
Teaching staff member	3
Internal auditor	1
Financial consultant	1
Financial accountant	1

7.5.1.2 Qualification

Table 7.37 shows the interviewees' qualifications. All ten interviewees held a bachelor degree or above. Two held PhDs in accounting, five had a Master's degree, and three had bachelor degrees. These qualifications help to guarantee the collected information was reliable.

Table 7. 37 Qualification

Qualification	No of interviewees
PhD	2
Master	5
Bachelor	3

7.5.1.3 Experience

With regard to the interviewees experience, table 7.38 shows that 80% of the interviewees had work experience exceeding 10 years, while one interviewee had less than three years' experience and one had experience of between 6 to 10 years. Long work experience serves the objectives of the research as the information received from experienced people is accurate and reliable.

Table 7. 38 Experience

Experience	No of interviewees
Less than 3 years	1
From 6-10 years	1
From 11-15 years	2
More than 15 years	6

7.5.2 The role of accounting education in adopting MAIs

All interviewees were asked about the role of accounting education in adoption of MAIs. One interviewee answered that accounting education in Libya helps to adopt MAIs. The head of the accounting department in a higher education institute explained that by saying:

> **"**I think accounting education is improving nowadays and it helps to use these advanced MAPs in Libyan organisations, however, we are facing a shortage in the time dedicated to MA during undergraduate study. The syllabus contains some new techniques that give students a basic theoretical knowledge such as ABC and BSC. We have a plan to develop the MA syllabus, but there is no enough time because there are only three hours in one term to study MA subject during the undergraduate stage"

In the same vein, the head of an accounting department in the Libyan academy for higher education believes that they are delivering an up to date MA syllabus when he claimed:

> "In our institution, I think we are delivering a modern MA syllabus that contains most MAIs, part of these techniques delivered as part of the MA subject and others included in under cost accounting. Moreover, the syllabus of MA is under continuous improvement to make it up to date with educational institutions in developed countries. We revise the contents of MA every two to three terms, this revision is conducted either by the accounting department or by the lecturers of the subject who then suggest some additions"

However, eight interviewees believe that current accounting education in Libya does not help in adopting MAIs as the syllabus of MA delivered to undergraduate students is out dated and

does not include any topics related to MAIs. A financial manager in one of the Libyan industrial organisations stated:

> "Generally, the education system in Libya is very weak. Accounting education is based heavily on old Egyptian text books in addition to translating old books related to accountancy. In my case, I never heard of MAIs during my undergraduate study and the first time I heard about MA advanced techniques was during master's study and it was about one single technique (ABC). However, during the last few years many lecturers who obtained their master's and/ or PhD degree from western countries started to dedicate significant time in MA to deliver lectures related to MAIs. Therefore, what we need now is to expand the teaching of MAIs undergraduate studies, in addition to mixing theoretical knowledge acquired from the educational institution with practice"

One of the interviewees who is academic and occupied the head of accounting department position in one of the higher education institutions agrees with the previous interviewee when he stated:

> "The syllabus of accounting education in Libya doesn't cover the advanced techniques of MA. Currently there is no plan to develop the undergraduate syllabus. However, in the postgraduate stage there are efforts to update MA contents. He added that teaching staff members are responsible for updating the accounting syllabus in accounting education and MAIs is part of the updating process"

Also, another financial manager of a Libyan industrial company who studied accounting a few years ago explained his experience with accounting education in Libya by saying:

> "I graduated about ten years ago while accounting education was providing basic knowledge related to MA and we never heard about MAIs. Therefore, the syllabus needs to be updated and modern text books need to be used in accounting education. In addition, the essential issue related to MAIs is to link theory with practice in Libyan organisations"

A financial manager in a Libyan entity described the reason behind this and suggested the requirement for improving the MA education and practice. He stated:

> "During undergraduate study, we do not study any of MA advanced techniques because of the lack of modern textbooks and of qualified lecturers who are able to deliver modern subjects related to MA, however, in postgraduate stage, I studied some MAIs. Since 2005 I noticed that there are some changes in text books and the way of teaching advanced MA in terms of focusing on some MAIs. from my point of view, the accounting education has been unable to push towards adopting MAIs in Libyan organisations. We need interaction between academic and professional bodies to accomplish the integration between the scientific research and practice in Libyan organisations"

In terms of accounting practical training, a financial consultant in service company contends that the accounting training should be funded by the government. He explained that by saying:

> "There is no development in the syllabus related to accounting education and lack of practical training in parallel with theoretical study during undergraduate and postgraduate study. The government should fund practical training during the study time before the graduation"

This result is in line with Maatoug's (2014, p. 242) study which states that "there is a lack of a systematic development and update of the accounting curriculum, syllabus and textbooks in Libyan universities leading to an outdated syllabus that is irrelevant to the needs of Libyan accounting students or to the profession"**.** However, at the postgraduate level, there have been some changes in the syllabus delivered to the students including some topics related to MAIs. The reason behind these changes is the existence of new lecturers who have recently graduated from UK universities and have gained good knowledge of advanced MA techniques.

7.5.3 Importance of MAIs

The interviewees were asked whether they considered MAIs important or not. Seven interviewees answered that they were important, two interviewees considered them not important, and one interviewee was neutral. After further discussion related to this question, most interviewees perceived MAIs important because using up to date techniques in MA helps in terms of planning, reducing cost, control, and decisions making.

The interviewees gave their judgement according to their experience and background. For instance, from an academic background, a head of an accounting departments in higher education institution stated:

> "Without doubt the MAIs are very important not only for private sector, but also they are important for the public sector as well"

From a professional background, a financial accountant in an oil company gave his opinion according to his practical knowledge related to MAIs by saying:

> "Because I have a good knowledge related to MAIs I can say they are very important to the organisation and they make a big difference when they are in use. Without MAIs decision are made randomly based on inaccurate information, while MAIs offer an opportunity to know about the problem from different aspects and thus facilitate the decision-making process"

In the service sector, a financial consultant in one of companies working in the service sector explained the importance of using advanced techniques in MA and cost accounting. He appreciated using MAIs in calculating costs. He stated:

> "Calculating costs using advanced techniques is very beneficial for knowing the structure of cost. When we used them in our organisation they showed that general expenses represent only 10% of all cost and the semi direct expenses represent about 70% and these expenses were spent for unprofitable purposes"

In contrast, some interviewees thought that using MAIs in the Libyan environment was not important as the manufacturing and service industries are still primitive, and implementing MAIs would be a waste of time and resources.

In this context, a financial manager in one of the Libyan industrial organisations explains why MAIs in Libya is not important and there is no need to waste time and money in adopting any of MAIs at the current time. He claimed that:

> "As far as I know, MAIs are very important for countries that own strong private and public sector working in a completely competitive environment. In contrast MAIs in Libya are not important as the manufacturing and services industries use old methods of production and marketing, also the dominance of the public sector and the lack of competition reduce the importance of MAIs. They might become important after a reform process in the economy and the administration in Libya in the future"

A financial manager in one of the Libyan service companies gives the reasons behind the unimportance of MAIs in the Libyan environment which lead to the low rate of adoption of MAIs in Libyan organisations. He stated that:

> "The problem in Libya is the lack of awareness of the importance of MAIs by top and middle management, and some have never heard of them. Accordingly, MAIs are not popular among Libyan decision makers because of several reasons such as lack of knowledge about them, unsuitability to the Libyan environment, and because of resistance to change"

7.5.4 The impact of political change on adopting MAIs

Sharma (2000) contends that environmental factors include political, economic and social dimensions. He reported that there is an association between MA and the business environment within and outside organizations. Similarly, Anderson & Lanen (1999) found evidence of changes in MA associated with shifts in the external environment. In Libya, a change in political regime has occurred recently, and currently the country is experiencing a transitional period. The stage that followed the political change can be described as a chaotic

and unstable period where the main governmental bodies were absent, militias active and weapons were distributed among the people. In this regard, it is important to examine the role of the environmental factors that emerged due to the political change in Libya on adopting MAIs. The ten interviewees were asked a direct question as follows; what is the impact of recent political changes on adopting MAIs?

One interviewee answered that the political change has a positive impact on adopting MAIs in the long-term time because it opens doors for future change in all aspects of life, and accounting education and practice will be positively impacted by this change. The financial manager of one of the Libyan industrial organisations explained that by saying:

> "The political change has an impact on all aspects of life in the short term and long-term period. From a short-term perspective, the political change has a catastrophic impact on all aspects of life because this change led to chaos these last few years. However, in the long-term time, the expectations are promising, the country is moving towards democracy, rule of law, and a liberal economy. All these changes will lead to the emergence of competition between Libyan organisations and international companies intending to invest in Libya, therefore, organisations that aim to win the competition must follow other organisations that will come from developed countries to survive and MAIs is part of the tools needed to help these organisations"

A head of the accounting department in a higher education institution agrees that the political change will have positive impact on accounting education that will lead to modernising MA content. However, he stated that this change requires the move from a centrally planned economy to a liberal market. He added:

> "Of course, the political change affects all aspects of life in Libya during the current time (chaos period). However, we are looking forward to changing that. Accounting education in the future will be much better because the previous regime was backward and ignored building a modern state. Now the government must convert the economy to a liberal market system which will positively affect the accounting profession"

On the other hand, six interviewees believed that political change has had a negative impact on adopting MAIs. one of the interviewees said that the political change has caused a lack of security and accountability, which reflected directly on all organisations in terms of lack of control, lack of discipline, and a high absentee rate among employees. A financial manager in one of the Libyan companies stated:

> "The political changes impeded all aspect of life in the country and caused political and economic instability. Accordingly, employees do not do their duties and there is a lack of discipline and the rate of absenteeism has increased among the employees".

Another head of the accounting department in one of the higher education organisations added that all the previous factors, forced top management to do their best to keep the level of performance as it was before the change and protect the organisation from collapse because of the environmental factors. He believes that the current atmosphere in Libya was not suitable for starting reforms in the country when he claimed:

> "In Libya, all are aiming to conserve what they achieved in the past. The idea of starting new projects or commence reforms won't find a suitable environment because of the political instability and the lack of security. However, in future when the security and the economic status improve, the Libyan economy will recover and new ideas that help to improve performance will be adopted"

A financial consultant in a service company argued that the political change negatively affected all kinds of needed data and weakened accountability and the supervisory process. He added, the top management positions were dominated by academics who do not have practical experience rather than professionals. He emphasised the negative impact of the political changes when he stated:

> "Political changes have a negative impact on all kinds of data whether it was prepared before or after issuing the financial statements. We are in the middle of a political crisis where we cannot give final judgement, however, it has had a negative affect so far. It has weakened supervisory and follow-up processes. Moreover, there has been a change in top management, where academics have been appointed in top management positions rather than professionals. This led to a worsening of the quality of data because of appointing academics in executive positions. In addition, the resistance to change from the old to the new has grown"

In contrast with previous points of view, three interviewees thought that the political change has had no impact on adopting MAIs whether it is positive or negative. Their point of view was mainly based on the idea that MAIs were not in use and there was no plan to adopt any of these techniques because they were not popular and /or common in Libyan organisations, therefore, political change has had no impact on adopting MAIs in Libya according to this perspective. A financial accountant in an oil company expressed his thought in this regard when he said:

> "I do not think that the political changes affected the adoption of MAIs because these practices are not in use in most of Libyan organisations. In addition, the top management do not give these practices either priority or importance in their organisation"

Similarly, a financial manager in one of the service public companies explained that in more detail when he said:

> "MAIs do not exist widely in Libya, they were adopted mainly by joint- ventures with foreign companies and multinational companies working in Libya. Therefore, I do not think that political change has impacted local organisations in terms of adopting MAIs, however, it caused a reduction in productivity because of the lack of security in general and lack of accountability inside the Libyan organisations"

A financial manager in one of Libyan industrial organisation argued that Libya is in a transition phase and the political change will not affect the economic status in the country in the near future as result of instability. He stated:

> "Until now the picture is not clear because the country is still in a transition stage. When the country becomes safe and stable, the foreign investment will flow into this country which will create competition between the organisations. This competition will force different organisations to follow modern ways in administration and production and MAIs represent an important tool in the development process"

7.5.5 Factors influencing the adoption of MAIs

In the final stage of the interview, the interviewees were given two lists of factors. The first list comprises factors that may facilitate the adoption of MAIs, where the second list contains factors that may impede the adoption process. The interviewees were asked to put the factors in both lists in order according to their importance.

Regarding factors that may facilitate the adoption of MAIs, table 7.39 shows that five interviewees chose "top management support" as the most influential factor on adopting MAIs. Four interviewees contend that "accounting education" has the second most influence on adopting MAIs. In the third place, as most influential factor, "computer software" was nominated by three interviewees. Two interviewees chose five factors in the fourth place namely; competition, conferences and workshops, MA training, company structure, and competent accountant. Five factors considered as the least influential factors in adopting MAIs were chosen by one interviewee.

Table 7. 39 Factors facilitate the adoption of MAIs

Factors	No of interviewees	Theoretical classification in this study
Top management support	5	Contingency theory
Accounting education	4	NIS
Computer software	3	Contingency theory

Competition	2	Contingency theory
Conferences and workshops	2	NIS
MA training	2	NIS
Company structure	2	Contingency theory
Competent accountant	2	Contingency theory
Production technology	1	Contingency theory
Financial resources	1	Contingency theory
Market share loss	1	Contingency theory
Governmental regulations	1	NIS
Accounting research	1	NIS

This result resembles the descriptive analysis in terms of the domination of contingency factors among top ten factors that facilitate the adoption of MAIs. Furthermore, although the dominance of contingency variables continues according to empirical analysis and hypotheses testing, but the individual variables are different. For instance, "Top management support" came first in the interview analysis as it was chosen by five interviewees, however, this was not the result in the empirical test among the influential factors.

On the other hand, table 7.40 shows factors that may impede the adoption of MAIs. Four factors were chosen by 3 interviewees to have the highest influence on hindering adopting MAIs namely; lack of training, lack of conferences, workshops, seminars, weak accounting education, and lack of competent accountants. On the other hand, lack of top management support, lack of resources, lack of computer software, lack of regulations, and lack of trust in MAIs were chosen by two interviewees and came second with regard to their influence on impeding the adoption of MAIs. On the other hand, corruption, absence of financial market, weak private sector, and ownership and business type were considered to have the lowest influence on impeding the adoption of MAIs as they were chosen by one interviewee each.

Table 7. 40 Factors impede the adoption of MAIs

Factor	No of interviewees	Theoretical classification in this study
Lack of training	3	NIS
Lack of conferences, workshops, seminars	3	NIS
Weak accounting education	3	NIS
Lack of competent accountants	3	Contingency theory
Lack of top management support	2	Contingency theory
Lack of resources	2	Contingency theory

Lack of computer software	2	Contingency theory
Lack of governmental regulations	2	NIS
Lack of trust in MAIs	2	Contingency theory
Corruption	1	Contingency theory
Absence of financial market	1	Contingency theory
Absence of professional bodies	1	NIS
Ownership and business type	1	Contingency theory

It is interesting to find that the top three impeding variables chosen by interviewees belong to the institutional variables' group (see table 7.40). Also, some variables mentioned by the interviewees were not part of the 21 variables employed in this study yet considered as factors that impeded the adoption of MAIs such as; corruption, absence of financial market, weak private sector, and ownership and business type. This result is slightly different from the descriptive analysis of the questionnaire that related to factors impeding the adoption of MAIs. According to the descriptive analysis of the questionnaire, there are six contingency factors classified among the top ten factors that impede adoption of MAIs in Libyan organisations, while the interview analysis revealed that there are four institutional factors among the top ten and three of them were in the top of the table.

7.6 Discussion and interpretation

This chapter attempts to answer the sub question 2 B and question 3:

Q2 B- What is the role of contingent and institutional factors in the diffusion of MAIs?

Q3- What is the implication of the political change and instability in Libya on the adoption of MAIs?

To answer these questions, a multiple regression analysis was conducted in accordance with the study's framework to test three groups of variables; the contingency variables, the institutional variables, and a combination of contingency and institutional variables. The results showed the most influential factors that affect the adoption of MAIs were:

The contingency variables group: in this group, the independent variables facilitated adopting four MAIs namely; ABC, ABM, BSC, and Kaizen. There are six variables out of 13 independent variables were considered the most influential factors namely; using computer system for MA purposes, the loss of market share, the competitiveness of the market, the arrival of competent accountant, adequate financial resources, and production technology.

Table 7. 41 give a summary of the contribution of six contingent variables that account for adopting four MAIs.

Table 7. 41 The most influential contingency variables

Variable	The influence on adopting MAIs	R^2	F	Sig
Using computer system for MA purposes	ABM	0.117	4.200	0.043
	Kaizen	0.106	11.944	0.001
The loss of market share	ABM	0.080	8.788	0.004
	BSC	0.041	4.315	0.040
The competitiveness of the market	ABC	0.124	4.430	0.038
Adequate financial resources	ABC	0.085	4.169	0.044
Arrival of competent accountants	ABC	0.047	4.987	0.028
Production technology	Kaizen	0.155	5.886	0.017

From table 7.41, it can be seen that using computer for MA purposes and the loss of market share have an influence on two MAIs simultaneously. Using computer for MA purposes has an influence on adopting ABM and Kaizen, while the loss of market share has an influence on ABM and BSC.

Institutional variables group: The independent variables in this group facilitate adoption of four MAIs namely; ABC, ABM, BSC, and benchmarking. Out of eight variables in this group, the most influential factors that lead to adopting the four MAIs were: MA training in Libya, specialist MA journals, Headquarters and governmental regulations, professional accounting bodies in Libya, and conferences, seminars, consultations and workshops.

Table 7. 42 The most influential institutional variables

Variable	The influence on adopting MAIs	R^2	F	Sig
MA training programmes in Libya	ABC	0.125	4.066	0.046
	Benchmarking	0.117	7.419	0.008
Specialist MA journals	ABC	0.089	9.881	0.002
Conferences, seminars, consultations and workshops	ABM	0.044	4.644	0.034
Headquarters and governmental regulations	BSC	0.044	4.632	0.034
professional accounting bodies in Libya	Benchmarking	0.051	5.479	0.021

A combination of the contingency and institutional variables groups: This group comprises 21 independent variables that represent all variables employed in this study. The rational for conducting this test is to examine the most influential variables when used together against selected MAIs. The result is shown in table 7.43.

Table 7. 43 The most influential combination of contingency and institutional variables

Variable	The influence on adopting MAIs	R^2	F	Sig
MA training programmes in Libya	ABC	0.183	4.363	0.039
	Benchmarking	0.117	7.419	0.008
Using computer system for MA purposes	ABM	0.106	4.716	0.032
	Kaizen	0.106	11.944	0.001
Headquarters and governmental regulations	BSC	0.044	4.632	0.034
Specialist MA journals	ABC	0.089	9.881	0.002
Professional accounting bodies in Libya	Benchmarking	0.051	5.479	0.021
The competitiveness of the market	ABC	0.147	6.842	0.010
Adequate financial resources	Benchmarking	0.166	5.838	0.018
Arrival of competent accountants	ABC	0.215	3.982	0.049
Production technology	Kaizen	0.155	5.886	0.017
Deterioration in profitability	ABM	0.046	6.887	0.010

Ten variables out of 21 were found to account for adopting five MAIs in the Libyan manufacturing and non-manufacturing companies as follows: MA training programmes in Libya, using computer system for MA purposes, headquarters and governmental regulations, specialist MA journals, the competitiveness of the market, adequate financial resources, arrival of competent accountants, production technology, and deterioration in profitability.

To compare (mix) the results obtained from statistical analysis with the analysis of the interviews, there are two types of comparability; quantify qualitative data, or qualify quantitative data. This study chose to quantify qualitative data because the quantitative approach is the dominant approach and there is more quantitative data than qualitative data. The aim of this comparison (mix) is to gain more insights related to the study problem in addition to providing complementary data from a qualitative approach. Table 7.44 shows the most facilitating variables according to the descriptive and interviews analysis.

Table 7. 44 Comparison between descriptive and interviews analysis related to facilitating factors

Factor	Ranking according to descriptive analysis	Ranking according to interview analysis
Using computer systems for MA purposes	1	3
Top management support	2	1
Management accounting training programmes	3	5
The arrival of new accountants	4	7
The availability of adequate accounting staff	5	-
The authority attributed to the accounting function	6	-
Company size	7	-
Accounting education in Libya	8	2
Adequate financial resources	9	9
The competitiveness of the market	10	-
Headquarters and government regulation	11	11
Production technology	12	8
Accounting research in Libya	13	12
Conferences, seminars and workshops	14	4
Market share loss	20	10
Company structure	21	6

Table 7. 45 Comparison between descriptive and interviews analysis related to impeding factors

Factor	Ranking according to descriptive analysis	Ranking according to interview analysis
Lack of skilled employees	1	4
Lack of local training programmes in MAIs	2	1
Lack of support from top management	3	5
Lack of software packages relevant to MAIs	4	7
Lack of courses related to MAIs in academic institutions	5	3
Lack of employee awareness of the benefits of MAIs	6	-
Lack of confidence in the value of MAIs	7	9
Lack of the competitiveness of the market	8	-
Centralisation	9	-
Lack of trust in change	10	-
Lack of financial resources	11	6
Headquarters and governmental regulations	12	8
Lack of conferences and workshops related to MA	16	2
Corruption	-	10
Absence of active financial market	-	11
Absence of professional bodies	19	12
Business and ownership type	-	13

7.7 Summary

This chapter illustrates in detail the empirical analysis and hypotheses test related to this thesis and the interviews analysis.

The assumptions of the hypotheses analysis were considered and the required tests were conducted including; normality, linearity, and multicollinearity. Then, correlation analysis was undertaken in order to describe the strength and direction of the linear relationship between the variables. In the final stage of the empirical analysis, the study hypotheses were tested. This process comprises three groups of variables; contingency variables' group, institutional variables' group, and a combination of contingency and institutional variables' group. In the final part of this chapter, the ten interviews were analysed and the outcomes of the quantitative and qualitative data were discussed and interpreted.

The multiple regression analysis result suggests that the three groups of variables influence the adoption of MAIs as follows:

- With regard to the contingency variables group: variables in this group have a significant influence on adopting ABC, ABM, BSC, and Kaizen. The most influential variables that led to adopting MAIs were; using computer system for MA purposes, the loss of market share, the competitiveness of the market, the arrival of a competent accountant, adequate financial resources, and production technology.
- Regarding the institutional variables group: ABC, ABM, BSC, and benchmarking were adopted due to the impact of variables included among this group. The most influential variables that reported in this group were; MA training in Libya, specialist MA journals, headquarters and governmental regulations, professional accounting bodies in Libya, and conferences, seminars, consultations and workshops.
- With regard to the group that comprises of a combination of contingency and institutional variables: the impact of independent variables in this group led to adopting ABC, ABM, BSC, Benchmarking, and Kaizen. Ten variables were considered having the highest impact on adopting MAIs namely; specialist MA journals, MA training programs in Libya, using a computer system for MA purposes, headquarters and governmental regulations, professional accounting bodies in Libya, the competitiveness of the market, adequate financial resources, arrival of a competent accountants, production technology, and deterioration in profitability.

The analysis of the interviews shows that nine interviewees believe that current accounting education in Libya does not help in adopting MAIs. Moreover, seven interviewees believe in the importance of implementing MAIs, and six interviewees think that the political change negatively affected the process of adopting MAIs and all aspects of life in Libya in genera

Chapter Eight: Conclusion

8.1 Overview

The prime aim of this study was to examine the factors that influence the adoption of MAIs and to investigate the adoption rate of MAIs in Libyan manufacturing and non-manufacturing organisations. A mixed methods research was employed as a method to collect and interpret data. The study reviewed the relevant literature in order to build a framework to help to achieve the study objectives and to answer its questions as well. The main framework was based on contingent and institutional perspectives that includes two theories namely; contingency and NIS.

Data was collected using two data collection instruments; questionnaires and semi-structured interviews. 250 questionnaire forms were distributed, 103 usable questionnaires were collected. Theses questionnaires were complemented by conducting 10 interviews. In terms of data analysis, the analysis process was divided into two separate chapters. Chapter 6 dealt with the descriptive analysis of the questionnaire while chapter seven was confined to empirical analysis and hypotheses testing, this chapter also included analysis of the interviews. The following four sections conclude the study's results.

8.2 Summary of the main findings of this study

This section summarises the major findings reached with respect to the study's objectives. This section comprises two parts; the first part summarises the results obtained from the descriptive analysis related to the first question of the study, while the second part sums up the results of empirical analysis and hypothesis tests complemented by the results of the analysis of the interviews.

8.2.1 Summary of the main findings related to the current status of the adoption of TMAPs and MAIs (question 1):

The first question aimed to assess the current adoption rate of TMAPs and MAIs in manufacturing and non-manufacturing Libyan companies. The TMAPs were divided into five sub-groups (cost systems, budgeting and control, performance evaluation, capital investment appraisal, and decision support systems), while the MAIs comprised seven chosen techniques (ABC, ABM, BSC, TC, Life Cycle Costing, Benchmarking, and Kaizen).

The descriptive analysis of the questionnaire showed that the adoption rate of TMAPs is significantly higher than the adoption rate of MAIs in Libyan organisations. In addition, the results reported that most of the TMAPs are in use within the surveyed organisations. On the other hand, although the MAIs adoption rate is lower than traditional MAPs, the results indicate that their adoption rate is higher than what was found in previous studies undertaken in the Libyan environment. In order to fulfil the first question of this study, it is relevant to consider the main findings of the descriptive analysis as follows:

1- Cost systems: the majority of surveyed organisations had adopted at least one of costing group MAPs. Full costing MAP had the most adopted within this group with 54.4% adoption rate and ranked 6 among all traditional MAPs included in this study. Variable costing came second in this group with an adoption rate of 53.4% and ranked 7, followed by standard costing ranked 19 with an adoption rate of 29.1%. This study classified variable and full costing techniques as moderately adopted MAPs, while the standard costing technique was classified as a low adopted MAP (see chapter 6).

2- Budgeting and control: this group of MAPs had the highest adoption rate compared to other groups. Cash budget had the highest adoption rate in this group and it comes first among all other MAPs in this study with 85.4%, followed by capital budget 64.10%, sales budget 55.3%, master budget 53.4%, production budget 43.7%, direct material and direct labour budget both have same adoption rate 38.8%. Zero-based budget has the lowest adoption rate by 4.9%. With regard to its classification, cash budget, and capital budgeting are classified as highly adopted MAPs. While sales budget, master budget, production budget, direct materials budget, and direct labour budget were classified as moderately adopted MAPs. Overhead budget, flexible budget, and zero- based budget were considered as low adopted MAPs.

   It can be noticed from the result that the adoption rate of budgeting MAPs is the highest, and budgeting MAPs are more commonly used than all other MAPs in other groups. The reasons behind the common use of budgeting MAPs in Libyan companies are; to comply with legal requirements imposed by government, also to control and evaluate performance is a typical way used by managers to protect themselves against accountability.

3- Performance evaluation: results related to this group show more than half of surveyed companies using more than one MAPs to evaluate their performance. Among nine

MAPs included in this group, budget variance analysis, has the highest adoption rate with 75.7%, followed by the return on investment technique, 64.1%. Meeting budget target came third in this group with 47.3% and customer satisfaction occupied the fifth place with 39.8%. Economic value added, the share price, and division profit have the lowest adoption rate in this group with 11.7%, 15.5%, and 24.3% respectively.

4- Capital investment appraisal technique: this group comprises four techniques and all of these techniques were adopted by less than half of the respondent companies. The results show that 46.6 % of companies use payback period as a capital investment measurement, 26.2% use net present value (NPV), 21.4% use accounting rate of return (ARR), and 18.4% use internal return rate (IRR).

5- Decision support systems: the last group in the TMAPs was related to decision support systems. This group has the lowest adoption rate within all five groups of TMAPs. None of this group are in the high adoption category. However, cost-volume-profit analysis has the highest adoption rate in this group with 46.6%, followed by product profitability analysis 33% and both were classified as moderately adopted MAPs, while product life-cycle analysis, customer profitability analysis, and sensitivity analysis have adoption rates of 16.5%, 4.9% and 2.9% respectively and they were classified as low adopted MAPs.

MAIs in this study include seven advanced MAPs namely; ABC, ABM, BSC, TC, Life Cycle Costing, Kaizen, and Benchmarking. The results show that the adoption rate of MAIs is lower than the adoption rate of TMAPs, however, it is considered higher than adoption rates of MAIs in previous studies conducted in the Libyan context such as (Leftesi, 2008; Alkizza, 2006; Abugalia, 2011; Abulghasim, 2006).

The seven MAIs were ranked according to their mean value. ABC technique came first with mean value = 3.69. It was adopted by 30.1% of respondent organisations and used as trial by 5.8% of respondent organisations. Kaizen costing came second with mean value = 2.84 and adoption rate of 22.3 % and used as a trial by 5.8 %, followed by Benchmarking in the third place with 21.4% as an adoption rate and 21.4% as a trial. Target Costing came fourth with 14.6 % as an adoption rate and 4.9% as a trial. Life Cycle Costing, Balanced Scorecard, and Activity-Based Management occupy places from five to seven with mean value 2.50, 2.47, and 2.44 respectively.

In brief, the main findings related to the first question are consistent with Leftesi's (2008) study where he found that most TMAPs were in use in Libyan manufacturing companies. Leftesi (2008, p.272) expected that "Libyan manufacturing companies will continue to focus on traditional MAPs, as the most expected MAPs surveyed to be adopted in the future are traditional MAPs, while advanced MAPs have a low adoption expectation in the future". Although the expectations of adopting MAIs were low, however, the adoption rate of MAIs in this study indicates that it is higher than that previous study in the Libyan environment.

One reason for low adoption rate of MAIs is the ownership type where the state-owned or recently privatised former state-owned companies represent an important percentage of surveyed companies. Companies working under governmental control usually do not seek profit or competition, however, they have to achieve social and political objectives. Therefore, these types of companies focus on complying with regulations and state financial law. This also might explain the high adoption rate of budget MAPs as it imposed by state regulations.

The second reason for a low adoption rate of MAIs in Libya is that manufacturing and non-manufacturing industries in Libya are still in their early stages, therefore, they do not use sophisticated processes when they are doing their jobs. Accordingly, the level of benefits obtained from TMAPs is high and the expected benefits that might be obtained from adopting MAIs is deemed low. According to Lefties (2008, p.270):

> "Libyan manufacturing companies gain a relatively high level of benefits from most of the MAPs they use. Moreover, traditional MAPs are perceived to provide a higher level of benefits, while only low benefits are perceived with advanced ones"

The third reason behind low adoption of MAIs is the current unstable situation in Libya since February 2011, and the lack of economic, political, and social security. According to interviews undertaken, eight out of ten interviewees believe that the unstable condition in Libya has a negative impact in terms of current and future developments, and adopting MAIs is part of these developments. Furthermore, the interviewees believe that Libyan organisations currently focus on not losing what they have achieved during the previous years rather than expanding and developing their activities.

8.2.2 Summary of main finding related to factors that have influenced the adoption of MAIs in Libyan organisations (question 2):

The second question of this study is about the main factors that may hinder and/or facilitate the adoption of MAIs. The focus is on the role of contingency, institutional, and a combination between contingency and institutional factors.

The framework adopted in this study comprises two theories, the first theory is the contingency theory, whereas the other theory in the framework is NIS. Seven dependent factors were chosen from relevant literature as influencing MAIs in this study. The collective influence of each group of independent factors on each dependent variable MAIs was tested by formulating hypotheses. These hypotheses were tested by using SPSS software to conduct multiple regression tests as shown in chapter seven. The summary of the multiple regression tests is as follows:

Contingency factors: this group comprises thirteen independent factors and the multiple regression aimed to examine the influence of this group on seven dependent factors in terms of the adoption process (see details in chapter seven). The result shows that the independent factors have strong impact on adopting four MAIs namely; ABC, ABM, BSC, and Kaizen. The most influential factors that led to adoption of these four MAIs were; using computer system for MA purposes, the loss of market share, the competitiveness of the market, the arrival of competent accountant, adequate financial resources, and production technology.

Institutional factors: this group comprises eight independent factors, and the result shows that these factors facilitate adopting four out of seven MAIs in this study namely; ABC, ABM, BSC, and Benchmarking. The most influential variables reported in this group were; MA training in Libya, specialist MA journals, headquarters and governmental regulations, professional accounting bodies in Libya, and conferences, seminars, consultations and workshops.

A combination of contingency and institutional factors: This group comprises 21 independent factors and these had an impact on adopting five MAIs namely; ABC, ABM, BSC, Benchmarking, and Kaizen. Ten variables were considered having the highest impact on adopting MAIs namely; specialist MA journals, MA training programs in Libya, using computer system for MA purposes, headquarters and governmental regulations, professional

accounting bodies in Libya, the competitiveness of the market, adequate financial resources, arrival of competent accountants, production technology, and deterioration in profitability.

On the other hand, with regard to factors that might impede the adoption of MAIs, the questionnaire form contained 21 factors selected from relevant literature related to MA change and the diffusion of innovations. The result of the descriptive analysis of the questionnaire indicates that among the top 10 factors considered as the most impeding, there were eight factors from contingency theory and two factors from institutional theory (see chapter six for more details).

The top 10 factors that may hinder the adoption of MAIs put in order from high to low influence are as follows:

Factor	Mean	Rank	Classification
Lack of skilled employees	4.17	1	Contingency
Lack of local training programmes in MAIs	4.11	2	Institutional
Lack of support from top management	4.03	3	Contingency
Lack of software packages relevant to MAIs	3.99	4	Contingency
Lack of courses related to MAIs in academic institutions	3.89	5	Institutional
Lack of employee awareness of the benefits of MAIs	3.81	6	Contingency
Lack of confidence in the value of MAIs	3.70	7	Contingency
Lack of the competitiveness of the market	3.60	8	Contingency
Centralisation	3.56	9	Contingency
Lack of trust in change	3.47	10	Contingency

Whereas the factors that have the lowest influence in terms of hindering the adoption of MAIs are:

Factor	Mean	Rank	Classification
Lack of co-operation between universities (academics) and companies (professionals)	3.09	17	Institutional
Lack of up to date publications about MAIs	2.97	18	Institutional
Lack of an active MA society	2.94	19	Institutional
Complexity of MAIs	2.81	20	Contingency
High operational cost of MAIs	2.79	21	Contingency

8.2.3 Summary of main findings related to the implication of the political change and instability in Libya (question 3):

The adopted methodology for this study is mixed methods research where the quantitative approach is dominant and the qualitative approach is used to complement the quantitative approach. Therefore, ten semi-structured interviews were conducted aiming at obtaining additional evidence from interviewees that may support the findings concluded from the questionnaire in order to serve the aim of this study. The interviews focused mainly on getting reasoned answers related to questionnaire questions, in addition, to answer the third question; what is the implication of the environmental factors including the political change and instability on the adoption of MAIs?

The results support the argument that the environmental factors have a significant impact on adopting MAIs in Libya as the political, economic, and social unstable situation has a negative impact on all aspects of life and particularly on planning to adopt MAIs in Libya.

With regard to factors that may facilitate the adoption of MAIs, the contingency factors have priority over institutional factors. This result is consistent with the questionnaire findings. While factors that may impede the adoption of MAIs, are a combination of contingency and institutional factors. On the other hand, the majority of interviewees believe that MAIs are important to the Libyan context. Furthermore, most interviewees think that accounting education does not help and does not support the adoption of MAIs in Libya because of the textbooks and syllabuses are outdated.

8.3 The contributions of this study

This research has made a contribution to the knowledge related to MA, particularly the adoption of MAIs in the Libyan context and factors that influence the adoption and implementation process. These contributions are divided into contribution to the theory and contribution to practice.

8.3.1 Theoretical contributions

This study provides several theoretical contributions to the literature on MA and the adoption of innovations. Moreover, this research is one of the first attempts to understand and explain the factors that influence the adoption of MAIs in Libya as follows:

Firstly: This study contributes to MA literature of less developed countries in general and Libya in particular, and accordingly, it fills part of the gap in the extant literature and paves the way for future studies in MA based on the results of this study.

Secondly: This study employed mixed methods research as a methodology. It employed triangulation in many different manners such as triangulation in theoretical framework that contains two different theories, contingency and NIS. These two theories have never been combined in mixed methods research related to MAIs. In addition, triangulation implemented in the data collection and data analysis process when the researcher used two different approaches qualitative and quantitative. Moreover, data triangulation is used by collecting data using a questionnaire as a main data collection instrument as well as conducting a number of interviews as a complementary data collection instrument. Therefore, this study gives a good practical example of combining two methodological approaches in order to gain a better understanding of a problem under study than a mono approach.

Thirdly: Reviewing the relevant literature showed that the majority of previous studies undertaken in developing countries focused on describing and reporting the status of adoption rate of TMAPs. The only study that partially covered the advanced MAPs in Libya was Leftesi's study (2008). However, his study was confined to the manufacturing sector and it employed less independent variables (12 variables) than those used in this study. This study covered the manufacturing and non-manufacturing companies and tested the influence of 21 different independent variables on adoption of MAIs.

Fourthly: One of the main contributions of this study is revealing some inconsistent results found in previous studies conducted in the Libyan context. For example, (Abugalia, 2011; Alhashmi, 2014; Alkizza, 2006; Leftesi, 2008) reported that there is no evidence of using any of MAIs in Libya. However, this study found that the adoption rate of MAIs is higher than any other previous study conducted in Libya although this rate is consistent with the rate in other developing countries but still less than the rate in developed countries.

Fifthly: The important contribution to the body of the knowledge comes from its ability to employ and combine contingency and NIS theory in one study, in addition to adopting factors used by Innes & Michel (1990) in their study. NIS is convenient to explain the external and environmental factors that may affect the organisation. It adopts three mechanisms (coercive, normative, and mimetic). Contingency theory is suitable to test the environmental change and uncertainty, work technology, and the size of a company as factors that may influence the

adoption of MAIs. Thus, one more distinguishing attribute of this study is that it has involved a large number of independent variables than any other study conducted in Libya.

Sixthly: Using list of contingent and institutional factors that influence the adoption of MAIs provides a good foundation for future studies to conduct comparative or replicated studies to confirm or give more insights into the factors that affect the adoption of MAIs.

Seventhly: This study combined two theories and developed a framework based on these two theories. This framework is used to investigate and explain the factors that may facilitate or hinder the adoption of MAIs in Libya. Although this framework did not fully explain the adoption of MAIs in Libya, the findings were satisfactory and more theories need to be tested to gain a full explanation of the adoption process in Libya. In summary, the study framework represents one of the most important contributions of this study.

8.3.2 Practical contributions

From practical perspective, this study has several contributions to practice regarding the adoption of MAIs as follows:

Firstly: This study covered the manufacturing and non-manufacturing companies, testing the influence of 21 different independent variables on the MAIs adoption process. Moreover, this study raised issues have not been discussed in previous studies, for example, the impact of recent political change and an unstable situation, such as in Libya, on all aspects of life in general and on MAPs particularly as a new factor that may influence the adoption of MAIs.

Secondly: In addition to environmental factors, the semi-structured interviews focused on the accounting education by interviewing three heads of accounting departments in three different high education institutions aiming to evaluate the role of accounting education in the developing MA role in Libyan organisations. This study provides valuable perceptions for academics related to improving the MA syllabus, books, research and practices in accordance with the global developments related to MA.

Thirdly: The deep analysis, the classification of the independent variables, the variety of industries covered in this study and the number of chosen MAIs as dependent variables mean the findings of this study represent an important contribution to the body of knowledge in the

Libyan environment. Accordingly, this study is a step forward to help tackling all impediments that may prevent local organisations from adopting MAIs.

Fourthly: Data used in this study is primary data collected by the researcher himself using questionnaires and semi-structured interviews aiming to both achieve the study's objective and to test the hypotheses of the study. Even though, most of the questions in the questionnaire form were chosen from the relevant literature, however, some of them were modified to serve the purpose of the questionnaire and to be relevant to all sectors included in this study. More precisely, this study gives a better explanation of factors that influence the adoption of MAIs in Libya because it covers different sectors and uses the findings of the interviews to support and complement the findings of the questionnaires.

Fifthly: Factors that may influence the adoption of MAIs in Libya were classified into factors that may facilitate the adoption process including 21 factors, and factors may impede the adoption of MAIs in Libya comprising 21 factors. In addition, the researcher chose these variables to be analysed deeply in order to test the study's hypotheses. These variables were categorised into three main groups namely; contingency variables, institutional variables, and a combination of contingency and institutional variables. Moreover, the finding from the interviews was integrated with the analysis of the three groups and hypotheses testing. The contribution of this study has made is to obtain a significant explanation of the factors that most influence the adoption of MAIs in Libya.

Sixthly: The findings of this study will be available and valuable to academics, professionals interested in MA, and governmental officials to help them to gain an overview of the adoption rate of TMAPs and MAIs and the factors that influence the adoption of MAIs within the Libyan environment. In addition, this study can be used as a reference for decision makers in Libyan organisation to help them making suitable decisions.

8.3.3 Methodological contribution

Regarding methodological issues, this study has provided a good contribution related to employing mixed methods research that few previous studies have used in the management accounting field. Methodologically, mixing more than one method to collect and analyse data provide a better understanding and more reliable outcomes looking at the adoption of MAIs in general and factors that may influence the adoption of MAIs in Libya in particular. In this study the quantitative and qualitative data were collected concurrently and separately.

However, they were always linked up to the interpretation stage where they were mixed together.

The literature showed that this is the first study which uses a framework containings contingency and NIS theories together to investigate factors that influence the adoption of MAIs. Employing contingency theory and NIS separately is common in MA studies, however, this study shows that combining them in a study can make a good contribution to the methodology.

8.4 Limitations of the study

Although this study achieved its objective, however it has its own limitations as with any study. The researcher attempted to mitigate the impact of these limitations. This section overviews these limitations in order to suggest possible future studies that may overcome some or all of these limitations.

Firstly, the period of time spent to achieve field study and data collection was relatively short (three months) because of the limited time available for a PhD candidate. Despite this, the study managed to provide a satisfactory result related to the factors that influence the adoption of MAIs.

Secondly, the scarcity of the use of email in Libyan firms, in addition to absence of a postal service in Libya, and time constraints led to the distribution and collection of the questionnare forms by hand. This imposed on the researcher to request help from some friends to distribute and collect parts of questionnaire forms before he moved to Libya in order to continue the process of data collection. Consequently, although the sample size was acceptable (103 usable questionnaire), it was less than expectated due to the handy delivery and collection process.

Thirdly, some cultural and political obstacles appeared while distributing the questionnare as some targeted persons refused to receive the quesionnaire or to cooperate in any way, and others had to ask for permission from the highest level in Libya such as the ministry of industy because they thought the questionnaire form contained questions seeking privileged information.

Fourthly, MAPs in general and MAIs in the Libyan environment are primitive, therefore, when asking about advanced techniques related to MA it is hard to find appropriate answers

from all respondents as these techniques are considered new in developing countries and many people in charge in financial or managerial positions may have never heard of them. Accordingly, this could have affect the quality of collected data.

Fifthly, this study was conducted during an unstable and insecure period of time in Libya. This imposed a geographical limitation of the field of study. Thus, this study covered the organizations located in greater Tripoli and adjacent towns. Although, the central organizations and main economic activities exist in Tripoli, this may represent a limitation to generalizing the findings of this study.

Sixthly, one of the initial study's objectives was to examine the role of joint- venture companies in terms of adopting MAIs among Libyan organizations. However, the lack of security and unstable political status had forced the foreign partners to leave the country and the researcher failed to implement this objective. Thus, the researcher altered the plan to cope with the situation in Libya as found.

Finally, for the qualitative part of this study, it was planned to conduct as many interviews as the researcher could. However, due to cultural factors and lack of sufficient knowledge related to MAIs in the Libyan context, the number of interviewees who accepted to be interviewed was limited and less than planned.

These limitations must be taken in account when dealing with the results of this study as a reference to assess Libyan organisations covered by this study.

8.5 Suggestions for future studies

The result of conducting this study shows that there are some limitations which may provide a base for possible future studies. In this context, several suggestions related to future areas can be presented as follows:

Firstly, because the adoption of MAIs is in its early stages in Libya, additional specified studies in this area are required.

Secondly, many internal and external factors that may influence the adoption of MAIs were included in this study; however, factors that related to local culture were excluded. Future study may focus on the role of these factors in order to find out their impact of the adoption of MAIs.

Thirdly, In this study the data was collected concurently (simultaneously) because of time constraints. However, conducting sequential mixed methods research will be more beneficial by conducting in-depth interviews in the second stage after collecting data by questionnaire in the first stage of the data collection process. This will enable the researcher to obtain answers to potential questions that may raise from reviewing the questionnaires' contents and to eliminate ambiguity if it exists.

Fourthly, As soon as the situation becomes stable in Libya, it is highly likely there will be a competition among companies (international and local companies) in order to obtain contracts in the rebuilding process. Therefore, it would be beneficial to conduct a longitudinal study related to MA change following up changes over time in terms of adopting MAIs. Moreover, research could also be conducted to investigate how changes in the Libyan political, economic and business environment after the political change in the 17th February 2011 affected accounting in general and MA in particular. This will offer a useful comparision related to MA change during stable and chaotic situations within the same environment.

Fifthly, the security situation and political unstability were big obstacles that prevented the researcher from covering the whole of Libya and this led to the reduction of the sample size. A future study replicating the current study and covering additional parts of Libya would help to ground the findings from both studies, furthermore, it would help to validate and generalise the findings of this study.

Sixthly, this study could n't examine the role of joint- ventures with a foreign partner in adopting MAIs because the foreign partners had left the country due to the lack of security and the unstability. Therefore, studying the role of joint- venture with foreign companies and the role of multi-national companies that work in Libya in adopting MAIs would be a promising area.

Seventhly, this study adopted contingency and NIS as theories to investigate the adoption of MAIs process. Future studies may imploy different theories such as OIE theory, agency theory, the legitimacy theory and the stakeholder theory.

Finally, the nature of PhD study forced the researcher to conduct a cross-sectional study where the reseacher collected the data at a point of time due to the limited time available for PhD candidate and this study is n't an exception. Thus, future study may undertake a

longitudinal study which enables the researcher to gather data for a longer period of time and compare the findings of both studies.

The study was conducted in one of the less developed countries, which has witnessed recently a comprehensive change in all aspects of life. Thus, caution is required in applying the findings to other countries.

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Appendices

Appendix 1 : The questionnaire

Participant Invitation

I am a teaching staff member at the Libyan Open University who is currently conducting a PhD at the University of Salford business school (UK) under the supervision of Professor Hassan Yazdifar. This study seeks to investigate the factors influencing the adoption of Management Accounting Innovations (MAIs) in the Libyan context. I am writing to invite you to participate in this research through the completion of the questionnaire which is being conducted as a part of my PhD. The estimated time to complete this questionnaire is about 15 minutes. Please be assured that all data collected will be treated as strictly confidential and it will not be passed to any third party. No individual identities will be revealed and only aggregate results will be presented.

If you would like to review the results of the study when completed, please write your address and I will send you a copy of the summary of my research.
If you have any questions, please feel free to contact me or my supervisor at address below.
The success of this study depends upon your response; accordingly, your participation is much appreciated.
Yours sincerely,

Alhadi Muktar Boukr

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Section A: General information

Information about the participant

A1) Your job title: □ Financial accountant □ Cost accountant □ Management accountant

□ Financial Manager □ Internal auditor Other, please specify.....

A2) work Experience:< 3 years3-5 years6-10 years11-15 years> 15 years

In this position	□	□	□	□	□
In this organisation	□	□	□	□	□
Overall experience	□	□	□	□	□

A3) Gender & Age: Gender □ Male □ Female

Age □ < 25 □25- 35 □36- 45 □ > 45

A4) Participant's Academic qualification: □High school level/ Medium diploma □Bachelor / High institution □Master's □PHD □ Professional qualification (e.g. CIMA, CPA, ACCA, CIPA) please indicate.....A5) Participant's field of study:□ Accounting □ Business administration □ Economics □ Finance Other, please specify.....

Information about the organisation

A6) The ownership

□ State owned Organisation (100% owned by the state).

□ Private organisation (100% owned by the private sector).

□ Mixed ownership between state and private sector. State ownership .....%

□ Joint venture (ownership divided between the state and a foreign partner). State ownership.....%

If yes, when was the joint venture established? .....years ago.

□ Joint venture (ownership between private sector and a foreign partner). Private ownership.....%

If yes, When was the joint venture established? .....years ago.

A7) Is the business an independent company or a subsidiary company?

□ Independent company

□ Subsidiary company, Name of parent company (Optional) and % of their ownership.....

A8) Type of business

□ Engineering □Food □ Clothes □ Oil and gas □ Agriculture sector □ Construction sector □ Finance sector (including banking & insurance) □ Information technology sector (including telecommunication, telephone & internet) □ Transport sector (including road , sea & air transport)

□ Commerce sector (including retail, wholesale and import & export trading) □ Hotel □ restaurant □ travel □ entertainment □ professional services Other, please specify.....

A9) Number of years the organisation has operated: □ Less than 5 years □ 5-10 years □ 11-15 years □ 16-20 years □ More than 20 years

A10) Number of employees

□Less than 50 □ 50-100 □ 101-200 □201-500 □ More than 500

A11) Approx. organisation's revenues according to last financial statements (Million LD):

Total revenue □ Less than 1 □ 1- 5 □ 6-15 □16- 30 □ More than 30

A12) Is this organisation one of the organisations that privatised after 1990s? Yes □ No □

If the answer is (Yes), please answer the following questions:

When did the privatisation process occur? .....

Did the organisation's strategy and goals change after privatisation process? Yes □ No □

Did the organisation emerge management accounting function after privatisation process? Yes □ No □

Did the organisation develop and underpin the cost system after privatisation process? Yes □ No □

Did the organisation adopt any of management accounting innovations after privatisation process? Yes□ No □

Section B: Management accounting practices in use

B1) Please tick any of the following roles and departments that exist in your organisation

□ Cost accountant □ Cost accounting department

□ Management accountant □ Management accounting department

□ Financial analyst □ Finance department

□ If none please indicate which department is responsible for MA tasks such as: budgeting, product costing, and performance evaluation. Etc.

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B2) Please choose which techniques are currently in use by ticking the appropriate box √

Techniques	Does your organisation use this technique?		If yes, please indicate the importance of this technique to your organisation.				
	No	Yes	Not important **1**	Below average **2**	Average **3**	Above average **4**	Extremely Important **5**
Costing systems:							
Variable costing*							
Full (absorption) costing*							
Standard costing*							
Other please specify A) ..... B)							
Budgeting and control							
Sales budget							
Production budget							
Cash budget							
Direct materials budget							
Direct labour budget							
Overhead budget							
Master budget							
Capital budgeting							
Flexible budget							
Zero- based budget*							
Other, please specify A)							

B)							
Performance measurement /evaluation							
Return on investment (ROI)*							
Residual Income (RI)*							
Economic value added (EVA)*							
The share price							
Division profit							
Customer satisfaction							
Budget variance analysis							
Employees satisfaction							
Meeting budget target							
Other, please specify A) ..... B) ..... C).....							
Capital investment appraisal technique							
Payback period*							
Net Present Value (NPV)*							
Internal Return Rate (IRR)*							
Meeting the budget							
Accounting Rate of Return(ARR)							
Other, please specify A) ..... B)							
Decision support systems							
Cost-volume-profit analysis*							
Product life-cycle analysis*							
Product profitability analysis*							
Sensitivity analysis*							
Customer profitability analysis							
Other, please specify A) ..... B) ..... C).....							

B3) Management accounting innovations (MAIs) in use

Please tick one of the following statements which best describe the status of management accounting innovations (MAIs) in your organisation listed in the table below:

- **Never heard of it**: We are not familiar with this technique.
- **Never considered to adoption:** We are familiar with this technique but have not considered adoption.
- **Considered then rejected:** The technique has been evaluated then rejected.
- **Under consideration and as a trial:** Technique is under evaluation; however, the implementation decision has not been taken.
- **Currently used:** Technique was evaluated and approved, and is in use now.

Technique	Never heard of it	Never considered to adopt	Considered then rejected	Under consideration	Currently In use	
					As a trial	Fully implemented
Activity-Based Costing (ABC)						
Activity-Based Management (ABM)						
Balanced Scorecard (BSC)						
Target Costing (TC)						
Life-cycle costing						
Total Quality Management (TQM)						
Benchmarking						
Kaizen costing						
Other, please specify A) ..... B) ..... C).....						

Section C: Factors influencing the adoption of MAIs

1) Factors which facilitate the adoption of MAIs

C1) Please indicate to what extent do the factors below facilitate the adoption of MAIs process					
Factor	Do not facilitate 1	Slightly facilitate 2	Moderately facilitate 3	Significantly facilitate 4	Extremely facilitate 5
The availability of adequate accounting staff					
Using computer systems for MA purposes					
The authority attributed to the accounting function within the organization					
The competitiveness of the market					
Production technology					
Product cost structure					
The loss of market share					
The arrival of a new accountant					
Deterioration in profitability					
Joint venture with foreign companies					
Top management support					
Conferences, seminars, consultations, and workshops					
Co-operation between universities (academics) and companies (professionals)					
Accounting research in Libya					
Accounting education in Libya					

Management accounting training programmes					
Adequate financial resources					
Professional accounting bodies in Libya					
Specialist Management accounting journals					
Other, please specify A) ..... B) ..... C).....					

2) Factors impeding the adoption of MAIs

C2) Please indicate to what extent do the below factors impede the adoption of MAIs process.

Factor	Do not impede 1	Slightly impede 2	Moderately impede 3	Significantly impede 4	Extremely impede 5
Lack of courses related to MAIs in academic institutions.					
Lack of local training programmes in MAIs					
Lack of financial resources					
Lack of skilled employees					
Lack of decision making autonomy at lower levels					
Lack of compatibility between MAIs and the existing system					
Lack of an active MA society					
Lack of confidence in the value of MAIs					
Lack of up to date publications about MAIs					
Lack of support from top management					
Lack of software packages relevant to MAIs					
Lack of employee awareness of the benefits of MAIs					
Lack of foreign companies operating in Libya					
Lack of Libyan companies that have adopted MAIs					
Lack of co-operation between universities (academics) and companies (professionals)					
Lack of conferences, seminars and workshops about MAIs					
Lack of management accounting research in Libya					
Headquarters and government regulation					
Company ownership type					
Complexity of MAIs					
High cost of MAIs implementation					
Institutional Power					
Lack of trust in change					
Acceptance of routines					

Thank you for your assistance in completing this questionnaire. If you have additional comments, please feel free give them in the space below.

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Appendix 2: Profile of sample interviewees

Code	Organisation type	Position of interviewee	Interview type	Time
I1	Higher education institution	Head of accounting department	Face to face	40 Minutes
I2	Industrial organisation	Financial manager	Face to face	72 Minutes
I3	Oil company	Financial accountant	Face to face	65 Minutes
I4	Industrial organisation	Financial manager	Face to face	60 Minutes
I5	Higher education institution	Head of accounting department	Face to face	30 Minutes
I6	Service sector	Financial consultant	Face to face	90 Minutes
I7	Transportation sector	Financial manager	Face to face	60 Minutes
I8	Commercial company	Internal Auditor	Face to face	45 Minutes
I9	Higher education institution	Head of accounting department	Face to face	55 Minutes
I10	Industrial organisation	Financial Manager	Face to face	40 minutes