Balanced Scorecard implementation and financial effect from the perspective of the contingency theory: Multiple-case study in Libya

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List of abbreviations

BSC	**Balanced Scorecard**
CRM	**The research code of case study one**
NIF	**The research code of case study two**
ISC	**The research code of case study three**
PMS	**Performance Measurement System**
SMS	**Strategic Management System**
MCS	**Management Control System**
ROA	**Return On Assets**

Appendices

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Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Abstract

This study investigates how Balanced Scorecard (BSC) is implemented in practice and how affects an organisational financial performance. Drawing on the contingency theory, the study investigates the role of two main contingent variables (environmental uncertainty and business strategy) in shaping BSC implementation and financial effect. The study adopts a case study research with data collected from three Libyan for-profit manufacturing companies (CRM, NIF, and ISC). A total of 63 semi-structured interviews were conducted along with a documentary review and direct observation methods. The qualitative data was analysed using the descriptive analytic strategy, the theory-based pattern matching technique, and the cross-case analysis.

The findings indicate that, in practice BSC is implemented in different ways respecting both the adoption and the implementation of its components. The study found that there are differences between BSC organisations in terms of what components are adopted into BSC implementation. Some BSC organisations implement BSC partially by adopting certain BSC components in the way that represents BSC as a multidimensional performance measurement system (PMS), which consists exclusively of financial and non-financial measures grouped into different perspectives. By contrast, other BSC organisations implement BSC fully by adopting all BSC conceptual components in the way that represents BSC as a strategic management system (SMS), which consists of BSC perspectives, BSC strategic objectives and measures, BSC cause and effect relationship, BSC targets, BSC processes of organisational alignment and learning. On the other hand, the study found that, although some BSC organisations can have similarities on the components adopted into BSC implementations, they have different ways for developing and using each of the adopted components. Some of these ways are consistent with those defined by BSC inventors, while the majority are significantly different. In respect of the financial effect of BSC; the findings show that BSC implementation has different effects on an organisational financial performance - non-existent and a positively high - while the positively high financial effect is associated with implementing BSC as a fully developed concept (BSC as SMS).

Moreover, the study found that there is no role of the environmental uncertainty and business strategy in shaping the differences between BSC organisations in terms of what components are adopted into BSC implementation. Instead, the implementation of BSC that encompasses all the conceptual components of BSC (BSC as SMS) seems to fit the different values of each of those contingent variables. However, the two contingent variables appear to have an important role in determining the ways BSC components are developed and used, and hence, shaping the implementation of BSC and its financial effectiveness.

The study contributes to filling a knowledge gap in BSC literature concerning BSC practical implementation and financial effect. It also contributes to the contingency theory by extending its application from focusing on investigating the adoption rate of BSC to investigating the implementation of BSC and its financial effect. Moreover, the study provides practitioners with guides that assist them with implementing BSC in the way fits their organisation's level of environmental uncertainty and type of business strategy, therefore enhancing their organisation's financial effectiveness.

Chapter One:

Introduction

This chapter seeks to explain the rationale for undertaking the current study and to provide a general introduction of the thesis. It structured to contain six sections. Section 1.1 provides some contextual background of the study. Section 1.2 sheds lights on the motivations for undertaking this study. Section 1.3 poses the study questions. Section 1.4 presents the study objectives and provides a summary of the study methods. Section 1.5 presents the thesis structure.

1.1 Some contextual background:

Management control system (MCS) has its main role in steering an organisation towards achieving its goals (e.g. Jordão & Novas, 2013; Zheng, 2012; Al-dahiyat, 2003). However, given the change in the business environment[1], the effectiveness of MCS in accomplishing its role has been severely criticised (e.g. Zheng, 2012; Davila et al., 2009; Daft, 2001; Smith, 1997; Kaplan, 1988). The main focus of MCS criticism was the sole reliance of the traditional MCS on the financial-accounting information; besides its cybernetic process of management[2] (e.g. Chenhall, 2003; Ittner & Larcher, 2001; Bait-Elmal, 2000; Simons, 1995). The criticisms therefore were tailored back to highlight the inadequacies of performance measurement system (PMS), this system which represents a central mechanism of the accounting system and hence MCS (e.g. Marinho & Cagnin, 2014; Melnyk et al., 2014; Michel & Mari, 2013; Artz et al., 2012; Abushaiba & Zainuddin, 2012; Hitt et al., 2011; Kaplan & Norton; 2008; Garengo et al., 2007; Chenhall, 2005; Magretta & Stone, 2002; Oltey, 2001). Neely and Bourn (2000) emphasises that an inappropriate PMS leads to an ineffective control so, therefore it can destroy performance.

Traditionally, organisations design their PMSs based solely on financial performance measures. This was appropriate while the financial perspective of performance was the single important perspective for controlling an organisation's performance (e.g. Rylkova & Bernatik,

[1] By contrast, today business environment is considered to be an unstable environment where customer demands are diverse and changeable and the movements of competitors are unexpected (e.g. Daft, 2001; Donaldson, 2001).

[2] The cybernetic process of management represents the process in which the standards are set by top management; communicated top down throughout an organisation and then the standards are monitored against the actual performance. Therefore, the feedback is observed and corrections are taken if there is a significant deviation (Chenhall, 2003; Simons, 1990; Jawarski, 1988).

2014; Niven, 2002; Kaplan & Norton, 1993). However, in today business environment an organisation is assumed to build its control in the way that captures the non-financial factors of its performance such as quality, innovation, lead time, employee competencies. As such factors become substantially important for organisation's survival and success in today business environment (e.g. Svensson & Wagner, 2012; Daft, 2001; Kennerley & Neely, 2002). Consequently, PMS that evaluates just the financial perspective of an organisation's performance becomes inadequate for an effective performance control and then for an organisation to survive and succeed in today business environment (e.g. Rylkova & Burnatik, 2014; Lau & Roopnarain, 2014; Kenneth & Wim, 2007; Niven, 2005; Neely et al., 2001; Kanji, 2002; Neely, 1999; Cross & Lycny, 1988). Specifically, the financial measures were criticized for their limitations including the deficiency of measuring intangible assets, the lack of the strategic focus and the predictive power, neglecting customer demands and the particular needs of each function within an organisation (e.g. Kenneth & Wim, 2007; Kanji, 2002; Norreklit, 2000; Neely, 1999; Ittner & Larcher, 1998; Johnson & Kaplan, 1987).

Hence, supplementing the financial measures with non-financial measures becomes a necessary requirement for evaluating and managing the different perspectives of an organisation's performance (Rylkova & Burnatik, 2014; Fullerton & Wempe, 2009; Ittner et al., 2003a; Azofra et al, 2003; Medori & Steeple, 2000; Neely et al, 1996; Drucker, 1990). As a response of this requirement, various integrated PMS have been conceived such as Smart system (Cross & Lynch; 1988); Kanji Business Excellence Measurement System (KBEMS) (Kanji, 2002); Performance Prism system (Neely et al., 2001); Integrated Dynamic Performance Measures System (IDPMS) (Ghalayini et al, 1997), EFQM business excellence model (Westlund; 2001), and BSC (Kaplan & Norton, 1992). However, according to several PMS/MCS-based studies, BSC is deemed to be the most popular and important one (e.g. Simpson & Aboagye-Otchere, 2014; Janeš, 2014; Rigby & Bilodeau, 2011; Neely et al., 2001).

BSC as it was introduced by Kaplan and Norton in 1992 was about a multidimensional PMS that encompasses a set of financial and non-financial measures grouped into four perspectives, as an aim to overcome the inadequacy of the traditional PMS (e.g. Liu et al., 2014; Abdalkrim, 2014; Lee et al., 2014; Said, 2013; Barnabe` & Busco, 2012; Petera et al., 2012; Sawalqa et al., 2011; Bedford et al., 2008; Malmi, 2001; Hoque & James, 2000). However, since its introduction, BSC has being continuously evolved to encompass various other components towards becoming a more sophisticated strategic management system. This latter type of BSC extends beyond the

purpose of the performance measurement to seek several other managerial purposes including strategy clarification, strategic planning, strategy implementation, and an organisational alignment and learning (Kaplan & Norton, 1996a; 1996b, 1996c; 2000; 2001a; 2001b).

1.2 An overview of the study motivations:

The continuous evolution of BSC is considered to affect its concept in the way makes BSC an open concept that can be interpreted and implemented in different ways (Dechow, 2012; Soderberg et al., 2011; Čizmić & Crnkić, 2010; Lawrie & Cobbold; 2004; Braam & Nijssen, 2004). For examples, Lawrie and Cobbold (2004) assert that the substantial change in BSC concept occurred by the different publications of its inventors has significantly affected the way in which BSC is interpreted and described. Naro and Travaille´ (2011) further mention that in spite of its manifestation as a standardised model, BSC is more complexed model that allows different interpretations and implementations to emerge.

Providing this conceptual issue, many empirical studies were conducted to investigate BSC concept and its benefits. Nevertheless, a small number of these studies have provided empirical evidence on how BSC is implemented in practice. That is, based on the review of the literature, it has been found that the majority of BSC-based studies focused mainly on examining the extent to which organisations adopted BSC (BSC adoption rate) rather than investigating how BSC-adopter organisations implement the system (BSC implementation). In these studies, the adoption of BSC was confirmed either based on the respondents' self-evaluation[3] or an organisation use of financial and non-financial measures grouped into different performance perspectives (e.g. Islam & Tadros, 2012; Hendricks et al., 2012; Tanyi, 2011; Gosselin, 2011; Ismail, 2007; Hoque & James, 2000; Olson & Slater, 2002; Sohn et al., 2003). Other studies such as Soderberg et al., (2011), Yongvanich & Guthrie (2009), and Speckbacher et al., (2003), have taken further step by examining the adoption of different types of BSC among organisations. These studies found that organisations use different types of BSC considering the components organisations adopt into their BSCs. Although such studies give more insights into the different types of BSC used in practice, they do not provide much evidence on how these BSC types including their components have been implemented - developed and used - in practice.

[3] This is through asking respondents through a questionnaire a single direct question regarding if their organisations have adopted BSC or no.

Otherwise, concerning the empirical investigation of BSC benefits; the majority of the previous studies have focused essentially on examining the subjective (non-financial) benefits of BSC implementation[4] (e.g. Janota & Major, 2012; Soderberg et al., 2011; Sawalqa et al., 2011; Yongvanich & Guthrie, 2009Speckbacker et al., 2003). However, while enhancing an organisational financial performance is the ultimate goal of BSC (Kaplan & Norton, 1992; 1993; 1996a; 1996b; 1996c; 2000; 2001a), few studies have examined this ultimate goal. The findings of these studies are different. Where that, while studies such as Davis and Albright (2004) and Petera et al., (2012) find a significant positive effect of BSC on the financial performance, other studies such as Malmi (2001), Bedford et al., (2008) and Hendricks et al., (2004) do not find such positive financial effect; at the time that studies such as Ittner et al., (2003a) find that BSC can have a negative effect on the financial performance.

Here it is clear that even though there are many BSC-based studies, many questions regarding the practical implementation of BSC and its financial effect are still outstanding and need more investigation (e.g. Perkins et al., 2014; Simpson & Aboagye-Otchere, 2014; Kaplan, 2012; Dechow, 2012; Hendricks et al., 2012; Soderberg et al., 2011; Bedford et al., 2008; Davis & Albright, 2004; Ittner et al., 2003b; Speckbacher et al., 2003; Malmi, 2001). In this context, Kaplan (2012, p. 545) asserts that Norton and I recognize that the academic work remains to be done to understand the practical and theoretical implication of BSC innovation and hope that other academics will continue to participate in this research agenda. In turn, Hendricks et al., (2012) state that many further studies are motivated to investigate the implementation of BSC, since the majority of the previous studies have concerned essentially with examining the adoption rate of BSC not with how this system is implemented in practice. Furthermore, Simpson and Aboagye-Otchere (2014) assert that many BSC studies fall short to provide practical evidence on the implementation of BSC and the extent to which BSC becomes integrated as a routine practice within an organisation; thus further studies are required. With more focus on the potential benefits of BSC, studies such as Davis and Albright (2004), Perkins et al., (2014), Malmi (2001) have emphasised the necessity of conducting further study to understand the effect of BSC on an organisational performance in general and on the financial performance in particular.

[4] BSC non-financial benefits are such as enhancing decision making process, prompting the performance measurement process and clarifying strategy.

Furthermore, while further studies are required for investigating BSC implementation and its financial effect, many researchers have emphasised the need for conducting this investigation through considering organisational characteristics such as business environment and strategy. This is to provide in-depth insights and understanding of the practical implementation of BSC and how it can yield to higher performance effectiveness under certain circumstances (e.g., Liu et al., 2014; Simpson & Aboagye-Otchere, 2014; Janota & Major, 2012; Wu, 2012; Rompho, 2011; Soderberg et al., 2011; Bedford et al, 2008; Bukh & Malmi, 2005; Malmi, 2001). Soderberg et al., (2011) assert that further studies should investigate the implementations of BSC and its benefits with considering the different characteristics of different organisations. Malmi (2001, p. 216) asserts that "further studies are needed for identifying the organisational characteristics that might explain differences in the ways BSC is implemented. In fact, further studies will determine whether we can better explain the various uses of BSC by looking at organisational characteristics; or, does this present diversity of use reflect the development and dissemination of BSC inventors' new ideas". Bukh and Malmi (2005) in turn indicate that the way an organisation develops its BSC-including each BSC component- and the benefits from implementing BSC are expected to be contingent upon organisation's contextual factors such as strategy and business environment; thus, studies should examine these relationships. Moreover, Janota and Major (2012) assert that considering organisational characteristics when investigating BSC implementation not just would result in adding to the theoretical development of BSC, but also would help organisations to avoid mistakes when implementing BSC.

Otherwise, since the lack of BSC-based study conducted in less developed countries especially in Arab countries such as Libya; many researchers have emphasised the necessity of examining BSC implementation in those countries. Therefore, expanding the contribution of study to involve further the context contribution by providing more information and details on how the relatively new management accounting systems such as BSC are implementing in less developed countries (e.g. Hoque, 2014; Liu et al., 2014; Said, 2013; Sawalqa et al., 2011; Khan et al., 2011; Yongvanich & Guthrie, 2009; Ismail, 2007).

Based on the previous discussion, it is clear that the gap between BSC concept and its practical implementation is much far to be filled. And this prompts many researchers to call for further empirical studies in the field of BSC, especially in less developed countries. This in turn motivates the current study to be conducted with an aim to contribute to filling the gap in BSC literature by providing empirical evidence from one of the less developed countries (Libya) on the following questions.

1.3 Study questions:

The study aims to answer the following questions:

1- How BSC is implemented in practice?

2- How does BSC implementation affect an organisational financial performance?

3- How important are organisational characteristics (contingent variables), in shaping the implementation of BSC and its financial effect?

1.4 Study objectives and brief insights into the study methods:

To answer the above questions, the study seeks to accomplish the following objectives:

1- Investigating the adoption and the implementation of each component of BSC in each studied company towards determining its entire implementation of BSC.

2- Identifying the change in the financial performance after implementing BSC in each studied company. And then, determine the perception of company's members on the contribution of BSC implementation in creating that financial change.

3- Identifying the similarities and differences between the studied companies regarding their BSC implementation so, therefore, gaining a clear understanding of how BSC is implemented in practice.

4- Identifying the similarities and differences between the studied companies in terms of BSC financial effect so, therefore, obtaining a clear understanding of how BSC implementation can affect an organisational financial performance.

5- Defining each studied company in terms of the two main contingent variables of environmental uncertainty and business strategy.

6- Ascertain the influence of the contingent variables on BSC implementation therefore its financial effect through applying the theory-based pattern matching technique and cross-case analysis.

In order to achieve these objectives, a theory exploration of BSC literature is firstly conducted in order to provide a clear and complete picture of BSC conceptual components and their ways of

implementation (development and use). In addition, the study adopted the case study research applied in three case studies. The case study research is adopted in this study since its usefulness for providing an in-depth investigation and understanding of the concerned phenomenon in its real-word context (Yin, 2003; George & Bennett, 2005; Gerring, 2007), Moreover, this choice of applying a case study can be greatly justified by the emphasis of many researchers on the importance and the need of using such research approach for investigating the practical implementation of BSC (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Said, 2013; Hogue & James, 2000; Perkins et al., 2014; Agostino & Arnaboldi, 2012; Sawalqa et al., 2011; Othman et al., 2006). In this context, Said (2013) asserts that using a case study research rather than a survey-based research, which represents the prevailing feature of BSC-based studies, would provide a rich explanation and a depth understanding of the actual implementation of BSC. In addition, Simpson and Aboagye-Otchere (2014) mention that since the a case study research is very useful for theory confirming, enhancing internal validity and providing profound information on the object of study, there is a requisite need to investigate the practical implementation of BSC by using a case study research. Furthermore, Southern (2002) confirms that there is a need for a systematic comparison through conducting a case study research to investigating BSC concept. As this would provide valuable insights into how the implementation of BSC can differ among organisations and how the different BSC implementations can affect the gained benefits. He further indicates that investigating BSC in this way would allow more realistic classifications of BSC concept, which would be more than beneficial for predicting the value of BSC implementation.

1.5 Thesis structure:

In addition to this chapter, the thesis will include seven further chapters. Chapter Two is structured to contain two main sections. The main aim of the first section is to provide a theory exploration of the main subject of the study, BSC. It gives a description on BSC emergence, evolution, definitions, purposes and popularity. Furthermore, it defines BSC components that constitute its fully developed concept, and provides a depth and critical discussion of their development and use. Moreover, it clarifies the benefits of BSC implementation and its ultimate goal. Having that, the second section of Chapter Two reviews the empirical BSC studies and provides more clarification of the motivations underlying conducting the current study. Therefore, it provides the reasons for adopting the contingency theory as the main theoretical basis of the current study toward a depth discussion of the contingency theory framework in Chapter Three.

Chapter Three; the first main section of this chapter aims to provide insights into the contingency theory and its important role in explaining the different implementations of management accounting systems. In doing so, this section discusses firstly the principle of the contingency theory, the concept of fit and organisational effectiveness concept. The section further provides a detailed description of the two main contingent variables of environmental uncertainty, and business strategy. Following that, the second section of Chapter Three provides a focused review of the previous empirical studies addressed the relationships between the two contingent variables (environmental uncertainty and business strategy) and BSC towards identifying the gap in the contingency-based BSC literature. It therefore demonstrates how the current study can contribute in filling that gap. Having that, the third (final) section of this chapter is concerned with identifying the study theoretical framework, the operational definition of its variables, as well as developing the study propositions.

Chapter Four describes the methodology of the study. The chapter clarifies the study type and its research approach, gives an overview of the study design, defines the case definition and the case selection criterion, and illustrates the methods used in this study for data collection. Furthermore, the chapter goes to spot lights on the study's instrument development and structure, and the measurement of the study's variables. The chapter then clarifies the preparation arrangements undertaken prior to the fieldwork. Furthermore, it goes to demonstrate how the pre-set methodological plan was carried out in the fieldwork, what difficulties encountered and what outcomes obtained from the real implementation of this methodological plan. Moreover, the chapter demonstrates the three analytical strategies adopted for drawing and verifying the study findings (the descriptive strategy; the pattern matching technique through theory based analytical strategy; and cross-case analysis strategy).

Chapter Five presents the results of the descriptive analysis in relation to the first, second, and fifth objectives of the study, which aimed at determining the empirical pattern of BSC implementation, its financial effect, and the contingent variables in each case study. Chapter Six, it carries out the cross-cases analysis of the descriptive findings. This is towards providing answers to the first and the second questions of the study related to the practical implementation of BSC and its financial effect. Chapter Seven carries out the pattern matching technique analysis and cross-cases analysis to test the study propositions. This is towards answering the third question of the study related to identifying the role of the environmental uncertainty and business strategy contingent variables in shaping the implementation and the financial effect of BSC.

Finally, Chapter Eight gives an overview of the study, summarizes its main findings, contributions and implications, and discusses the study limitations and the potential directions of further studies.

Chapter Two:
Balanced Scorecard (BSC)

2.1 Introduction:

This chapter provides insights into the concept of BSC and BSC empirical work. The chapter consists of three main sections. Section 2.2 provides a theory exploration of BSC literature aiming essentially at giving a clear picture of the types and the components that constitute the fully developed concept of BSC; besides clarifying the benefits of BSC implementation. Section 2.3 discusses the empirical studies on BSC, and therefore, identifies the gap in BSC empirical work, which the current study can contribute to filling in.

2.2 Theory exploration of BSC literature:

2.2.1 BSC emergence and popularity:

BSC was introduced by Robert S. Kaplan (professor of accounting at Harvard Business School), and David P. Norton (consultant in Nolan company). The first appearance of BSC was in Harvard Business School journal January-February 1992, within an article entitled (The Balanced Scorecard-Measures that drive performance). Since its emergence, BSC has engaged a considerable attention whether in practice or among academic research (Liu et al., 2014; Perkins et al., 2014; Giannopoulos et al., 2013; Islam & Tadros, 2012; Soderberg et al., 2011; Macnab, 2011; Khan et al., 2010; Speckbacher et al., 2003). Regarding this popularity of BSC, Speckbacher et al., (2003) asserts that a great deal of literature has been published on BSC as well as countless seminars and workshops have been dealing with this concept since its introduction. On the other hand, Marr (2010) asserts that about 50% of major organisations in The US, Europe and Asia are using BSC. More recently, Rigby & Bilodeau (2011) found that 54% of 1230 organisations worldwide have implemented BSC. This can be attributed to the assumed benefit of BSC which are discussed throughout this chapter.

2.2.2 BSC evolution and types:

Through a year-long research with 12 case studies companies, Kaplan and Norton (1992) devised BSC. In their first publication on BSC (The BSC-measures that derive performance), they explained that BSC was designed to focus the attention of top managers on a short-list of the critical indicators of the current and future performance (Kaplan & Norton 1992, p.71). That is,

the initial idea underlying the emergence of BSC is to encourage mangers to move from measuring an organisational performance relying solely on the financial measures toward using a set of financial and non-financial measures considering different perspectives of an organisational performance - financial, customer, internal business processes, and learning and growth perspectives (Lawrie & Cobbold, 2004; Perkins et al., 2014). Based on this, the initial concept of BSC takes its reputation among academics and practitioners as a multidimensional PMS that encompasses a set of financial and non-financial measures grouped into four different perspectives (e.g. Liu et al., 2014; Abdalkrim, 2014; Lee et al., 2014; Said, 2013; Petera et al., 2012; Sawalqa et al., 2011; Bedford et al., 2008; Malmi, 2001; Hoque & James, 2000). Malina and Selto (2001) describe the purpose of the initial type of BSC as to provide a comprehensive picture on the state of an organisational performance, in the way that resembles the dashboard of an automobile that shows speed, fuel level, coolant temperature, etc. (Malina & Selto, 2001).

Afterwards, BSC has been cumulatively developed by the various text books and articles published by its inventors throughout the period from 1992 to 2008. This has resulted in upgrading BSC from a multidimensional PMS to a more sophisticated strategic management system. With its fully developed concept as strategic management system, Kaplan and Norton (1996b) emphasise that BSC is more than a PMS. It is a comprehensive framework for clarifying and translating strategy into operational terms; aligning organisation with its strategy, making strategy continual process, and mobilizing managers for change (Kaplan & Norton 1996b, 2001b). These multiple purposes underlying the evolution of BSC are accompanied by developing BSC to encompass various components, which are discussed next.

2.2.3 BSC components:

Given the continuous and the cumulative development of BSC, many researchers have emphasised the question that “what do constitute the fully developed concept of BSC? (e.g. Perkins et al., 2014; Hoque, 2014; Dechow, 2012; Naro & Travaille, 2011; Soderberg et al., 2011; Čizmić & Crnkić, 2010; Franco-Santos et al., 2007; Othman et al., 2006; Marr, 2005; Bukh & Malmi, 2005; Lawrie & Cobbold, 2004; Lawrie & Cobbold, 2004; Braam & Nijssen, 2004; Chenhall, 2003). In this context, Lawrie and Cobbold (2004) asserts that the substantial change in BSC concept occurred by the different publications of its inventors has significantly affected the ways in which BSC is defined in the literature. Moreover, Chenhall (2003) states that it is not obvious that how BSC can be considered and measured. Dechow (2012) in turn concludes that

"we see that BSC has been around "as new" for a very long time now, and actually longer than any other management concept known to date. More importantly, we now begin to see research that draws on notions, which the BSC literature has introduced, yet perhaps never really explained" (Chenhall, 2003, p.522).

Providing this issue, several researchers call for a more valid definition of BSC concept that captures all BSC developed components so, therefore providing a basis of a comprehensive and more precise investigation of BSC practical implementation (e.g. Chenhall 2003; Zuriekat, 2005; Dechow, 2012). To respond to this call, the researcher conducted a depth review of Kaplan and Norton publications on BSC (1992; 1993; 1996a; 1996b, 1996c; 2000; 2001a; 2001b; 2008) and the engaged studies such as (Perkins et al, 2014; Agostino and Arnaboldi, 2012; Soderberg et al, 2011; Bedford et al, 2008; Lawri and Cobbold, 2004; Speckbacher et al, 2003; Malmi, 2001). Based on this review, the conceptual components that constitute the fully developed concept of BSC is defined to include: BSC perspectives; BSC strategic objectives and performance measures; the cause and effect relationship; BSC targets and their applications (initiatives development and resource allocation); BSC organisational alignment processes including: top-level managers' participation in BSC development, educating and communicating BSC, cascading BSC, and linking the compensation system to BSC; and finally BSC processes of organisational learning. These BSC components are discussed as follows.

2.2.3.1 BSC perspectives:

BSC complements the traditional financial perspective with three additional perspectives of customer, internal business processes, and learning and growth. These perspectives are considered to reflect the key important areas of performance which an organisation needs to master in today business environment (e.g. Speckbacher et al., 2003; Niven, 2002; Kaplan & Norton, 1992). The four perspectives of BSC are discussed as follows:

1) Financial perspective: The financial perspective represents the traditional perspective of measuring performance, and it is widely defined as being concerned with measuring the short-term financial achievements (e.g. Kenneth & Wim, 2007; Norreklit, 2000). However, taking account of the long-run performance, the financial perspective is maintained as an important perspective of BSC. It is considered to provide important measurement of how an organisational performance relating to the other BSC perspectives contributes overtime in improving the financial performance of an organisation and hence maximizing the value of its shareholders (e.g. Niven, 2002; Kaplan & Norton, 1992).

2) Customer perspective: The customer perspective is considered as the crucial perspective of BSC (Ivanov & Avasilcăi, 2014; Abdalkrim, 2014; Sawalqa et al., 2011; Chow et al., 1997). It is concerned with identifying customer demands and evaluating their level of satisfaction on the products and services provided by an organisation. Kaplan & Norton (1996a) explain that the customer perspective allows an organisation to evaluate whether their initiatives for creating values to its customer are successfully resulted in improving its performance evaluated through its customers' eyes.

3) Internal business processes perspective: The internal business processes perspective concerns essentially with identifying and measuring the critical internal processes that are required for creating and delivering the specified value to an organisation's customers and consequently maximize the value of its shareholders (Thompson & Mathys; 2008; Kaplan & Norton, 1996b). The internal processes fall into three subsequent stages; First, innovation process in which an organisation focus on searching the apparent and latent customer needs and developing solutions for these needs; Second, the operational process, in which an organisation creates and delivers its products and services to the market; Third, the post-sales process, in which an organisation serves its customer after the original sales process is completed (Sawalqa et al., 2011; Michalska, 2005; Chow et al., 1997; Kaplan & Norton, 1996c).

4) Learning and growth perspective: The learning and growth perspective is concerned with the ability of an organisation to utilise its intangible assets (i.e., employees) for enacting the innovation and the continuous improvement of its products and services (Khan et al., 2010; Hoque, 2004; Kaplan & Norton, 1996c, 1993, 1992). Niven (2002, p.16-17) considered the learning and growth as the roots of a tree that will ultimately lead through the trunk of internal processes to branches of customer results, and finally to the leaves of financial returns.

Theoretically, Kaplan and Norton (1996c) consider these four perspectives to be sufficient for viewing and monitoring the critical success factors of an organisation's performance that create organisation's competitive advantages and future financial success. However, against this presumed sufficiency of BSC four perspectives, several researchers have arose their concerns. For instance, Norreklit (2000) argues that BSC with its four perspectives lack the capability of monitoring the external environment (i.e. competition, technology development); therefore, they are incapable of enhancing an organisation's ability to adapt the change in its environment, which is crucial for an organisational success. Similarly, Neely (2002) argues that BSC lacks the

comprehensiveness of viewing and managing an organisation performance, as it omits different performance perspectives including the environment perspective. Furthermore, others such as Akkermans and Oorschot (2005) state that if BSC is considered to reflect the relevant perspectives of an organisation's business, then BSC perspectives should not be restricted to the initial four perspectives; rather than they should be expanded to involve all the stakeholders who represent the organisation's business. They emphasise that BSC doses not consider the most important factors in the value chain which are employees and suppliers.

In relation to this issue; Kaplan and Norton (1996c) explain that while the factors related to the employee perspective are explicitly incorporated into the learning and growth perspective, other factors, if they are considered to be critical for an organisational business, can be similarly incorporated into the four BSC perspectives. Otherwise, they can be addressed within entirely new perspective but, in this situation an organisation needs to consider how this entirely new perspective can be integrated with the other BSC perspectives. Empirically, to the researcher's best knowledge, there is only the study of Boulianne (2006) that examined explicitly this issue of BSC perspectives' sufficiency and validity. This study showed that the four perspectives of BSC are sufficient (relevant and valid) to represent the most critical perspectives and factors of an organisational performance.

Other argument related to BSC perspectives is that, the relative importance of BSC perspectives. Kaplan and Norton devised the four perspectives of BSC to be used in a balanced way (Kaplan & Norton, 1992). This in which no perspective should be predominantly emphasised at the expense of the other perspectives when using BSC for planning and managing an organisation's performance (Niven, 2002; Soderberg, et al., 2011; Kald & Nilsson, 2000). However, against this concept of balance, different researchers have expressed their concerns (e.g. Perkins et al, 2014; Schneiderman, 2001; Johanson, et al., 2006). For instance, Schneiderman (2001) emphasises that; BSC does not need to be used in balanced way; instead it needs to be used in an imbalanced way in order to accomplish its purpose of managing the most critical areas of performance (Schneiderman, 2001, p. 4). Empirically, to the researcher's best knowledge, there are only the studies of Hoque (2005), Olson and Slate (2002), Sohn et al. (2003), and Jusoh et al. (2007), those concerned explicitly with investigating this issue of BSC perspectives. The findings of these studies are in contrary to the balance concept of BSC perspectives.

Based on the above discussion, it is notable that, although BSC perspectives are primary components of BSC, there are many concerns existent relating to their sufficiency and use, which prompt posing the following questions: What perspectives do organisations use into BSC? How do organisations use BSC perspectives; are they used in a balanced or an imbalanced way when planning and managing their performance?

2.2.3.2 BSC strategic objectives and performance measures:

From the above discussion, it should be clear that BSC perspectives are areas of performance that needed to be monitored and perhaps managed through using financial and non-financial measures. But, how these performance measures can be identified? Kaplan and Norton in their first writing on BSC demonstrated that: to put BSC into work, the performance measures in customer perspective should be firstly identified. This is through determining the measures reflecting the factors that are really matter to customer (time, quality, performance and services, and cost). Therefore, the internal business measures of BSC should be stemmed from the business processes that have the greatest impact on customer satisfaction. Following that, the measures in the learning and growth perspective should be set to evaluate an organisation ability of the continuous learning and development toward meeting customer demands. Having identified the performance measures in the non-financial perspectives of BSC, the performance measures for the financial perspective can be set to measure the financial outcomes of the operational performance in the three other BSC perspectives (Kaplan & Norton, 1992, p. 73, 75, 77).

However, in their later development of BSC into a strategic system; Kaplan and Norton (1996b) emphasised the importance of BSC measures to be derived from specified strategic objectives derived from a formulated strategy. That is, an organisation is assumed firstly to clarify its strategy, and then relying on it to specify strategic objectives for each BSC perspective. These strategic objectives in turn will be the basis for selecting the performance measures in each perspective (Kaplan & Norton, 1993; 1996a; 1996b; 1996c; 2000). Thus, the strategic objectives act as a bridge between an organisation's strategy and performance measures. In other words, the strategic objectives will describe what an organisation must do to implement its strategy, while the performance measures will evaluate whether an organisation is meeting its strategic objectives and therefore implementing its strategy (Assiri, 2006; Niven, 2002). Several researchers have emphasised the importance of this strategic derivation of BSC measures (e.g. Rompho, 2011; Chavan, 2009; Jusoh et al., 2007; Ittner & Larcker, 1997). For instance, Ittner and Larcker (1997) emphasise that using BSC in the way that does not include linked strategic measures would deteriorate organisation's performance.

Concerning the types of BSC measures; BSC is supposed to contain various financial and non-financial performance measures including: (1) Outcome type of measures: those defined as lagging measures gauge the lagging outcome of organisational performance versus an organisation's strategic objectives. (2) Driving type of measures, they are defined as ex-ant and unique for organisation's particular strategy. They are assumed to provide timely measurement of the critical factors that drive the strategic objectives' achievement. (3) External type of measures (i.e. customer satisfaction survey), this type of measures is consider as an important for getting timely evaluation from customers on the strategic competitive factors that an organisation decided to compete upon (Kaplan and Norton, 1996a; 1996b). See Table 2.1.

Table 2.1: Examples of the strategic objectives, outcome measures, and driving measures in each BSC perspective

BSC perspective	Strategic objectives	Outcome measures	Driving measures
Financial perspective	Revenue growth; productivity improvement	Sales growth rate; profit as a percentage of sales; net income; gross margin; cash flow; total cost; the percentage of certain type of cost to total cost; total assets; profits as a percentage of total assets; return on net/total asset; operating income; return on capital employed; return on investment; and economic value added.	–
Customer perspective	Increasing: customer satisfaction; retention loyalty; acquisition; and profitability	Number of new customers; market share; percentage of sales growth; total sales from new customer; and profit per customer.	Customer satisfaction survey
Internal business processes perspective	Understanding customer; creating innovative products; producing good-quality products; producing low-price products; and be a good customer response.	Number of new products; percentage of sales from new products; percentage of sales from existing products; new products introduction versus competitors or plan; and customer complaints.	Cycle time; on-time delivery; complete orders; defect rate; time for introducing new products; R&D expenses to revenues; and hours with customers.
Learning and growth perspective	Increase employee's satisfaction; retention; and profitability.	Employee's satisfaction rate; revenue per employee; and value added per employee;	The number and type of training programs; training hours; training expenses to revenues; the number of employees suggestions; employee absenteeism rate; employee turnover rate; lost time accidents; injury frequently rate; and employees' claim rate.

These various types of BSC measures are considered to be very handful, since its assumed role in enabling managers to gain a holistic view on their organisation's performance (Kaplan & Norton, 1992, 1996b). However, some studies consider the involvement of all these types of measures into BSC to be problematic and can cause a confusing and distracting effect, especially, related to its calculating process and dealing with its outcomes (e.g. Macnab, 2011; Braz et al., 2011; Ahn, 2001; Malina & Selto, 2001). On the contrary, Leauby and Wentzel (2002) state that organisation will not face problems on operating with many BSC measures, and some organisation use 70 to 80 performance measures in their BSCs. In this regard, Kaplan and Norton (1996b) assert that using many performance measures on BSC would not be a complicated for an organisation, as these measures are derived from a single corporate strategy.

Going back to this important point of the strategic derivation of BSC measures; although Kaplan and Norton as well as many BSC-based studies highlight the importance of this strategic derivation, it appears that there is still something unclear regarding its practical implementation (Thompson & Mathy, 2008). In this context, Kenneth and Wim, (2007) indicate that it is difficult for an organisation to start from its strategy to identify its strategic objectives if its strategy itself is not elaborately defined. In consistence, Dechow (2012) states that, in practice it does not appear that managers rely on their organisation's exclusive strategy to specify their BSC measures; instead, they tend to use common measures in their BSC implementation. In turn, Ahn (2001) found that mangers use the strategic objectives given in the literature for determining their used BSC measures, instead of relying on their organisation's strategy.

Other relevant issue is that the relative importance allocated to each type of BSC measures. That is, while Kaplan and Norton (1996b) emphasise that the outcome measures and the driving measures on BSC should be used in balanced way; different empirical studies have come with uncorroborated evidence to this concept of balance. For example, Lipe and Salterio (2000) and Kang and Fredin (2012) report that managers in their use of BSC tend to place more weight on the outcome measures, while neglecting or placing a little weight on the unique driving measures.

Based on the above discussion, it is notable that the literature still has different concerns relating to BSC measures respecting their number, types, selecting basis and use; which prompt the following questions to be posed: How many performance measures do organisations use in their implementation of BSC? What types of performance measures organisations use in their implementation of BSC? How do organisations use the outcome and driving types of BSC, are they used in a balanced or an imbalanced way? How do organisations identify their performance measures of BSC; do they identify them based on specified strategic objectives?

2.2.3.3 Cause and effect relationship:

In their 1996b-1996c writing on BSC; Kaplan and Norton emphasise that the strategic objectives and performance measures on the properly constructed BSC are not just needed to be derived from an organisation's strategy but, they have also to be connected with each other in a chain of cause and effect relationships. So, the strategic objectives and performance measures can be managed and validated (Kaplan & Norton, 1996b, 1996c). They describe the strategy as a set of hypotheses about cause and effect, which can be expressed as linkages between the strategic objectives and the performance measures in the different BSC perspectives (Kaplan & Norton, 1996b, 1996c).

Concerning the implementation of this concept; originally Kaplan and Norton explained the cause and effect relationships to be implemented subjectively through using a sequence of if-and-then statements[5] (Kaplan and Norton1996c, p.149). Later on, they developed the concept of the strategy map by which the cause and effect relationships are articulated graphically in a single sheet aiming at making the concept of cause and effect relationship visible and more explicit (Kaplan & Norton, 2000). Kaplan and Norton (2000, p.168) defined the strategy map as a framework that embeds the different items on an organisation's BSC into cause and effect chain, connecting desired outcomes with drivers of those results (see Figure 2.1).

The cause and effect relationship with its recent development into the strategy map is considered to be an important component and crucial condition for developing and using BSC (Wong et al., 2007; Assiri et al., 2006; Zuriekat, 2005; Lawri & Cobbold, 2004; Niven, 2002). Lawri and Cobbold (2004) emphasise that applying the cause and effect relationship can help an organisation in overcoming two difficulties, the first one is related to identify the appropriate measures that should be involved in BSC; the second difficulty is related to determining which measures should be emerged in which perspective. Assiri et al., (2006) in turn assert that establishing the cause and effect relationship would provide managers with a clear understanding of their decisions' impacts, not just on their areas of responsibility, but also on the other organisational units and departments, and on the overall organisation's strategy.

[5] An example of the sequence of if-and-then causal statement is that: if we increase employee training about products, then they will become more knowledgeable about the full range of products they can sell; if employees are more knowledgeable about products, then their sales effectiveness will improve; if their sales effectiveness improves, then the average margins of the products they sell will increase(Kaplan and Norton1996c, p.149)

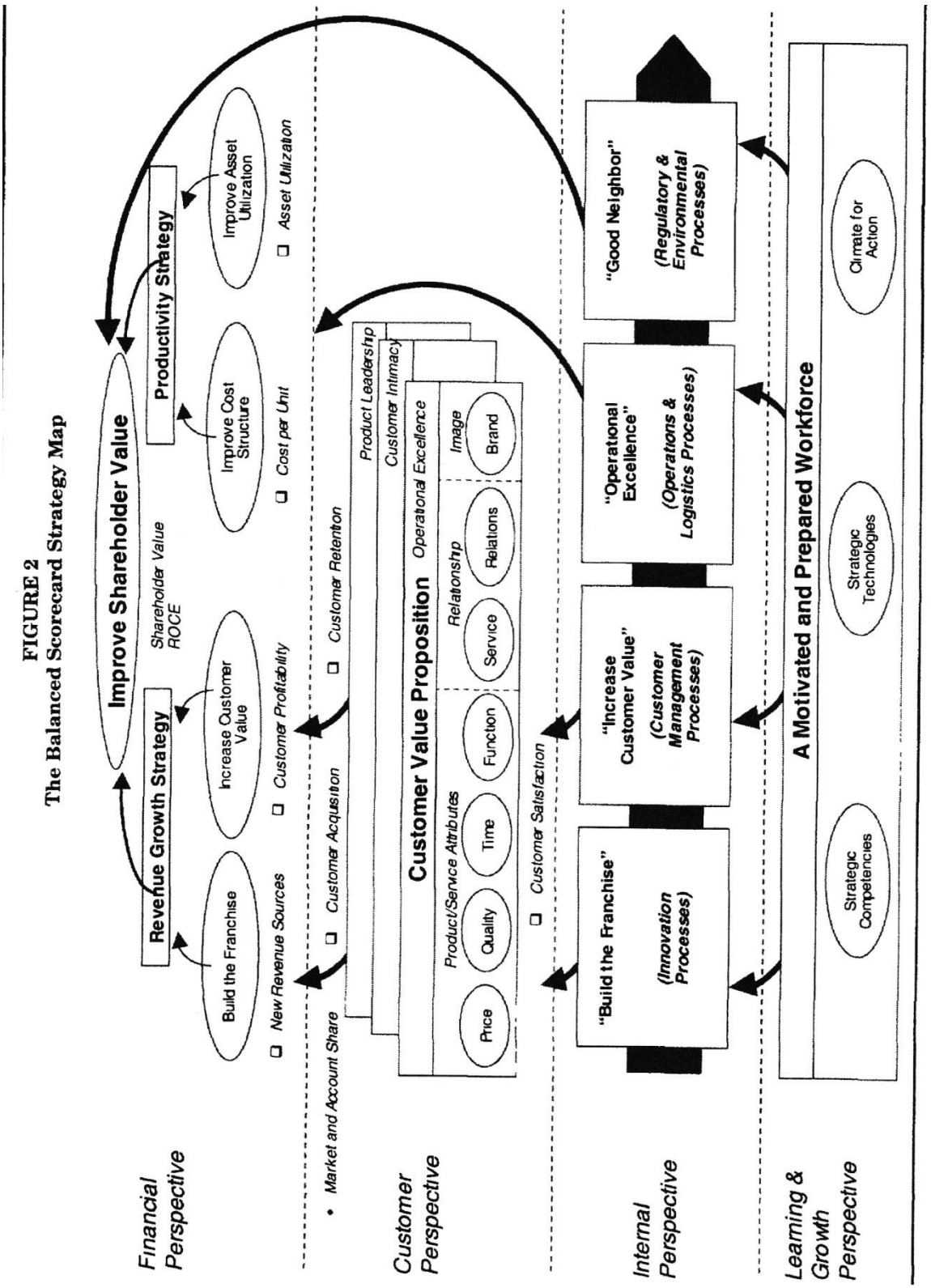

Figure 2.1: BSC strategy map (Kaplan & Norton, 2001a. P92)

However, despite the much emphasis on the importance and the necessity of the cause and effect relationship for implementing BSC, it seems that there is some confusion and lack of use of this concept in practice (Janeš,; 2014; Said, 2013; Dechow, 2012; Čizmić & Crnkić, 2010; Bedford et al., 2008; Othman et al., 2006; Ittner et al., 2003a; Ahn; 2001; Malmi, 2001). Janeš, (2014) indicate that one of the difficulties that face organisations in their implementation of BSC is the lack of clarity on how to develop the cause and effect relationship. Based on conducting semi-structured interviews among the organisations that considered as BSC adopters, Malmi (2001) found that, although most the interviewees confirmed their implementation of BSC on the basis of cause and effect relationship, they revealed a weak understanding of what the concept of cause and effect relationship really means. Similarly, Ittner et al., (2003a) found that the majority of organisations that reported their use of BSC emphasise little or no reliance on the cause and effect relationship. In support, Bedford et al., (2008) found that, the concept of cause and effect relationship is not adopted in most organisations that consider themselves as BSC adopters; otherwise, they illustrate that, even among the organisations that claimed their adoption of the cause and effect relationship, this concept has been considered in different ways considering different BSC components to be involved into the causal relationships.

Based on the above discussion, it is clear that although the cause and effect relationship is considered to be one of the most important components for developing and using BSC, several issues are raised around this concept that prompt the following questions to be posed: Do organisations adopt the cause and effect relationship in their BSC implementation? If they do, do organisations implement this concept subjectively or through using the strategy map?

2.2.3.4 BSC targets and their applications:

The processes of setting targets for BSC measures, identifying the required initiatives for achieving these targets, and allocating the necessary resources for implementing those initiatives, are considered as important processes for conveying BSC from a system that translates and describes organisation's strategy to a system that additionally enhances the ability to implement this strategy (Perkins et al., 2014; Petera et al., 2012; Yongvanich & Guthrie, 2009; Speckbacher et al., 2003;). Kaplan and Norton (1996a) assert that by selecting measures in each perspective of BSC and setting targets for them, as well as determining which initiatives and resources are required to achieve these targets, BSC would prompt an organisation’s ability to close the gap between strategy development and strategy implementation. This gap which created by building

organisation's initiatives and resources allocation processes around the short-term financial measures and targets, which hold little or no relation to the long-term targets in the strategic plan (Kaplan & Norton, 1996a).

2.2.3.4.1 Setting targets for BSC measures:

Kaplan and Norton (1996c) assert that organisations should develop targets for the performance measures in each BSC perspective in order to encourage and motivate the achievement of breakthrough in future financial performance. In favour, Assiri (2006) states that setting targets for BSC measures makes the outcomes of the measurement process much more meaningful. As these targets would help an organisation to identify the gap between the results of BSC measures, which reflect the actual performance, and the established targets of these measures, which represent the desired performance. Niven (2002) in turn asserts that BSC without setting targets for its measures lacks the necessary feedback for analysing an organisation's performance and making the required decisions for evaluating this performance.

Kaplan and Norton, and in order to set BSC targets, assert that organisations should establish stretch target and milestones for each measure on BSC whether financial or non-financial measures, or whether outcome or driving measures. The stretch targets are defined as the ambitious targets that an organisation plans to achieve during the next three to five years period. The milestones on the other hand are defined as the short-term targets, which reflect the tangible expressions of mangers' believes about the progress an organisation is expected to make in the short-term period toward achieving the stretch targets. In addition, these two types of BSC targets are supposed to be developed in explicit way, in which the targets are represented as an exact value to be achieved in a given period, such as 150% increase in sales or/and one million growth in profit (Kaplan & Norton, 1996a, 1996b, 1996c).

2.2.3.4.2 BSC targets for initiatives development and resources allocation:

The initiatives are defined as programs, activities, projects or actions that an organisation adopts to achieve its performance targets (Niven, 2002). However, this aim (of achieving performance targets) seems to be not effectively attained in many organisations due to the lack of the appropriate basis of selecting the appropriate organisational initiatives (Kaplan and Norton, 1996c). Niven (2002) asserts that an organisation often has too many initiatives in the way that can affect it to choose the irrelative initiatives and hence affecting negatively its performance. He

explains that the initiatives that do not contribute strategically in improving an organisation's performance are not only counterproductive, but also an excessive utilisation of the financial and the human capital, which can affect negatively the competitive ability of an organisation.

BSC is considered to be an effective tool for addressing this problem. Kaplan and Norton (1996c) discuss that by setting targets for BSC measures in the four perspectives, managers can identify the gap between those targets and the current performance of an organisation. Thus, through analysing this gap, manages can finalise the current initiatives based on their contribution in closing that gap. Therefore, the initiative that does not have an effective positive impact on one or more BSC targets should be eliminated. Having done that, mangers can assess whether the finalised initiatives are sufficient for closing the gap or new initiatives have to be developed. Different researchers argue in favour of this role of BSC targets in developing organisational initiatives (Bloomquist & Fache, 2008; Nielsen & Sorensen, 2004; Chew et al., 2004). For instance, Nielsen and Sorensen (2004) assert that setting targets for BSC measures explicitly embeds an organisation's strategy into the planning process across the different units and departments, so an organisation and its sub-parts can coordinate and undertake the initiatives that most relevant to the achievement of the overall organisation's strategy.

Concerning the role of BSC targets in allocating organisation's resources; Kaplan and Norton depict that by setting targets for BSC measures and identify the relevant initiatives for achieving them; BSC would provide other three important areas that managers should pay attention when allocating their organisation's resources. They assert that using BSC in this way would enable an organisation to achieve an effective deployment of its resources in the way that protects the long-term strategic initiatives from the pressures to generate short-term financial performance (Kaplan & Norton, 1996a, 1996b, 1996c). In this context, Bloomquist and Fache (2008) assert that when effectively used, BSC allows managers to direct all the resources in the different parts of an organisation toward one way that leads to achieve the long-term strategy. Moreover, Niven (2002) assets that BSC puts organisations strategy at the heart of budgeting process, rather than taking the last year budget and adding certain percentages.

Although BSC targets and their applications relating to initiatives development and resources allocation are considered to be rather important for enhancing the role of BSC in the strategic planning and implementation, many relative practical concerns are raised. In this context, Niven (2002) argues that, it is ideal that BSC should contain both long-term targets and short-term targets for each performance measure in the four perspectives. However, in practice, this is

infrequently done, in which the establishment of the short-term targets itself can often prove to be a significant challenge. In consistence, Ahn (2001) asserts that in practice, managers do not concentrate on establishing long-term targets for their BSC measures; instead, they establish incremental short-term targets across years. He concludes that there are insufficient guidelines that can help an organisation in identifying how BSC targets can be determined in practice. Malmi (2001) on the other hand find that although some organisations set targets for their BSC measures, others do not, in these organisations; BSC seems to be used as an information system for monitoring the actual outcomes of an organisational performance rather than for planning purpose. On the other hand, some concerns are raised about the practical implementation of BSC as a basis for allocating resources (budgeting process) (Hoque, 2014; Yongvanich & Guthrie, 2009; Malmi, 2001). For example, Yongvanich and Guthrie (2009) found that many organisations, which are implementing BSC, do not benefit from using BSC as a basis for allocating resources.

Hence, and based on the previous discussion, some questions can be highlighted regarding BSC targets and their applications, which are: Do organisations set targets for BSC measures? If they do; do organisations set both long-term and short-term targets or they just use short-term targets? Finally, do organisations rely on BSC targets for developing their initiatives and allocating their resources?

2.2.3.5 BSC organisational alignment processes:

BSC in some organisations is developed by one or few organisational members who assumed to have sufficient knowledge and complete picture on organisation's vision and strategy. However, the properly BSC has to be developed through a systematic manner that ensures the organisational alignment throughout an organisation (Kaplan & Norton, 1992, 1993, 1996a; Bloomquist & Fache, 2008). The organisational alignment refers to that the objectives of all organisational parts (units, departments and alike), the behaviour and decisions of all organisational members are all in consistent with the long-term goals of an organisation (Kenneth & Wim, 2007). To insure this organisational alignment, Kaplan and Norton (1999a; 1999c; 2001b) developed BSC further to combine the processes of (1) top-level managers' participation in developing BSC, (2) educating and communicating BSC, (3) cascading BSC, (4) and linking BSC to compensation system. These alignment processes of BSC are discussed as follows.

2.2.3.5.1 Top-level managers' participation in developing BSC:

Kaplan and Norton (1996a) assert that an organisation in order to gain benefits from BSC, it needs to take the first essential step of involving its senior executives in developing BSC. In respect of how this process can be done, they explained that senior executives should firstly clarify their organisations' vision/goals and reach a consensus on its strategy, and then participate in identifying BSC objectives and measures that are best definition of the consented strategy. The participation of top-level managers in BSC development is considered to be rather important for mobilizing their commitment to BSC implementation, and therefore achieving the organisational alignment at top management level (Niven, 2002). It is also considered to be important for developing BSC that represents effectively the strategy of an organisation. As this process is assumed to result in defining and using the most relevant objectives and measures that agreed on by several top-level managers, rather than considering those objectives and measures that reflect the perspective of one or few organisational members (Kaplan & Norton; 1996a; 1996c).

2.2.3.5.2 BSC education and communication processes:

BSC is supposed to be educated and communicated top-down throughout an organisation, considering all managers and employees at lower organisational levels. This is in order to ensure their – the lower-levels members - awareness and understanding of the organisation's goals and strategy embedded into BSC; therefore, enhancing their motivation for acting upon the achievement of those goals and strategy (Kaplan & Norton, 1996c). The process of BSC education and communication is presumed to be conducted at the beginning of BSC program as well as throughout its implementation. This is by using different communication tools such as brochures, newsletters, strategy map, and through conducting meetings. At the beginning of BSC program; an organisation is assumed to communicate its BSC contents to the lower-level members, educate them on BSC concept, and the reasoning behind the specific objectives, measures and targets identified into BSC. This early education process is supposed to be reinforced further during BSC implementation by communicating BSC feedback on the actual performance. So, allowing the lower-level members to understand how their decisions and day-to-day actions affect the overall performance of an organisation, and hence determining their participations in improving it (Kaplan & Norton, 1996a; 1996c; 2001b).

Many studies highlight the importance of developing and implementing BSC in accord with this communicating approach (Molina et al., 2014; Jordão & Novas, 2013; Ayoup et al., 2010;

Bloomquist & Fache, 2008; Assiri, 2006). For examples, Jordão & Novas, (2013) assert that communicating BSC-in fact-is a dissemination of an organisation's strategic plan, which would align employees' actions with the desired performance for achieving the short and long organisation's success. Molina et al., (2014) in turn assert that BSC communication process diminishes the ambiguity pertained to organisation's strategy in the workplace. It therefore would result in a high level of job satisfaction and active employees' commitment to achieve the clarified strategy.

However, despite the importance of communicating BSC, this communication does not seem to be existent in many organisations that have adopted BSC. In this context, Speckbacher et al., (2003) find that the majority of BSC users apply BSC without communicating it down to the lower organisational levels. In addition, Yongvanich and Guthrie (2009) find that organisations benefit less from using BSC as strategic communicating tool. Agostino and Arnaboldi (2012) in turn find that more than half of their study's sample does not use BSC for communication purpose. In this vein, Ahn (2001), based on his case study, indicates that organisations may prefer to present BSC just to the managers rather than communicating it to employees at lower levels; since communicating BSC might confuse employees rather that make the picture clear for them due to the big number of performance measures embedded in BSC.

2.2.3.5.3 Cascading process of BSC:

Communicating BSC top-down is considered to be not always beneficial. This is when the underlying idea of such communication is to convince the lower-levels members of the top management choice of implementing BSC rather than inviting them to a real participation in BSC program (Johanson et al., 2006). Kaplan and Norton (1996a, 1996c) themselves emphasise that the mere recognition of organisation's strategic goals is not sufficient to make many people committed to achieve those goals; thus BSC should not be just communicated top-down, but also should be cascaded top-down. In addition to its alignment role, the cascading process of BSC is considered to be also important for utilising the talents and information in the lower levels for developing and implementing BSC (Kaplan and Norton; 1996a, 1996c; Niven, 2002).

Two types of BSC cascading have been suggested by the literature. The first type represents the involvement of the lower-levels managers in BSC development. That is, inviting lower-levels managers to participate in developing and identifying the corporate BSC's strategic objectives and performance measures those related to their job responsibilities (Kaplan & Norton, 1996a). In

regard of this first type of BSC cascading; Kaplan and Norton (1996c) give the example that, the mangers at the top organisational level set strategic objectives and measures for only the financial and customer perspectives; and then the managers at the next two middle organisational levels are encouraged to develop the strategic objectives and measures for the internal business process and learning and growth perspectives. The second type of BSC cascading is illustrated by the means of cascading the use of BSC to lower organisational levels. An organisation cascades its corporate BSC to its members at the next organisational levels of departments, units, teams, etc. Who are then encouraged to use the corporate BSC as point of reference through (i) identifying the objectives and measures on the corporate BSC that they can influence, an then (ii) translating these objectives and measures into local ones, which they - the lower-levels members - can contribute in their achievement therefore the achievement of the overall corporate objectives defined into the corporate BSC (Chavan, 2009; Niven, 2002; Kaplan & Norton, 1996c, 2001b).

Several researches argue in favour of the importance of BSC cascading process (Chen & Jones, 2009; Assiri, 2006; Decoene & Bruggeman, 2006; Othman et al., 2006; Chow et al., 1997). For instances; Chen and Jones (2009) state that implementing BSC without the cascading process would lead to a lack of the necessary acceptance of lower-levels members, who are the main determiners of the successful implementation of BSC. Furthermore, Chow et al., (1997) indicate that an organisation should cascade its BSC, if it needs the work to be done. They demonstrate that the success demands an organisation to utilise the capabilities of its employees, not just those physical ones, but the more important are their knowledge, talent and skills, which can be stimulated by cascading BSC.

Otherwise, other studies have raised some concerns related to this concept of BSC cascading in terms of its implementation and benefit. In this regard, Yongvanich and Guthrie (2009) find that organisations use BSC either at the top management level or at the business unit level without cascading BSC to be used at the lower organisational levels. In consistence, Agostino and Arnaboldi (2012) find that the majority of organisations in their study's sample use BSC at the top management level and they do not cascade BSC to the lower levels. This choice is justified by one of the study's respondent as following: the decision to implement BSC was driven by a specific goal, which is to have a report that summarises the overall situation of the business on a single page; thus, achieving this goal does not require BSC to be cascaded to the lower levels (Agostino & Arnaboldi, 2012). Moreover, based on their investigation of the effect of BSC cascading process on the performance outcomes of 92 Australian organisations, Bedford et al.,

(2008) found that although the majority of organisations have developed and implemented BSC at different organisational levels, this cascading process did not appear to have any positive effect - neither on the non-financial outcomes nor on financial outcomes of organisation's performance. They made the point that enhancing the successful performance needs BSC to be used for fostering the decision-making at the corporate levels. This therefore requires collecting data throughout an organisation, but does not necessary requires BSC to be cascaded to lower organisational levels.

2.2.3.5.4 The process of linking BSC to the compensation system:

The advanced demand for achieving an effective organisational alignment is assigned to be linking BSC to the compensation system. Kaplan and Norton (1996c, p. 222) assert that "the alignment of an organisation toward the strategy must ultimately be motivated through the incentive and reward systems [...], therefore; this alignment will clearly be enhanced when individual contribution to achieving BSC objectives are linked to compensation system". Three approaches are mentioned in the literature for establishing this compensation linkage (Kaplan and Norton, 1996a). The first approach is the objective approach, whereby an organisation rewards its employees based on certain identified percentages representing the actual achievements versus the targets set for BSC measures. The second approach is the subjective approach; according to this approach the rewards would be determined based on the dialogue among organisation's executives and managers about the combination of objectives and measures, and the explanation of actual versus targeted performance. The third approach represents the mixed approach in which an organisation can establish both objective and subjective linkages. Whereas, employees according to this approach will be rewarded based on certain percentage related to financial measures and simultaneously relying on a subjective assessment of the progress achieved in the non-financial measures.

Regarding the importance of this process of linking the compensation system to BSC, Assiri (2006) emphasises that to enhance the successful implementation of BSC; the compensation system has to be linked to BSC measures. Otley (2003) in turn indicates that linking the compensation system to BSC would serve the attainment of two main purposes; the first purpose is to increase the employees' awareness of what activities they should perform in order to achieve an organisation's strategy; the second purpose is to motivate their real commitment to accomplishing those activities effectively. In consistence, Chavan (2009) mentions that linking

BSC to the compensation system illustrates obviously to employees what capabilities they should obtain in order to achieve organisation's long-term strategic goals; and simultaneously enables them to evaluate their short-term performance toward achieving these strategic goals. Moreover, Othman et al., (2006) assert that implementing BSC without linking it to the compensation system would result in the situation where most employees do not feel accountable for the performance measures included in BSC. They emphasise that this situation in turn can lead to the failure of attaining the purposes underlying BSC implementation.

However, despite this emphasis on the importance of linking the compensation system to BSC, this linkage seems to be not established in practice. In this context, Soderberg et al., (2011) found that more than half of organisations implemented BSC are not linking this concept to the compensation system. Zuriekat (2005) in turn found that the linkage between BSC and the compensation system is not existent in 66% of BSC adopters. Moreover, Khan et al., (2011) find that none of the organisations involved in their study have linked their BSCs to the compensation system. Similarly, Tuomela (2005) arrives at the findings that organisations use BSC without considering the linkage to the compensation system. In consistence, Based on their review of 117 BSC studies, Albertsen and Lueg (2014) conclude that although Kaplan and Norton emphasise the importance of linking BSC to the compensation system, there is little evidence on that this linkage has been considered in practice.

Concerning this practical absence of linking BSC and the compensation system, Agostino and Arnaboldi (2012) assert that organisations may not consider the linkage between BSC and the compensation system because of the purpose underling the use of BSC. They explain that many organisations use BSC for monitoring their performance over time; thus, linking BSC to the compensation system might not be considered as an essential demand for accomplishing this purpose. Similarly, Bedford et al., (2008) states that if an organisation uses BSC for enhancing the decision-making process, the linkage between BSC and the compensation system is not prerequisite for BSC to be beneficial in attaining this task. In turn, Said (2013) anticipates that some organisation find it is difficult to tie their compensation systems to BSC, because of people's beliefs, since they have being rewarded based on the traditional ways for a long time.

On the other hand, some studies have questioned that how BSC can be linked to the compensation system in practice (Albertsen & Lueg, 2014; Said, 2013; Zuriekat, 2005; Niven, 2002; Malmi, 2001). Albertsen and Lueg (2014) highlight that there are many points are still

unclear regarding how organisations link their compensation system to BSC. They demonstrate that, there is a need to know who are rewarded based on BSC (Top-level managers, lower-levels managers, employees); which BSC perspectives and measures, the compensation system is connected with; is the connection for the whole salary or just for bonuses (extra payment); what is the periodic basis of the rewarding (monthly, quarterly, annually).

Based on the above discussion, it is notable that the alignment processes of BSC are all considered as important processes for BSC implementation to enhance employees' understanding, participation and commitment to the organisation long-term goals. On the other hand, it is also notable that there is some un-clarity regarding the practical implementation of these alignment processes. This un-clarity prompts to pose the following questions: Do the majority of top-level managers participate in developing BSC? Do organisations communicate and educate BSC to lower organisational levels? If they do, to which organisational levels BSC is communicated? Do organisations cascade their BSCs to lower organisational levels? If they do, to which organisational levels BSC is cascaded? Do organisations link their BSCs to the compensation system? If they do, how they have done?

2.2.3.6 BSC feedback and organisational learning process:

The feedback process refers to the process in which the goals are established, and the business initiatives-actions and projects-are performed, and then the actual results are benchmarked versus the pre-established goals in order to identify if there any deviation (Koufteros et al., 2014; Henri, 2006a; 2006b Simons, 2000, 1995). However, how organisation can learn from this feedback process to improve its performance? Argyris (1977) identifies two types of learning, the single-loop learning and the double-loop learning. Whereas, in the single-loop learning the identified deviation prompts mangers to question the actual results of the past performance, and therefore taking the corrective actions that expected to promote organisation's performance towards meeting the pre-established goals. However, in the double-loop learning, the deviation would further prompt managers to question the validity of the pre-established goals themselves; which might need to be modified as a consequence of the change in an organisation's business environment.

Concerning these two loops of learning, Kaplan and Norton (1996a) assert that besides using BSC for single-loop learning, an organisation should utilise the ability of BSC as a system for double-loop learning. They demonstrate that the deviation between the actual results and the

desired goals on BSC should prompt managers to evaluate both the quality of the performance and the validity of the strategy. Thus, if the employees and managers have efficiently delivered on the performance as planned, the deviation therefore has to be considered as a motive for evaluating the validity of strategy based on the new conditions of the business environment. This therefore can result in adjusting the current strategy through modifying the strategic objective, measures, and the cause and effect relationships among them (updating BSC), or discard the current strategy and adopt a new one that believed to be more effective for dealing with the new conditions of an organisation's environment (Kaplan & Norton, 2001b, 1996c. 1996a).

Empirically, the use of BSC for fostering double-loop learning has been examined by some studies such as Agostino and Arnaboldi (2012), Soderberg et al., (2011), Yongvanich and Guthrie (2009), and Braam and Nijssen (2004). Braam and Nijssen (2004) demonstrate the experience of one Dutch organisation with BSC; they state that the organisation has failed to execute its strategy through using BSC in the first two efforts. However, these failures were the cause of prompting the strategic learning and the interactive dialogue among all organisational members. This in turn resulted in updating BSC objectives and measures to be more realisable and appropriate for the organisation's capabilities and business environment. They further assert that this interactive and learning approach ultimately results in a successful implementation of BSC and hence improving the organisation's performance. Agostino and Arnaboldi (2012) in turn state that when BSC is used for double-loop leaning, it draws the attention of the entire organisation to any strategic adjustment has to be undertaken and any emerging opportunities have to be utilised. Regarding the practical implementation of BSC as double-loop learning system, Yongvanich and Guthrie (2009) provide the findings that 34 from 49 Australian organisations, which have implemented BSC, use BSC in the sense of double-loop learning. On the other hand, the study of Soderberg et al., (2011) arrived at less ambitions results that 60% of 111 Canadian organisation's implemented BSC do not use BSC for double-loop learning.

Based on the previous discussion, it can be theoretically argued that using BSC in the sense of the double-loop learning can make BSC a dynamic and flexible system. This enhances the continuous improvement in organisation's objectives and measures to be in consistence with the changes in the business environment and emerging opportunities. However, at the lack of the relevant empirical investigation and the existence of the conflicting findings; it is logical to question that: In practice, do organisations implement BSC in the sense of double-loop learning or they just implement it as a system for single-loop learning?

2.2.4 Benefits of BSC:

Providing the discussion in the previous subsections, it is should be clear that BSC with its various components is considered to benefit an organisation in relation to several managerial functions including, performance measurement, strategy clarification, strategic planning, strategy implementation, organisational alignment, and organisational learning. However, the ultimate goal of BSC as it has been developed originally for the for-profit organisations is to improve the financial performance of organisation. BSC inventors emphasise that BSC is concerned with improving the non-financial aspects of an organisation's performance towards improving its financial performance (long-run financial outcomes) and hence maximising the value of its shareholders, which represents the main goal of BSC financial perspective (Kaplan & Norton, 1992; 1993; 1996a; 1996b; 1996c; 2000; 2001a). For example, in their 1992 article; they assert that "BSC complements the financial measures with operational measures on customer satisfaction, internal process, and organisational innovation and improvement activities – operational measures that are the drivers of future financial performance" (Kaplan & Norton, 1992, p. 71).

2.3 Discussion of BSC empirical studies:

BSC has attracted a great deal of attention since its introduction in early 1990s. Various studies have investigated different aspects of BSC which generate a great amount of argument and debate regarding its practical implementation and expected benefits. The researcher has reviewed several of these studies. This is to identify how the empirical studies have addressed the concept of BSC, and what findings they have arrived at; therefore identifying the gap in which the current study can contribute. This review of BSC empirical studies is summarised in Table 2.3. The reviewed empirical BSC studies are discussed and evaluated in this section from five dimensions. In the first dimension the empirical studies are discussed and evaluated in terms of their interpretations (definitions) of BSC concept. In the second dimension they are discussed and evaluated in terms of how they have measured the implementation of BSC. In the third dimension, the studies are discussed and evaluated in terms of their findings regarding the practical implementation of BSC. In the fourth dimension, they are discussed and evaluated in terms of their findings regarding the perceived benefits from implementing BSC. Finally, in the fifth dimension, the empirical studies are evaluated and discussed in terms of their geographic domain.

2.3.1 First dimension: previous studies' interpretations of BSC concept:

As it can be seen in column (3) of Table 2.2; the previous studies have interpreted BSC concept in different ways that can be demonstrated as follows:

- Interpreting BSC as financial and non-financial performance measures grouped into four perspectives without considering the performance measures to be derived from a corporate strategy and to be linked together based on the cause and effect relationship (e.g. Liu et al; 2014; Jusoh et al, 2007; Hoque, 2005; Sohn et al, 2003; Olson & Slater, 2002; Hoque & James 2000).

- Interpreting BSC as financial and non-financial performance measures grouped into four perspectives and derived from a corporate strategy, yet without considering the cause and effect relationship (e.g. Braam & Nijssen, 2004; Spechbarker et al, 2003; Malmi, 2001).

- Interpreting BSC as financial and non-financial performance measures grouped into four perspectives derived from strategy and linked together on the basis of cause and effect relationship apart from considering the other components of BSC (e.g. Zuriekat, 2005; Ittner et al, 2003; Spechbarker et al, 2003)

- Interpreting BSC as one of the above interpretations in addition to considering partially some BSC components such as setting targets, initiatives and linking to compensation system (e.g. Lee et al, 2014; Pert et al, 2012; Yongvanich & Guthrie, 2009).

Although these interpretations of BSC are indeed worth efforts for describing and defining BSC concept, there is no one individual interpretation of BSC provided by previous empirical studies captures the fully developed concept of BSC concerning its various components (e.g. Janeš, 2014; Albertsen & Lueg, 2014; Simpson & Aboagye-Otchere, 2014; Said, 2013; Dechow, 2012; Franco-Santos et al, 2007; Speckbacher et al, 2003; Chenhall, 2003). To recall from Subsection 2.2.3, Dechow (2012, p.522) assets that we see that BSC has been around "as new" for a very long time now, and actually longer than any other management concept known to date. More importantly, we now begin to see research that draws on notions, which BSC literature has introduced, yet perhaps never really explained. Given this, several researchers have called for developing a more valid interpretation of BSC that captures its fully developed concept, and hence providing a basis and a departure point for a comprehensive and accurate investigation of the practical implementation of BSC (e.g. Dechow, 2012; Zuriekat, 2005; Chenhall, 2003).

2.3.2 Second dimension: previous studies' measurement of BSC:

As it can be observed in column (4) of Table 2.2; the majority of the previous studies have applied three ways for measuring the practical implementation of BSC. These are discussed as follows:

1) Measuring BSC implementation by asking respondents through a questionnaire a single direct question on whether their organisations have adopted BSC or no. This method can be considered as an easy for examining the rate/extent of BSC adoption. However, it does not provide a useful insight into how an organisation has evaluated it-self as BSC adopter or non-adopter; especially with the existence of the possibility that BSC can be understood and interpreted in different ways (e.g. Dechow, 2012; Soderberg et al., 2011; Khan et al., 2011; Čizmić & Crnkić, 2010; Burkert et al., 2010; Franco-Santos et al, 2007; Marr, 2005; Bukh & Malmi, 2005). In certain instances, Burkert et al., (2010) highlight that it is not appropriate to ask organisations a direct question on whether they use BSC. This is because some organisation will answer (yes) due to considering the use of BSC as a socially desirable, while some organisation will answer (yes) at the time that they only use a mixture of financial and non-financial measures. In contrast, some organisations will answer (no) while their PMS is similar to BSC. In consistence, Soderberg et al., (2011) states that one common weakness of BSC studies is that they ask respondents themselves to classify whether their organisations have a BSC. The researchers provide the empirical evidence that; 49% of organisations that evaluated as BSC adopters they thought their PMSs are not BSC; while, 16% of organisations that evaluated as non-BSC adopters, they thought their PMSs is BSC.

2) Measuring BSC implementation by asking respondents through questionnaire different questions related to the adoption of certain BSC components. Although this measurement method provides more information on the components adopted into BSC implementation, it falls short of providing insights into how these components have been developed and used (implemented) in practice. In addition, this measurement method can be also criticised as the first measurement method as they both rely essentially on the respondents' self-evaluation for measuring the implementation of BSC (e.g. Hoque, 2014; Said, 2013; Dechow, 2012; Othman et al., 2006; Bukh & Malmi, 2005). In this context, Dechow (2012) asserts that respondents often tend to use their perception and background knowledge when they are questioned about how they use BSC. They rarely give an answer that reflects their real implementation in terms of what constitute their real BSCs and how they have developed them.

3) Measuring BSC implementation by surveying a pre-identified set of performance measures. This method is a useful method for examining the measurement purpose of BSC and identifying the performance measures that are used commonly among organisations. However, it can be criticised for its implicit assumption that all organisations are using same structure of BSC. This assumption which is originated from surveying different organisations by same performance measures within same perspectives of BSC. It therefore leads to account the organisations that use different measures from the surveyed measures as non-BSC users (e.g. Soderberg, et al., 2011; Bukh & Malmi, 2005; Braam & Nijssen, 2004). In this regard, Braam and Nijssen, (2004) assert that it is difficult to measure the organisation's implementation of BSC by surveying pre-identified measures or structure, since BSC can be used in different ways including different perspectives and performance measures.

While the majority of the previous studies are applied the above three methods for measuring BSC adoption and implementation, few studies investigated BSC through using interactive methods such as case study research. This is believed by several researches to be capable of providing more useful insights into how BSC is implemented in practice (e.g. Perkins et al., 2014; Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Said, 2013; Agostino & Arnaboldi, 2012).

2.3.3 Third dimension: previous studies' findings on BSC practical implementation:

The previous studies' interpretations of BSC and their measurement method (discussed above) have affected essentially the available empirical evidence on BSC practice. That is, as it can be noticed in the column (5) in Table 2.2; (i) most of the findings of the previous studies are associated mainly with the adoption rate of BSC not with how BSC is developed and used (BSC implementation). This adoption which have been evidenced by organisations' use of financial and non-financial performance measures into four perspectives or based on the self-evaluation of the respondents (Liu et al., 2014; Giannopoulos et al., 2013; Hendricks et al., 2012; Islam & Tadros, 2012; Tanyi, 2011; Khan et al., 2011; Sawalqa et al., 2011; Gosselin, 2011; Fakhri et al., 2009; Ismail, 2007; Jusoh et al., 2007; Hoque, 2005; Hendricks et al., 2004; Sohn et al., 2003; Olson & Slater, 2002; Hoque &James, 2000). (ii) small number of the previous studies have provided empirical evidences on the adoption rate of BSC with considering some other BSC components such as cause and effect relationship, setting targets and initiatives, linking to compensation system, feedback and learning process (Lee et al., 2014; Agostino & Arnablodi, 2012; Petera et al., 2012; Soderberg et al., 2011; Yongvanich & Guthrie, 2009; Bedford et al., 2008; Zuriekat,

2005; Speckbacker et al., 2003; Ittner et al., 2003a). (iii) Smaller number of studies has provided empirical evidence on how BSC is implemented in its real organisational context (Said, 2013; Janota & Major, 2012; Davis & Albright, 2004; Malmi, 2001).

From the above demonstration, it is clear that, although there are many empirical studies have investigated BSC, there is still unclear picture regarding the question that how BSC is implemented in practice? Which entails conducting many further empirical studies (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Albertsen & Lueg, 2014; Said, 2013; Hendricks et al., 2012; Kaplan, 2012; Dechow, 2012; Janota & Major, 2012; Soderberg, et al., 2011; Sawalqa et al., 2011, Khan et al, 2011; Saraiva, 2011; Banchieri et al., 2011; Ayoup et al., 2010; Bedford et al., 2008; Ismail, 2007; Jusoh et al., 2007; Assiri et al., 2006; Bukh & Malmi, 2005; Hendricks et al., 2004; Ittner et al., 2003b; Speckbacher et al., 2003). In this context, Hendricks et al., (2012) state that many further studies are motivated to investigate the implementation of BSC, since the majority of the previous studies have concerned essentially with BSC adoption rate not with how this system is implemented in practice. Ittner et al., (2003b) in turn emphasise that future research on BSC and its performance consequences must move beyond measuring the present of its components to encompass its entire implementation process. In addition, Speckbacher et al., (2003) assert that further studies are needed for more deep analysis of BSC content and implementation. Khan et al., (2011) mention that further studies into BSC can contribute to the literature on how organisations implement BSC. Moreover, Sawalqa et al., (2011) state that there is a need for examining the implementation of BSC with more emphasis on examining the cause-and-effect relationship and the implementation of BSC as management system. Furthermore, Dechow (2012) asserts that there is not a sufficient answer for the question that do organisation really implement BSC or they simply use new language to refer to their use of mixed performance measurement?, which entails more BSC studies have to be conducted. Bedford et al., (2008) in turn assert that further studies are needed for more depth investigation of BSC implementation regarding its different components.

2.3.4 Fourth dimension: previous studies' findings on the benefits of BSC:

As it can be observed in the column (6) in Table 2.2; most of the previous studies have focused essentially on examining the subjective (non-financial) benefits of implementing BSC (Lee et al., 2014; Giannopoulos et al., 2013; Said, 2013; Agostino & Arnablodi, 2012; Islam & Tadros, 2012; Janota & Major, 2012; Sawalqa et al., 2011; Soderberg et al., 2011; Khan et al.,

2011; Tanyi, 2011; Yongvanich & Guthrie, 2009; Jusoh et al., 2007; Hoque, 2005; Hendricks et al., 2004; Speckbacker et al., 2003; Olson & Slater, 2002; Hoque &James, 2000). The findings of these studies show that BSC implementation has great benefits related to different aspects including: increasing customer satisfaction, fostering system satisfaction, enhancing decision making process, prompting the performance measurement process, clarifying strategy and improving strategic planning, strategic alignment, and strategic feedback and learning. However, although the ultimate goal of BSC is to enhance the financial performance of an organisation, a small number of the previous studies have examined the ability of BSC implementation to achieve this goal. The findings of these studies differ and conflict. Whereas, while some studies such as Davis and Albright (2004) and Petera et al., (2012) have found a significant positive impact of implementing BSC on the financial performance, other studies such as Malmi (2001), Bedford et al., (2008) and Hendricks et al., (2004) do not found such significant financial effect. Moreover, studies such as Ittner et al., (2003a) found that implementing BSC can has a negative effect on the financial performance.

On the other hand, few studies have investigated BSC benefits on the light of different BSC implementations. The findings of these studies also differ and conflict. That is, while studies such as Braam and Nijssen (2004) and Lee et al., (2014) have confirmed the differences regarding the gained benefits between different implementations of BSC, other studies such as Yongvanich and Guthrie (2009), Soderberg et al., (2011) and Petera et al., (2012) have failed to show such differences.

The above discussion indicates clearly that further studies are required for more investigation of BSC benefits especially in terms of the effect of BSC on an organisation's financial performance (e.g. Perkins et al., 2014; Davis &d Albright, 2004; Malmi, 2001).

2.3.5 Fifth dimension: Previous studies' geographic locations:

As it can be observed in the column (2) in Table 2.2; the majority of BSC studies were conducted in developed countries mainly in Canada, The US, Australia and The UK. Otherwise, there is a limited number of studies investigated BSC implementation in less developed countries especially in Arab countries such as Libya. Given this, many studies have emphasised the necessity of conducting further studies in those countries; therefore providing more insights and details on how the new management accounting systems such as BSC are implementing in

different context from that in which BSC have being implemented and tested for long time (e.g. Hoque, 2014; Liu et al., 2014; Sawalqa et al., 2011; Yongvanich & Guthrie, 2009; Ismail, 2007; Khan et al., 2011; Said, 2013).

Based on the above discussion of BSC previous study, it is clear that there is still limited knowledge about the practical implementation of BSC and its expected financial benefits. This in turn prompts many researchers to call for further empirical studies in this field, especially in less developed countries. As response, this study is conducted to investigate how BSC is implemented in practice; and how this implementation can affect the financial performance of an organisation.

Furthermore, the study would draw on the contingency theory in order to investigate the role of two main contingent variables, namely the environmental uncertainty and business strategy, in shaping the implementation of BSC and its financial effect. This is because:

- The widely documented call of many researchers to investigate the implementation of BSC through considering organisational characteristics including business environment and strategy (Liu et al., 2014; Simpson & Aboagye-Otchere, 2014; Hendricks et al., 2012; Janota & Major, 2012; Wu, 2012; Rompho, 2011; Soderberg et al., 2011; Chavan, 2009; Bedford et al., 2008; Jusoh et al., 2007; Ismail, 2007; Zuriekat, 2005; Bukh & Malmi, 2005; Braam & Nijssen, 2004; Davis & Albright, 2004; Hendricks et al., 2004). For instances, Soderberg, et al., (2011) asserts that further studies should investigate the different implementations of BSC and their benefits with considering the characteristics of different organisations. Janota and Major (2012) in favour assert that considering organisational characteristics when investigating BSC implementation not just would result in adding to the theoretical development of BSC, but also would help organisations to avoid mistakes when they implement BSC.
- The effectiveness of the contingency theory in examining the effect of organisational characteristics on the organisational structure and systems (Liu, et al., 2014; Dropulić, 2012; Gosseline, 2011; Soobaroyen, 2007; Zuriekat, 2005; Hoque, 2004; Hoque & James 2000; Dent, 1990; Chenhall & Morris, 1986; Otley, 1980;). This is along with the indications that the contingency theory has been wildly used in management accounting research, while there are few BSC-based studies have employed this theory (By 6.1% according to the finding of Hoque, 2014 study)

Table 2.2: BSC empirical studies' review:

Column (1)	Column (2)	Column (3)	Column (4)	Column (5)	Column (6)
The study	**Country**	**How the study interpreted (operationalized) BSC concept**	**How and which BSC components are measured**	**Empirical findings related to BSC implementation**	**Empirical findings related to BSC benefits**
Janota & Major (2012)	Portugal	There is no pre-identified operationalization.	● Single case study. ● Questioning on how BSC is developed and implemented in the case study company.	BSC used as fully strategic management system.	● Prompting the effective control of performance. ● Providing important information required for an effective planning and innovation.
Malmi (2001)	Finland	● Type (1): Performance indicator BSC (without considering the strategy). ● Type (2): Strategic BSC.	●Semi-structured interview. ●Questioning on several BSC features: Performance measures; Cause and effect; Setting targets; Linking to budgeting process; Cascading; Compensation linkage.	●All the 17 companies use from 4 to20 measures within the generic perspectives. ●No cause and effect. ●Most companies set targets. ●Most companies link compensation system. ●No cascading.	●Providing key information that improve decision making process. ●Interviewees emphasise less the financial benefits which appears to rare.
Braam & Nijssen (2004)	Dutch	●Type (1) measurement focused-BSC (without considering strategy). ●Type (2) strategic focused-BSC	● Questionnaire. ● Questioning on some BSC features (weren't mentioned in the study) and the use of financial and non-financial measures.	41 companies use BSC. (weren't specified base on the types)	● Type (1): significant negative effect on performance. ●Type (2): significant positive effect on performance.
Speckbacker et al., (2003)	German, Australia, Switzerland	●Type1: four perspectives involve several financial and non-financial measures derived from strategy. ●Type2: Type1+ cause and effect relationship. ●Type3: Type2+ setting targets, action plan and compensation linkage.	● Questionnaire. ●Questioning on the use of pre-identified BSC features in the three types and additionally the cascading level of BSC.	● 45 from 175 companies adopted BSC, 5% of them just use four perspectives as well as more than 30% do not use the learning and growth perspective. ● 21 companies type1. ●9 companies type2. ●12 companies type3. ● 30 companies implement the BSC solely at business unit and 12 throughout all levels.	● Align actions with strategic objectives. ●Strong consideration of driving activities. ● Supporting shareholders' value.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Soderberg et al., (2011)	Canada	●Type1: financial and non-financial measures derived from strategy. ●Type2a: 1+balance feature. ●Type2b:2a+ cause and effect relationship. ●Type3: 1+2a+2b. ●Type4a: 3+double loop process. ●Type4b: 3+ compensation linkage. ●Type5: 3+double loop and compensation linkage processes.	● Questionnaire. ● Questioning on the pre-identified features in BSC types.	●111 companies adopted BSC. ● 16 companies type1. ●13 companies type 2a. ● 21 companies type 2b. ● 4 companies type 4a. ● 19 companies type 4b. ●36 companies type 5.	● Focusing resource on strategy. ●Improving managers' satisfaction regarding the PMS. ●Achieving high performance effectiveness.
Davis & Albright (2004)	US	There is no pre-identified operationalization.	Quasi-experimental investigation.	BSC is implemented as a fully management system, but without linking to compensation system.	Significant positive impact of financial performance.
Ittner et al., (2003a)	US	Financial and non-financial measures in four perspectives derived from strategy and linked on the basis of cause and effect relationship.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC across sex-points Likert scale. ●Questioning on the use of broad set of pre-identified financial and non-financial measures. ●Questioning on the cause and effect relationship.	● 15 from 139 adopted BSC. ● 11 of 15 companies did not adopt the cause and effect relationship.	● A positive impact of system satisfaction. ●There is no and sometimes negative impact on the financial performance.
Bedford et al., (2008)	Australia	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC or no. ● Questioning on three identified BSC features including: the cause and effect relationship; compensation linkage; cascading process.	● 92 from 426 companies have adopted BSC. ● 40 companies applied the cause and effect relationship. ● 50 companies linked the compensation to BSC. ● The majority of 92 cascade BSC.	● Fostering strategy development, communicating and focus. ● There is no effect on financial performance.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Giannopoulos et al., (2013)	UK and Cyprus	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC or no.	3 from 40 companies use BSC.	●Facilitating the strategic development. ●Align employees with strategy. ●Improving customer satisfaction and financial performance.
Islam & Tadros (2012)	US and Canada	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC or no.	63 from 91 companies adopted BSC.	Not considered in the study.
Hoque &James (2000)	Australia	Using financial and non-financial measures within four perspectives without considering strategy.	● Questionnaire. ● Questioning on the use of pre-identified 12 measures grouped in the four generic BSC perspectives.	66 companies use BSC.	Significant and positive impact on financial and non-financial performance.
Hoque (2005)	New-Zealand	Using financial and non-financial measures within four perspectives without considering strategy.	● Questionnaire. ● Questioning on the use of pre-identified 12 measures grouped in the four generic BSC perspectives.	52 companies use BSC.	A positive effect on performance when the level of the environmental uncertainty is high.
Hendricks et al., (2004)	Canada	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC or no.	42 companies used BSC.	There is no a significant impact on the performance.
Hendricks et al., (2012)	Canada	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted the BSC or no.	40 companies used BSC.	Not considered in the study
Lee et al., (2014)	Korea	●Type1: financial and non-financial measures without considering the strategy. ●Type2: type 1+ linking to strategy + communicating + setting targets +linking to reward system.	● Questionnaire. ● Asking about the use of pre-identified 20 items grouped in the four generic BSC perspectives. ● Questioning on the pre-identified feature in the type 2.	259 companies used BSC (weren't specified base on the types)	●Type1: there is no significant impact on organisation performance. ●Type2: significant positive impact on organisation performance.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Olson & Slater (2002)	US	Financial and non-financial measures in four perspectives without considering strategy.	● Questionnaire. ● Questioning on the use of several measures grouped in the four generic BSC perspectives.	208 companies used BSC.	Positive effect on organisation's performance.
Sohn et al., (2003)	Korea	Financial and non-financial measures in four perspectives without considering strategy.	● Questionnaire. ● Questioning on the use of several pre-identified measures grouped in the four generic BSC perspectives.	266 companies used BSC.	Not considered in the study
Zuriekat (2005)	UK	Objectives and measures within several perspectives derived from organisation's strategy and linked together based on the cause and effect relationship.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC or no. ● Questioning on the use of several pre-identified measures grouped in several perspectives. ● Questioning on BSC features: perspective, strategic objectives and measures, cause and effect, setting targets and initiatives, compensation linkage and BSC cascading.	● 49 of 163 companies used a BSC involves strategic objectives and measures as well as cause and effect relationship. The majority of companies use the first three generic BSC perspectives with additional perspectives. ● the majority of companies do not use the learning and growth perspective. ● 24 companies set targets and link initiatives. ● 17 companies can link BSC to the compensation. ● No BSC cascading in most BSC companies.	● Effective strategy communication. ● Companies emphasise less on the financial benefits which appears to rare.
Tanyi (2011)	Finland	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted the BSC or no.	● 31 of 40 companies used BSC.	●Enhancing effective strategic communication. ●Enhancing decision making process. ●facilitating self-assessment.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Agostino & Arnablodi (2012)	Italy	The BSC operationalized based on two types of use: ● Type 1: diagnostic BSC. ● Type 2: interactive BSC.	● Semi-structured interviews. ● Questioning on two types of BSC features: - Design features: Using financial and non-financial measures; Cascading; Target setting; Compensation linkage. - Using features: Diagnostic use; Interactive use.	● 4 companies use the diagnostic BSC type with design features of using financial and non-financial measure and setting explicit targets. ● 3 companies use the interactive BSC type with design features of using balance set of financial and non-financial measures, cascading and setting implicit targets.	● Diagnostic BSC: Providing key information related to multi aspect of performance for more effective decision making. ●Interactive BSC: Enhancing strategic dialogue; Improving the strategic communication, feedback and learning.
Gosselin (2011)	Canada	There is no specific operationalization.	● Questionnaire. ● Asking a single direct question regarding if the company has adopted the BSC or no.	● 13 of 111 companies used BSC.	Not considered in the study.
Ismail (2007)	Egypt	There is no specific operationalization	● Questionnaire. ● Asking a single direct question on whether the company has adopted BSC across five-point Likert scale. ●Questioning on the use of broad set of pre-identified financial and non-financial measures.	● 28 of 28 companies used BSC, yet 65% of them do not use all the organic four BSC perspectives.	Not considered in the study.
Sawalqa et al., (2011)	Jordan	There is no specific operationalization	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC across six-point Likert scale. ●Questioning on the use of broad set of pre-identified financial and non-financial measures combined in several perspectives.	● 59 of 168 companies adopted BSC. ● The majority of these companies use additional perspective beside the generic four BSC.	●Improving the quality of performance measurement process. ●Enhancing better management of operational processes and overall business process. ●Enhancing better strategic communication and decision making process.
Fakhri et al., (2009)	Libya	There is no specific operationalization	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC. ● Questioning on the use of broad set of pre-identified financial and non-financial measures.	● 11 of 63 banks adopted BSC.	Not considered in the study.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Khan et al., (2011)	Bangladesh	There is no specific operationalization	● Questionnaire. ● Asking a single direct question regarding if the company has adopted BSC. ● Questioning on the use of broad set of pre-identified financial and non-financial measures, level of BSC cascading and linking to the reward system.	● 6 of 60 companies adopted BSC at some organisational levels and without linking to the reward system.	Enhancing the decision making process.
Said (2013)	Malaysia	There is no specific operationalization	● Single case study. ● Questioning on how BSC is developed and implemented in the company.	Three different implementation type over time: ● Financial and non-financial measures grouped in four perspectives without considering strategy. ● Strategic PMS: measures derived from strategy and linked together on the basis of cause and effect relationship. ● Strategic planning system: targets are set and initiatives are linked to BSC. ● Additionally, communicating and cascading the BSC.	●Improving management process. ●Improving better strategic planning to cope with the increase level of competition. ●Enhancing organisational alignment with strategy.
Petera et al., (2012)	Czech Republic	●Type1: financial and non-financial measures combined in different perspectives without considering strategy. ●Type2: type1+cause and effect relationship. ●Type3: type2+compensation linkage.	● Questionnaire. ● Questioning on BSC features related to the identified types.	● 10 of 19 companies adopted BSC. ● 1 company Type2. ● 9 companies Type 3.	●Improving the long-term financial performance. ●Enhancing the use of consist set of financial and non-financial measures. ●Fostering the decision making process.

Table 2.3 (continued)

(1)	(2)	(3)	(4)	(5)	(6)
Yongvanich & Guthrie (2009)	Thailand	●Type1: financial and non-financial measure into perspectives without considering strategy. ●Type2: using strategic objectives and measures +cause and effect relationship +setting targets, initiatives and linking to budgeting process and to reward system. ●Type3: type2+ strategic feedback and learning process.	● Questionnaire. ●Questioning on the BSC features related to the identified types.	● 49 of 123 companies use the BSC. ● 16 companies Type1. ● 5 companies Type 2. ● 28 companies Type 3.	●Clarifying and gaining consensus about strategy. ●Enhancing strategy alignment and improving strategic learning. ●There is no any difference between the tree types regarding the role of BSC in improving system satisfaction and financial performance.
Jusoh et al., (2007)	Malaysia	Financial and non-financial measure into four perspectives without considering strategy	Questioning on the use of broad set of pre-identified financial and non-financial measures in BSC four perspectives.	120 of 975 companies adopted BSC.	Improving the financial and non-financial performance.
Liu et al., (2014)	Singapore	Financial and non-financial measure into four perspectives without considering strategy.	Questioning on the use of broad set of pre-identified financial and non-financial measures.	22 of 32 companies adopted BSC.	Not considered in the study.

Chapter Three:

The contingency theory approach, the theoretical framework and propositions

3.1 Introduction:

This chapter consists of three main sections. Section 3.2 provides insights into the contingency theory. Section 3.3 gives a focused review of the relevant contingency-based BSC studies towards identifying the gap in the literature and how the current study can contribute to filling this gap. Section 3.4 concerns with building the study theoretical framework and developing its propositions on the relationship between BSC implementation and the concerned contingent variables (environmental uncertainty and business strategy).

3.2 Contingency theory approach:

Contingency theory is viewed as an essential theoretical approach that provides a holistic view and useful insights into an organisation's practices (Abugalia, 2011; Donaldson, 2001; Daft, 2001; Otley, 1980; Drazin & Van de ven 1985; Waterhouse & Tiessen; 1978). Covaleski et al., (1996, p.4) define the contingency theory as *"*a theoretical perspective of organisational behaviour that emphasises how contingent factors affected the design and functioning of the organisations".

The contingency theory holds the premise that an organisation in order to perform effectively, it needs to adapt its structure to the contingencies that reflect its situation (e.g. Donaldson, 2001; Daft, 2001). This premise is the cornerstone of the original contingency theory of an organisational structure (Chenhall, 2003). Drawing on this premise, many studies have examined the impact of different contingent variables on various MASs including accounting information system, PMS, and recently BSC; in the way that makes the contingency theory the leading and the dominant theory in the field of management accounting research (e.g. Dropulić, 2012; Abugalia, 2011; Tillima, 2005; Fisher, 1995; Dent, 1990; Chenhall & Morris, 1986; Jones, 1985; Otley, 1980). These studies provided the empirical evidence that, the contingency theory has a significant contribution in offering a helpful explanation of the practices of MAS. In this context Soobaroyen (2007) emphasise that the contingency theory is a basis and strong framework of analysing MASs and their contexts. Focusing on PMS; Agostino and Arnaboldi (2012, p. 328) emphasise that "when the aim is to investigate the factors that drive PMS design or use, the majority of contributions draw on contingency theory". Thus, in order to demonstrate the

contingency theory in terms of its concept and variables; this first main section is structured as follows: Subsection 3.2.1 provides more insights into the essence of the contingency theory; Subsection 3.2.2 discusses the fit concept of the contingency theory and the different approaches used for its measurement; Subsection 3.2.3 concerns with the concept of organisational effectiveness in the contingency theory and the different approaches demonstrated by the literature for investigating it; Subsection 3.2.4 identifies and demonstrates the contingent variables adopted in this study.

3.2.1 The essence of the contingency theory:

The main concern of the contingency theory is the organisational performance effectiveness (Pennings, 1992), which represent the extent to which an organisation fulfils its objectives (Donaldson, 2001; Georgopoulos & Tannenbaum, 1957). Prior to the contingency theory, there was a concept that there is one best way all organisations can adopt in order to design their structures and hence perform effectively (Watson, 1975). However, according to the contingency theory the performance effectiveness is a result of the fit between an organisation's characteristics (such as its structure) and the contingencies that reflect the situation of an organisation (such as its business environment and business strategy) (e.g. Daft, 2001; Donaldson, 2001; Merchant, 1998; Hamilton & Shergill, 1993 Waterhouse & Tiessen, 1978). That is, the essence of contingency theory is the fit of organisational structure/systems variables with the contingent variables. According to many contingency studies this fit leads to high effectiveness of organisation performance; in contrast, the misfit leads to a low level of organisational performance effectiveness (e.g. Burns & Stalker; 1961; Donaldson, 1987; Lawrence & Lorsch, 1967; Burrell & Morgan, 1979).

3.2.2 The concept of fit in contingency studies:

Drazin & Van de ven (1985) assert that fit is the key concept in the contingency theory and a crucial element of data collection and analysis regarding the contingency studies. The contingent fit is considered as means by which the contingent variable(s) determines the effectiveness of an organisational system(s), through determining its way of implementation (Donaldson, 2001). This means, an organisation needs to implement its system(s) in the way fits that required by the contingent variable(s) in order to enhance its performance effectiveness (Chenhall, 2003; Donaldson, 2001; Hamilton & Shergill, 1993; Otley, 1980; Burrell & Morgan, 1979; Lawrence & Lorsch, 1967; Burns & Stalker; 1961).

However, despite being central to the contingency theory, there are different views on how the fit should be addressed in contingency-based studies (e.g. Fisher, 1995; Galbraith and Nathanson, 1979). That is, while some researchers (e.g. Donaldson, 2001) emphasise the importance of organisational effectiveness for examining the fit between the structural variables and contingent variables; others such as Venkatraman (1989) consider the fit as a correspondence between two or more relevant variables without reference to the organisational effectiveness. This difference is interpreted in the literature into two main approaches of fit, the selection approach and the interaction approach.

- **The selection approach of fit**: This approach suggests that: there are relationships between organisational context and structure in all organisations that surviving in their markets; therefore the examination of these relationships can be assessed as fit (Drazin & Van de Ven, 1985). That is, according to the selection approach of fit, the organisational performance effectiveness is pre-confirmed by an organisation's survival in the market. Thus, the contingent fit is assessed through investigating the congruence between a structural variable(s) and contingency variable(s) without assessing this congruence on the light of the actual effectiveness of an organisational performance (Gerdin & Greveb, 2004; Chenhall, 2003; Al-dahiyat, 2003; Venkatraman, 1989). In support of the validity of the selection approach of fit, Pennings (1987) argues that the fit between the contingent variables and the organisational variables will exist in organisations regardless the level of their performance effectiveness. Otherwise, the absence of considering the organisational effectiveness in the selection fit approach is considered by other researchers as weakness and defect. They emphasise that signalling market survival of the fittest is not an accurate measure of organisational performance effectiveness (e.g. Abugalia, 2011; Gerdin & Greve, 2004; Donaldson, 2001; Otley, 1980).

- **The interaction approach of fit**: according to this approach the fit between organisational variables and contingent variables only exists if the interaction between such variables affects positively the organisational performance (Drazin & Van de Ven, 1985). Therefore, based on the interaction fit approach, the good fit between the contingent variable(s) and organisational variable(s) is assumed to increase the organisational effectiveness (Abugalia, 2011; Drazin & Van de Ven, 1985) Thus, studies following this approach examine how the organisational performance effectiveness is influenced by the interaction between the contingent variable(s) and organisational variable(s) in order to determining the fit between those pair of variables (Gerdin & Greveb, 2004; Chenhall, 2003; Drazin & Van De Ven, 1985).

Given these different approaches of the contingent fit, Gerdin and Greve (2004) asserts that attention should be paid to the way of applying the concept of fit and further theoretical and methodological issues are required in terms of determining the appropriate approach of contingent fit.

3.2.3 Organisational effectiveness concept:

As discussed above, the organisational effectiveness in the contingency theory is a result of the fit between organisational variables (structure and systems) and the contingent variables. However, despite this critical position of the organisational effectiveness, there is no consensus on its concept and definition among the relative studies (Chenhall, 2003; Otley 1980). Daft (2001) asserts that the organisational effectiveness is a wide concept that implicitly takes into account the evaluation of attaining multiple goals. He distinguishes three approaches appeared in the literature for investigating the organisational effectiveness which are (p. 65-68): (1) Goal approach: this approach involving identifying output goals of an organisation and assessing how well an organisation has attained those goals. This approach is seen as a logical approach because organisations do try to attain certain levels of output, profit, or customer satisfaction; hence the goal approach measures the progress toward the attainment of those goals. Daft (2001) identified three main important goals in terms of measuring effectiveness based on goal approach. They are profitability, growth, market share. (2) Resource-based approach: this approach looks at the input side of the transformation process. It assumes organisations must be successful in obtaining and managing valued resources in order to be effective. From this approach, organisational effectiveness is defined as the ability of organisation to obtain scarce and valued resources and successfully integrate and manage them. (3) Internal process based approach: in this approach, the effectiveness is measured as the internal health and efficiency, smooth internal process, employee satisfaction, the integration between the departmental activities.

Regarding this diversity of organisational effectiveness concept, Cameron & Whetten (1983) asserts that there is no available principle to tell us this approach or this way is better than others in assessing organisational effectiveness. Therefore, they assert that, to avoid the ambiguity and the confusion of such concept, studies have to explicitly identify the aspect of effectiveness they are going to investigate.

3.2.4 Contingent variables in contingency-based studies:

Several contingent variables were concerned in the literature including business environment, business strategy, organisational size, technology and organisational structure (e.g. Zuriekat, 2005; Chenhall, 2003; Daft, 2001; Donaldson, 2001; Mauldin & Ruchala, 1999; Otley, 1980). However, the contingent variables of business environment and business strategy are deemed to be the most popular ones; they have been investigated widely in management accounting literature, and proven to have the most effect on the design and the use of various aspects of management accounting practices (Bedford et al., 2016; Abugalia, 2011; Zuriekat, 2005; Ditillo, 2004; Halma & Laats; 2002; Otley, 1999; Chong & Chong 1997; Chapman, 1997; Abernethy & Guthrie 1994; Gordon & Narayana 1984; Child, 1972). Hence, for this reason as well as due to the time and budget constraints of the study, the study will focus essentially on these two variables (business environment and business strategy) in its contingency-based investigation. Thus, the different concepts and typologies of these contingent variables are discussed as follows.

3.2.4.1 Environment contingent variable:

According to Daft (2001), environment includes everything outside an organisation. However, this wide definition of environment is narrowed in terms of the organisational environment, which means that: all the elements that exist outside the boundary of an organisation and have the potential to affect all or part of an organisation; these elements include customers, competitors, suppliers, labour market, government and economic conditions (Daft, 2001). In respect of the environment effect on an organisation, Dess and Beard (1984) highlight three main dimensions of the environment that can be utilised for investigating the relationship between an organisation and its business environment. These dimensions are: environmental munificence[6], environmental complexity[7], and environmental dynamism. However, according to many contingency-based studies the dynamism dimension or the environmental uncertainty as it is known, is the most important dimension of the business environment (See: Liu et al., 2014; Dropulić, 2012; Hendrichs et al., 2012; Haedr, 2012; Auzair, 2011; Gossline, 2011; Abdel-kader & Luther, 2008; Chenhall, 2007, 2003; Hoque, 2004; Sohn et al., 2003).

[6] Environmental munificence represents the degree to which the environment can support an organisation to grow sustainably (Dess & Beard, 1984).

[7] Environmental complexity illustrates to the situation in which an organisation in its industry demands several and different inputs or produces several or different outputs (Dess & Beard, 1984).

The environmental uncertainty is considered and operationalised in different ways in the literature. According to Gordon and Miller (1976) the environmental uncertainty can be defined according to the level of change in the environment elements. Thus, they refer to the low level of environmental uncertainty as the situation in which "consumer tastes are stable and predictable, the technology required to produce goods or render services remains the same (or almost the same) as time passes, and competitors tend to behave in a predictable fashion in terms of their product market orientations" (Gordon and Miller, 1976, p. 60). They on the other hand refer to the high level of environmental uncertainty as the situation in which "consumer tastes shift rapidly and unpredictably, new technologies and sources of supply often arise, and competitors introduce many radically new products" (Gordon and Miller, 1976, p. 60). Others have tied the environmental uncertainty to the change in environment elements that is hard to be predicted and that heightens uncertainty for key organisational members (Miles & Snow, 1978; Downey & Slocum, 1975; Duncan, 1972; Khandwalla, 1972). This manner of measuring the environment uncertainty is known as the perceived environmental uncertainty (PEU). PEU is considered low when the change in the external environment elements is perceived as predictable. On the contrary, PEU is considered to be high when the change in the external environment elements is perceived as unpredictable (Tymon & Stout, 1998).

3.2.4.2 Business strategy contingent variable:

Business strategy is the manner that an organisation pursues in order to compete within its respective industry, and thereby attains a competitive advantage in comparison with its competitors (Haedr, 2012). According to many studies (e.g. Hendricks et al., 2012; Hoque, 2004; Sonh et al., 2003; Olson & Slater, 2002; Daft, 2001) the main strategy typologies used in contingency-based studies are those developed by Miles and Snow (1978) and Porter (1980). In this context, Olson and Slater (2002, p12) assert that Porter (1980) and Miles and Snow (1978) typologies of strategy are the frameworks that have most often been shown to effectively represent managerial choices. Given this, the following discussion concentrates particularly on the concept of strategy and its typologies developed by Miles and Snow (1978), and Porter (1980).

Miles and Snow (1978) developed a strategic typology consists of four types of strategies that organisations adopt as a reaction to their product-market domains. These four types are defender

strategy, prospector strategy, analyser strategy, and reactor strategy. Miles and Snow (1978) demonstrate these four types through what they called the adoptive cycle which concerns of three adoptive problems. The first problem is the entrepreneurial problem which related to identify the type of products or services and the segment of market an organisation intends to compete within. The second problem is engineering problem. This problem associated with identifying the appropriate technological system to produce and distribute the chosen products or services. The third problem is the administrative problem. It relates to an organisational structure and processes that proposed to enhance the efficiency of the chosen technological system and prompt organisational innovation. Therefore, Miles and Snow (1978) define the strategy as the pattern that organisation adopts in order to solve these three problems.

Therefore, Miles and Snow (1978) define that, the defender organisation is an organisation that operates in a stable domain of industry where it can enhance its ability to dominate a portion of the entire market. Its adoptive pattern for achieving this goal is to produce a limited set of products oriented to a specific segment of market, with a primary focus on pricing competition and excellence customer services. Concerning its technological system, the defender strategy is defined to rely on a mass production technology that is a highly cost-efficiency in order to achieve a cost reduction and an effective distribution of products. In addition, Miles and Snow (1978) assert that the top managers in defender organisation pay little or no attention to the new emerging market opportunities; instead, they heavily concentrate on a cost-control. In contrast, a prospector organisation is defined as an organisation that operates in a dynamic domain comparing with other organisations in the same industry. The underlying reason for choosing such domain is to find and exploit new products and market opportunities. Thus, the prospector organisation tends to adopt the pattern that enables it to innovate and enact change in its particular industry. Consequently, this type of organisations concentrates on utilising a flexible technology. This is selected in the way that enables an organisation to exploit emerging opportunities of producing new products, and to response rapidly to its domain change. In addition, the top managers in a prospector organisation are dominated by the development, market opportunities and research experts. Moreover, those managers do not concentrate their planning processes on the operational methods, which can be delegated to middle-managers and/or to employees. Instead, they focus essentially on the outcomes of organisational performance as an input of their planning process.

On the other hand, analyser organisations attempt to locate and exploit innovative products and market opportunities, and simultaneously minimising risk by maintaining traditional products and markets. Therefore, this type of organisations represents a combination of both prospector and defender types of organisations. However, the analyser organisations rely in generating their revenue on stable products and they move toward new products and market that created by prospector only after their viability is confirmed. This pattern of analyser reflects on adopting a dual technological system. Otherwise, this type of strategy requires managers to adopt different systems of control and planning as a result of the dual technological applied system. Finally, reactor strategy is described by Miles and Snow (1978) as a residual strategy that results when one of the other three types of strategy is badly implemented. They mention that reactor strategy arises when mangers have not clearly clarified the organisation's strategy, or/and the organisational structure have not shaped to fit the defined strategy, or/and ignoring the demanded change in an organisation's strategy as a response to the change in the business environment.

Porter (1980) in turn defines the strategy on the shade of the intensity of industry competition. According to Porter, there are critical specific forces constitute the industry competition. (1) Entrance barriers including, capital requirements, customer loyalty of competitors, demanded technology, access to raw material, and government policy. (2) The rivalry among competitors for obtaining a better position using techniques like a pricing competition. (3) The power of customers, especially the commercial ones that forcing down prices, forcing a high quality, or/and demanding more services. (4) The bargaining power of suppliers, which lies on the suppliers' threatening to raise prices or reduce the quality of raw materials or services. Hence, Porter (1980) defines the strategy as building defences against these competitive forces or finding position in the industry where the forces are weakest (Porter, 1980, p.30). Therefore, he distinguishes three types of strategy, which are a cost-leadership, differentiation, and focus strategy.

The cost-leadership organisation defends itself against the competitive forces by providing products with lower prices comparing with competitors. With a low-cost leadership strategy, an organisation applies a wide range of facilities for attaining cost-efficiency and a high level of productivity, besides applying a strict-cost-top-down control, as well as limited activities relating to the research and development, customer services, and advertising. Otherwise, an organisation that purses differentiation strategy tends to tackle the competitive forces by providing its products or services in the way that characterises it as unique. Porter (1980) asserts that this strategic distinguish can be exert along several aspects such as design or brand, technology, features, and

customer service. Differentiation type of strategy is assumed to enable an organisation to build customer brand loyalty that mitigates fairly the sensitivity of customers to higher prices. Therefore, the cost does not represent a primary focus of differentiating organisations such in cost-leadership organisations. On the other hand, a focus-strategy organisation faces the competitive forces by focusing on a specific type of customer, segment of the product line, or geographic market rather than serving the entire market. For meeting the needs of such particular target; focus organisation either applies differentiation strategy or cost-leadership strategy, or both. Therefore, the focus strategy can be considered in somewhat as a combination of both the differentiation and the cost-leadership types of strategy. Table 3.1 shows the main attributes of the three strategies of Porter (1980).

Table 3.1: Attributes of Cost leadership, Differentiation, Focus strategies.

Generic strategies	**Commonly Required Skills and Resources**	**Common Organisational Requirements**
Cost-leadership	- Sub-stained capital investment and access to capital - Process engineering skills. - Intense supervision of labour. - Products designed for ease in manufacture. - Low-cost distribution system.	- Tight cost control. - Frequent, detailed control reports. - Incentives based on meeting strict quantitative targets.
Differentiation	- Strong marketing abilities. - Product engineering. - Creative flair. - Strong capability in basic research. - Corporate reputation for quality or technological leadership. - Long tradition in the industry or unique combination of skills drawn from other businesses. -Strong cooperation from channels.	- Strong coordination among functions in R&D, product development, and marketing. - Subjective measurement and incentives instead of quantitative measures. - Amenities to attract highly skilled labour, scientists, or creative people.
Focus	- Combination of above policies particular strategic target.	- Combination of the above policies directed at the particular strategic target.

Source: Porter (1980, p. 40-41)

3.3 The effect of contingent variables on BSC:

Certain number of studies has employed the contingency theory to examine the effect of the contingent variables on BSC concept. These studies are summarised in Table 3.2. Based on the findings of these studies, this subsection illustrates the effect of the contingent variables demonstrated above on the practice of BSC. Therefore, it illuminates the gap in the contingency theory related to BSC and how the current study can contribute to filling this gap.

3.3.1 The effect of environmental uncertainty on BSC:

In the contingency-based BSC studies; the effect of the environmental uncertainty on BSC is examined mainly concerning the adoption of BSC. It is premised that the adoption of BSC will be higher in the organisations that face a high level of environmental uncertainty than those facing a low level. This premise is built on the assumed role of BSC in providing managers with the information required for assessing uncertainty relating to customer demands, innovation, suppliers, employees, etc., therefore enhancing the better planning and control (e.g. Hendricks et al., 2012; Zurikate, 2005;). Empirically, Gosselin (2011) finds that the environmental uncertainty has a positive and a significant association with the adoption rate of BSC. This finding is supported by the study of Hendricks et al., (2012), who find that one of the critical factors that motivate organisations to adopt BSC is the high level of environmental uncertainty. Recently, Islam and Tadros (2012) confirm the positive effect of the environmental uncertainty on the adoption rate of BSC. They argue that organisations that operate in an environment involving increased level of competition, high changes in technology and higher legal and threat are more likely to adopt BSC. Similarly, Liu et al., (2014) find that the adoption rate of BSC is higher in Singapore manufacturing companies that face a high level of environmental uncertainty than those operate in a lower uncertainty level. On the contrary, based on the empirical works by Zurikat (2005), Lee et al., (2014) and Petera et al., (2012), the positive and significant effect of the environmental uncertainty on the adoption rate of BSC is not supported.

Taking further step, other studies investigated the effect of the environmental uncertainty on the relative important of BSC perspectives. In this context, Sonh et al., (2003) finds that the environment uncertainty has a significant effect on two perspectives of BSC, namely learning and growth perspective and internal process perspective. They illustrate that in the high level of environmental uncertainty organisations tend to place significantly more relative importance on the learning and growth perspective than the internal business processes perspective. On the contrary, organisations that face a low level of environmental uncertainty tend to place a significantly more relative importance on the internal business processes perspective than the learning and growth perspective. Moreover, Hoque (2005) finds that under the condition of the high level of environmental uncertainty, organisations would improve their performance by adopting BSC with placing more relative importance on customer perspective and learning and growth perspective than other BSC perspectives when planning and managing their performance.

3.3.2 The effect of business strategy on BSC:

Similarly, the effect of business strategy on BSC was examined by contingency-based BSC studies with the main focus on the adoption of BSC. It is premised that the adoption of BSC would be higher in the organisations that pursuing innovative type of strategies (such as prospector and differentiation) than those pursuing other types of strategies. This premise is derived from the assumed role of BSC in enhancing an organisation ability of learning and innovation (e.g. Hendricks et al., 2012; Gosselin, 2011; Sonh et al., 2003). Empirically, Hendricks et al., (2012) examine the types of strategy among organisations that adopt BSC and those have not yet. They found that the common strategy among BSC-adopter organisations is the prospector strategy followed by the analyser strategy, while the common strategy among organisations that have not adopted BSC is the defender strategy followed by the reactor strategy. Similarly, Gosselin (2011) asserts that the adoption of BSC is significantly associated with the prospector strategy than defender. They explain that the defender organisation with its main concern of the cost reduction would emphasise the use of the traditional financial PMS for controlling and evaluating its performance rather than adopting innovative systems such as BSC. On the contrary, Liu et al., (2014) find no different impact of the differentiation and the cost-leadership strategies on the adoption of BSC; instead they both have a significant and positive association with BSC adoption. In consistent, Zurikat (2005) finds that there is no significant relationship between strategy and the adoption of BSC.

Taking further step, other studies examined the effect of business strategy on the relative important of BSC perspectives. In this context, Sonh et al., (2003) find that organisations that pursuing defender strategy place a greater weigh on financial and internal processes perspectives of BSC, while organisations that pursuing prospector strategy place a greater weigh on customer and learning and growth perspectives. Moreover, they find that reactor organisations place a lower weight on customer and learning and growth perspectives than prospector, and a higher weigh on financial perspective than the defender, whilst, there is no a clear pattern is found with organisations pursuing analyser strategy. In addition, Jusoh et al., (2007) find that emphasising the use of BSC through its financial perspective in defender strategy has a greater impact on an organisational performance. Otherwise, emphasising the use of BSC through its customer perspective and internal processes perspective has a significantly greater impact on the performance of organisations that pursue prospector and analyser.

3.3.3 Discussion of contingency-based BSC empirical studies:

Based on the previous debate on the effect of the contingent variables on BSC practice, along with the review of the contingency-based BSC studies outlined in Table 3.2; some important indications can be illuminated as follows:

- Although the contingency theory has a long tradition in investigating various MA practices, few studies have investigated the effect of contingent variables on BSC. This is in the way that makes them fall short of providing sufficient information and support to the robustness and generalizability of the contingency theory about BSC concept (Hoque, 2014; Gossline, 2011; Zuriekate, 2005; Chenhall, 2003). In this context, Zuriekate (2005, p.5-3) asserts that the contingent relationships between the contingent variables such as strategy, environment, and BSC are still not clear due to the limited researches in this area, which entails further studies to be conducted.

- The extant studies have applied the contingency theory mainly to identify the differences in organisational factors among BSC-adopter organisations and non-BSC adopter organisations, while there are little explicit attempts to apply the contingency theory for investigating the differences or/and the similarities between organisations in their implementation of BSC. That is, as it can be seen from the third column of table 3.2, the majority of the extant contingency-based BSC studies concerned essentially with examining the effect of contingent variables on the adoption of BSC (Lee et al., 2014; Liu et al., 2014; Hendricks et al., 2012; Petera et al., 2012; Islam & Tadros, 2012; Soderberg et al., 2011; Tanyi, 2011; Gosselin, 2011; Khan et al., 2011; Fakhri et al., 2009; Bedford et al., 2008; Zuriekat, 2005; Hendricks et al., 2004; Spechbacker et al., 2003; Hoque & James, 2000). In contrast, little studies have explicitly investigated the effect of contingent variables on the implementation of BSC. These latter studies have concerned mainly with investigating the effect of contingent variable(s) on the relative importance of BSC perspectives without considering the implementation of BSC in relation to the other BSC components (Jusoh et al., 2007; Hoque, 2005; Sohn et al., 2003; Olson and Slater, 2002). However, considering a system as a package is necessary for investigating its implementation and effectiveness, when one part of this system acts as complementing the other parts, not substitute for them (Bedford et al., 2016).

- The majority of the studies have applied the selection approach of fit in their contingency investigation (Liu et al., 2014; Lee et al., 2014; Petera et al., 2012; Islam & Tadros, 2012; Hendricks et al., 2012; Tanyi, 2011; Gosselin, 2011; Khan et al., 2011; Soderberg et al., 2011;

Fakhri et al., 2009; Bedford et al., 2008; Zuriekat, 2005; Hendricks et al., 2004; Sohn et al., 2003; Spechbacker et al., 2003; Malmi, 2001). However, although some of these studies have examined the effect of BSC on organisational effectiveness, this examination does not involve examining the effect of the interaction between BSC and the contingent variables on organisational effectiveness.

- Few studies (from those involved the organisational effectiveness in their contingency-based investigation) have measured this variable relying on the actual organisations' reports (Hendricks et al., 2004). In contrast, the majority has relied solely on the respondents' self-evaluation for an organisational effectiveness (Lee et al., 2014; Liu et al., 2014; Petera et al., 2012; Soderberg et al., 2011; Tanyi, 2011; Khan et al., 2011; Hoque, 2005; Zuriekat, 2005; Spechbacker et al., 2003; Olson & Slater, 2002; Malmi, 2001; Hoque & James, 2000), while this measurement approach is viewed to weak the reliability of the research findings (David & Albright, 2004; Ittner et al., 2003). In this regard, Ittner et al., (2003, p. 718) asserts that the majority of studies that investigated the relationship between MAS and organisational effectiveness can be criticised for their reliance on the respondent self-evaluation, which makes it difficult to place substantive interpretation on their results.

- The majority of the studies have applied a survey method for investigating the effect of the contingent variables on BSC (Liu et al., 2014; Lee et al., 2014; Islam & Tadros, 2012; Petera et al., 2012; Hendricks et al., 2012; Tanyi, 2011; Khan et al., 2011; Gosselin, 2011; Soderberg et al., 2011; Fakhri et al., 2009; Bedford et al., 2008; Jusoh et al., 2007; Hoque, 2005; Zuriekat, 2005; Hendricks et al., 2004; Spechbacker et al., 2003; Sohn et al., 2003; Olson & Slater, 2002; Hoque & James, 2000). In contrast, few studies have investigated such effect by using qualitative approach such as a case study research (Malmi, 2001). This which is believed to provide more useful insights into the contingent relationships among an organisation (e.g. Liu et al., 2014; Hoque & James 2004; Chanhall, 2003; Otley, 1980; Gordon an Miller, 1976).

- The majority of contingency-BSC studies were conducted in developed countries (Lee et al., 2014; Hendricks et al., 2012; Islam & Tadros, 2012; Gosselin, 2011; Soderberg et al., 2011; Tanyi, 2011; Bedford et al., 2008; Hoque, 2005; Zuriekat, 2005; Hendricks et al., 2004; Spechbacker et al., 2003; Sohn et al., 2003;Malmi, 2001; Hoque & James, 2000; Olson & Slater, 2002). In contrast, there is a limited number of relative studies was conducted in less developed countries, especially in Arab countries such as Libya, which demands further studies to be conducted (Liu et al., 2014; Petera et al., 2012; Khan et al., 2011; Fakhri et al., 2009; Jusoh et al., 2007).

Given the above points; the current study would extend the prior BSC contingency-based studies by:

1- Applying the contingency theory for investigating the implementation of BSC and its financial effect. This will involve examining the influence of two main contingent variables (namely, the environmental uncertainty and business strategy) on the adoption and the implementation (the development and the use) of each BSC conceptual component;

2- Employing two approaches of contingency fit, the selection approach and the interaction approach, while this can contribute to the theoretical debate on their appropriateness (Haedr, 2012; Abugalia, 2011; Gerdin & Greve, 2004; Drazin &d Van de Ven, 1985).

3- Following the goal approach for examining the organisation's effectiveness by relying on the actual financial data of organisations. This which would strength the reliability of the study findings (David & Albright, 2004; Ittner et al., 2003)

4- Conducting a case study research; therefore providing a better examination and an investigation of the contingent independent variables and the dependent BSC variable as well as providing more realistic insights into the interaction between those variables (e.g. Liu et al., 2014; Hoque, 2004; Chanhall, 2003; Hoque & James 2000; Otley, 1980; Gordon & Miller, 1976)

5- Providing evidence from less developed countries, which can contributes to the theoretical debate on the robustness and the analytic generalisability of the contingency theory and its domain (Liu et al., 2014; Petera et al., 2012; Khan et al., 2011; Fakhri et al., 2009).

Table 3.2: The contingency based BSC studies' review

Study	Country	Contingency framework				Fit approach	Data collection method
		Contingent variables	The dependent aspect of BSC	Organisational effectiveness			
				approach	Measurement		
Malmi (2001)	Finland	-Type of industry. -Organisational structure.	The implementation of BSC: confirmed by investigating the implementation of different BSC components and process.	Goal approach. Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Interview
Spechbacker et al., (2003)	German, Australia, Switzerland	Organisational size.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach. Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Soderberg et al., (2011)	Canada	Organisational size.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach. Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Bedford et al., (2008)	Australia	Organisational size.	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	_	_	Selection approach	Questionnaire
Islam &Tadros (2012)	US and Canada	-Environment. -Strategy. -Others	The adoption of the BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	_	_	Selection approach	Questionnaire
Hoque & James (2000)	Australia	- Organisational size. - Product life-cycle. - Market position.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach.	Self-evaluation	Interaction approach.	Questionnaire

Table 3.2 (continued)

Study	Country	Contingency framework				Fit approach	Data collection method
		Contingent variables	The dependent aspect of BSC	Organisational effectiveness			
				approach	Measurement		
Hoque (2005)	New-Zealand	Environment.	The relative importance of the four perspectives of BSC.	Goal approach.	Self-evaluation	Interaction approach.	Questionnaire
Hendricks et al., (2004)	Canada	-Strategy. - Organisational size. - Environment. -Investments in intangible assets. -Prior organisational performance	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	Goal approach.	Financial reports	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Hendricks et al., (2012)	Canada	-Strategy. - Organisational size. - Environment. -Investments in intangible assets. -Prior organisational performance.	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	–	–	Selection approach	Questionnaire
Lee et al., (2014)	Korea	- Organisational size. - Market position. - Market competition. - Product life-cycle - Market uncertainty. - Market growth.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Olson & Slater (2002)	US	Strategy	The relative importance of the four perspectives of BSC.	Goal approach.	Self-evaluation	Interaction approach.	Questionnaire
Sohn et al., (2003)	Korea	- Strategy. -Environment.	The relative importance of the four perspectives of BSC.	–	–	Selection approach	Questionnaire
Zuriekat (2005)	UK	- Centralization. - TQM and JIT. -Environment -Organisational size. - Competition intensity.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach. Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire

Table 3.2 (continued)

Study	Country	Contingency framework				Fit approach	Data collection method
		Contingent variables	The dependent aspect of BSC	Organisational effectiveness			
				Approach	Measurement		
Tanyi (2011)	Finland	-Size. - Others.	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Gosselin (2011)	Canada	- Strategy. -Environmental -Decentralization.	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	–	–	Selection approach	Questionnaire
Fakhri et al., (2009)	Libya	-Size.	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	–	–	Selection approach	Questionnaire
Khan et al., (2011)	Bangladesh	- Manufacturing technology. -Size	The adoption of BSC: confirmed through a respondents' answer on a direct question on their organisation's use of BSC.	Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Petera et al., (2012)	Czech Republic	-Environmental - Strategy.	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	Goal approach. Internal process approach.	Self-evaluation	Selection approach (with investigating the effect of BSC on organisational performance independently of the interaction between BSC and contingent variables)	Questionnaire
Jusoh et al., (2007)	Malaysia	Strategy.	The relative importance of the four perspectives of BSC.	Goal approach. Internal process approach.	Self-evaluation	Interaction approach.	Questionnaire
Liu et al., (2014)	Singapore	- Size - Product life-cycle stage. - Environmental	The adoption of BSC: confirmed at least by organisations' use of financial and non-financial measures into different perspectives.	–	–	Selection approach	Questionnaire

3.4 The theoretical framework and propositions:

This section is concerned with building the study theoretical model (Section 3.4.1), operationalising the study variables (Section 3.4.2), and developing the study's propositions (Section 3.4.3).

3.4.1 The theoretical framework of the study:

Drawing on the contingency theory with the main focus on the contingent variables of the environmental uncertainty and the business strategy; the study built its theoretical framework to consist of two models. Model (A), is built in accord with the selection fit approach of contingency theory. It focuses on the possible influence of the two concerned contingent variables on the implementation of BSC considering all BSC conceptual components including: performance perspectives; strategic objectives; performance measures; the cause and effect relationship; BSC targets and their applications (initiatives development and resources allocation); BSC organisational alignment processes involving: top-level managers participation in developing BSC, BSC education and communication, BSC cascading, and linking BSC to compensation system; and finally BSC process of organisational learning (See Figure 3.1).

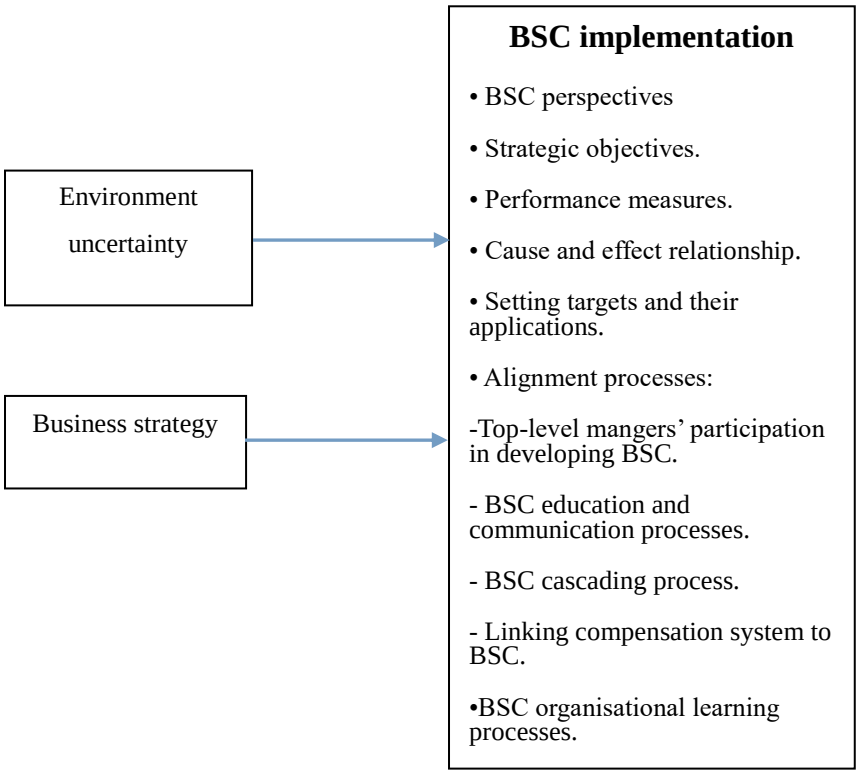

Figure 3.1: Model A of the study theoretical framework.

Model (B), is built in accord with the interaction fit approach of contingency theory. It aims at investigating the contingent relationships between the studied contingent variables and BSC implementation taking account of the organisational financial effectiveness (See Figure 3.2).

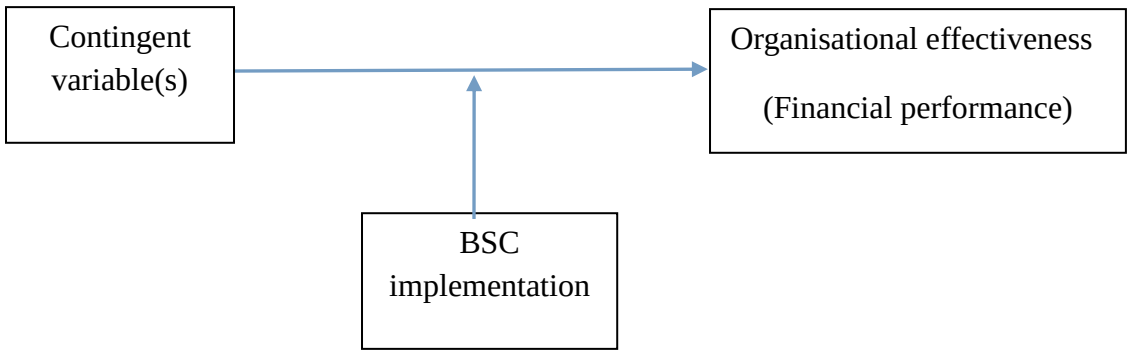

Figure 3.2: Model B of the study theoretical framework.

3.4.2 Operational definitions of the study's variables:

To clarify how the variables included in the theoretical framework are going to be considered and investigated in the current study; the next subsections discuss the operational definition of each variable and the reasons underlying the adoption of a given definition.

3.4.2.1 Operationalising environmental uncertainty:

The current study in order to determine the influence of the environmental uncertainty on BSC implementation, it adopts the two ways of operationalising the environmental uncertainty discussed earlier in Subsection (3.2.4.1). They are (i) the environmental uncertainty as the level of the change in the environment elements, and (ii) the environmental uncertainty as PEU. The underlying reason for adopting the two operationalisations is to identify any difference between the two ways in measuring the level of environmental uncertainty. And if so, then ascertaining how this difference can affect the relationship between the environmental uncertainty and BSC implementation.

3.4.2.2 Operationalising the business strategy variable:

As illustrated in Subsection 3.2.4.1 of this chapter; the main two typologies of strategy extensively applied in the contingency-based studies are those developed by Miles and Snow

(1978) and Porter (1980). Among these two typologies, the current study adopts Porter's typology. This is because of the following reasons: (1) the consistency between Porter's typology of strategy and BSC concept; Kaplan and Norton (1996c, p 37) declare that "BSC concept is consistent with the industry and competitive analysis articulated by Porter" (2) Porters' strategies are conceptually consistent with the other developed typologies of strategy (Chrisman, et al., 1988; Chong & Chong 1997; Abdel-kader & Luther, 2008); (3) Porters' typology provides a description of strategy that is easy to be understood by practitioners (Dropulić, 2012; Auzar & Langfield-Smith, 2005); (3) Porters' strategies have been proven to be the most empirically tested ones (e.g. Dropulić, 2012; Tsamenyi, et al., 2011).

Otherwise, in accord with several contingent-based studies (such as Liu et al., 2014; Dropulić, 2012; Tsamenyi, et al, 2011; Auzar and Langfield-Smith, 2005; Kald et al, 2000) the current study would concentrate on examining the two general strategies of Porter's typology (namely, cost-leadership strategy and differentiation strategy) apart from including the focus type of strategy. This is justified by the following two reasons: (1) cost-leadership and differentiation types of strategy are most relevant descriptions of how successful organisations operate (Liu et al., 2014; Dropulić, 2012; Abugalia, 2011; Auzair & Langfield-Smith, 2005; Kald et al., 2000). In this regard, Porter (1980) argues that regardless of the industry context, organisations can adopt cost-leadership strategy or differentiation strategy to compete effectively; (2) the confusion over considering "focus" as a separate type of strategy. That is, there is an argument that "focus" is not an explicit strategy on its own but, however, it's a choice within strategy. This means that organisations that pursue cost-leadership or differentiation can decide to focus on specific segment of market or to serve the broad market (Tsamenyi, et al. 2011; Kald et al. 2000).

3.4.2.3 Operationalising BSC variable:

As illustrated in Chapter Two, BSC was originally developed as multidimensional PMS that consists of financial and non-financial performance measures grouped into four perspectives. Therefore, it has been developed into a sophisticated strategic management system. This which represents the fully developed concept of BSC, and consists of various components including: performance perspectives; strategic objectives; performance measures; the cause and effect relationship; BSC targets and their applications; BSC organisational alignment processes involving: BSC education and communication, BSC cascading, and linking BSC to compensation system; and finally the process of organisational learning.

Hence, in order to provide a depth analysis and understanding of the practical implementation of BSC, the current study will:

First: rely on the initial concept of BSC (BSC as multidimensional PMS) to examining the companies' adoption of BSC. That is, the definition of BSC as a multidimensional PMS will be the essential condition for a company to be involved in this study.

Second: investigate BSC implementation in the participated companies based on examining the adoption and implementation of the components that constitute the fully developed concept of BSC (BSC as a strategic management system).

Otherwise, each BSC component will be examined considering two aspects, which are:

- The adoption of the component: this refers to whether a given component is adopted by an organisation into its BSC implementation or no.

- The implementation of the component: this refers to the way in which a given component has been developed and used by an organisation.

3.4.2.4 Operationalising organisational effectiveness:

As mentioned earlier in Subsection 3.2.4.3, there are three approaches for investigating the organisational effectiveness concept including goal approach, resource-based approach, and internal process approach. Among these approaches, the current study adopts the goal approach. This is because of the following reasons: (1) the goal approach of organisational effectiveness is a logic approach, since organisations do strive to achieve their ultimate output goals (Daft, 2001); (2) to make the comparison between the finding of the current study and the previous BSC-based studies more viable. Since, the majority of the previous studies have adopted this approach for investigating the relationship between BSC and organisations' performance (e.g. Lee et al., 2014; Petera et al., 2012; Soderberg et al., 2011; Hoque, 2005; Hendricks et al., 2004; Spechbacker et al., 2003; Olson and Slater, 2002; Malmi, 2001; Hoque & James, 2000).

Furthermore, within its adoption of the goal approach, the current study will focus essentially on the financial performance effectiveness as the main indication of the organisational effectiveness. This is because of that the ultimate goal of BSC, as it has been essentially developed for the for-profit organisations, is to improve the financial performance of an organisation; profitability: increasing revenue, reducing expenses, and increasing productivity (Kaplan & Norton, 1992; 1993; 1996a; 1996b; 1996c; 2000; 2001a).

3.4.3 Propositions development:

The general objective of theory-oriented research is to contribute to the development of theory, which is a set of propositions about the object of study (Dul & Hak, 2008). Developing propositions is consider to be essential for any type of academic research for achieving its objectives, whether they apply experiment, survey or case study as a research approach (Yin, 2013, p.30). Respecting the importance of propositions development in the case study research, Yin (2013) asserts that one of the fundamental design components of a case study research is propositions; since they effectively guide the data collection and analysis, and enhance generalisability. Proposition is defined as specifications of relationships between study variables. These which can be initially formulated based on a relevant theory and the empirical knowledge of specific literature, and then tested in practice for its validity (Dul & Hak, 2008).

Providing this importance of propositions development, the study in this section would draw on the contingency theory for developing its propositions on the relationships between the concerned contingent variables and BSC implementation. These propositions will be then tested by using two approaches of the contingency fit; the selection approach and the interaction approach reflected respectively in model (A) and model (B) of the study's theoretical framework (propositions testing is discussed with details in the next chapter, subsection 4.10.3). The study develops its propositions as follows.

3.4.3.1 Propositions on the effect of environmental uncertainty on BSC implementation:

Various contingency-based studies have investigated the effect of environmental uncertainty on different organisational aspects, starting with organisational structure (e.g. Lawrence & Lorsch, 1967; Hage, 1965; Burns & Stalker, 1961), MAS (e.g. Haedr, 2012; Al-Eqab and Ismail, 2011; Abdel-Kader & Lther, 2008; Al-dahiyat, 2003; Gordon & Narayanan, 1984), PMS (e.g. Hoque, 2004; Verbeeten, 2004; Chenhall, 2003; Haldma & Laats, 2002; Govindarajan, 1984) and recently some studies have investigated the effect of environmental uncertainty on some aspects of BSC concept (e.g. Sonh et al., 2003; Hoque, 2005). Relying on the findings of these studies, the study will derive its propositions on the relationship between the environmental uncertainty and BSC implementation through anticipating the effect of the environmental uncertainty on the adoption and the implementation of each BSC component as follows.

3.4.3.1.1 Environmental uncertainty effect on BSC perspectives:

As discussed in Chapter Two; BSC is conceived to contain four initial perspectives (financial, customer, internal business processes, and learning and growth). These perspectives are supposed to be used equally in a balanced way in which no one perspective is given more relative importance than the other perspectives when using BSC (Soderberg, et al., 2011; Niven, 2002; Kald & Nilsson, 2000). However, different studies have shown that organisations in practice do not deal with BSC perspectives in a balanced way, instead different organisations give some BSC perspectives more relative importance than other perspectives (Jusoh et al.; 2007; Sohn et al., 2003; Olson and Slater, 2002). Providing this empirical evidence, the question here is that; does the environmental uncertainty have an influence on the relative importance of BSC perspectives?

Some limited empirical studies suggest the relationship between the environmental uncertainty and the relative importance of BSC perspectives (Hoque; 2005; Sonh et al., 2003). The findings of these studies indicate that (1) in the high level of the environmental uncertainty an organisation would implement BSC with giving the customer perspective, and the learning and growth perspective more relative importance than the other BSC perspectives. This is in order to effectively gather information on the changeable demands of its customer (through the customer perspective) and to prompt its ability to meet these demands (through the learning and growth perspective). (2) An organisation that faces a low level of environmental uncertainty would implement BSC with giving the customer perspective and the learning and growth perspective lesser relative importance than the other perspectives. This is because of that the customer demands in such environment are stable and predictable; hence an organisation does not demand much information on these demands and how to meet them.

The previous argument therefore suggests the following propositions:

P1: The environmental uncertainty contingent variable would influence the relative importance of BSC perspectives in a certain way;

P1a: Organisation that faces a high level of environmental uncertainty would implement BSC with giving the customer perspective and the learning and growth perspective more relative importance than the other perspectives of its BSC.

P1b: Organisation that faces a low level of environmental uncertainty would implement BSC with giving the financial perspective and the internal business processes perspective a high

level of relative importance, while giving the customer perspective and the learning and growth perspective a low level of relative importance.

3.4.3.1.2 Environmental uncertainty effect on BSC performance measures:

As discussed in Chapter Two; BSC is supposed to contain various financial and non-financial performance measures including outcome measures (that are lagging measures), driving measures (that are ex-ante measures), and external measures (i.e. customer survey). These various types of performance measures are considered to be handful, since they enable managers to gain a holistic view on their organisation's performance (Kaplan & Norton, 1992, 1996b). However, some studies find that the perceived importance of performance measures types used on BSC varies among organisations and some organisations use some types at the expense of others (Kang & Fredin, 2012; Lipe & Salterio, 2000). The question here is that: How can the environmental uncertainty influence the verity and the relative importance of performance measures types used on BSC?

In the situation where there is no prior BSC-based studies investigated such relationship, some logical relationships may be derived from MAS and PMS based studies concerned with the environmental uncertainty. Gordon and Miller (1976) illustrate that the high level of the change in the business environment makes the request of gathering timely information on the external environment and the internal operating activities a particularly important feature to be incorporated into MAS. They illustrate that, this information would assist an organisation to track the changes in its competitors' movements and customers' demands, and to adapt an organisational performance to these changes. In consistent, Gordon & Narayanan (1984) provide the evidence that besides using lagging information; organisations that face a high level of environmental uncertainty perceive the use of the external and ex-ante oriented information to be considerably important for dealing with the complexity of business environment. Chenhall and Morris (1986) confirm that such types of information are increasingly important as the environment uncertainty increases. They explained that these types of information can enhance decision makers for scanning their business environment and consequently improve their response to this environment in terms of quality and time. Similar findings were provided by studies such as (Haedr, 2012; Abdel-Kader & Lther, 2008; Chong & Chong, 1997; Gul, 1991). This relationship between the high level of environmental uncertainty and the emphasis on the use of ex-ante and external types of measures is supported further by certain contingency-based PM studies (Gosselin, 2011; Haldma & Laats, 2002; Govindarajan, 1984).

By cascading the above on BSC implementation in terms of the measures types used on BSC, one can argue that, (1) since the external type of measures enhances the ability to assess the uncertainty resulted from the change in the external elements of business environment (i.e. customer demands) by providing timely information on these elements; an organisation that faces a high level of environment uncertainty would use and emphasise the importance of the external type of measures in its BSC implementation. Otherwise, Organisation that faces a low level of environment uncertainty is expected to not emphasise the importance of using external type of measures. This is because the external environmental elements are stable and predictable. (2) Since the driving measures (ex-ant measures) enhance an organisation ability to adapt its performance to the change in the environment elements, by providing timely information on the driving factors of an organisational performance; an organisation that operates in a high level of environmental uncertainty would emphasise the important of the driving type of measures more that outcome measures (lagging measures). On the contrary, an organisation that faces a low level of environmental uncertainty is expected to emphasise the importance of using outcome measures more than driving measures. This is because of the routine feature of its performance resulted from the low level of change in its environment (Burns & Stalker, 1961). The preceding argument suggests the following propositions:

P2: The environmental uncertainty contingent variable would influence the type of performance measures used on BSC in certain way;

P2a: Organisation that faces a high level of environment uncertainty would emphasise the importance of using the driving type of measures more than outcome measures.

P2b: Organisation that faces a low level of environment uncertainty would emphasise the importance of using the outcome type of measures more than driving measures.

P2c: Organisation that faces a high level of environment uncertainty would use and emphasise the importance of the external type of measures (customer survey) in its BSC implementation.

P2d: Organisation that faces low level of environment uncertainty would place no or little emphasis on the importance of using the external type of measures (customer survey) in its implementation of BSC.

3.4.3.1.3 Environmental uncertainty effect on BSC strategic objectives (selecting basis of BSC measures):

As illustrated in Chapter Two; BSC measures are assumed to be selected based on specified strategic objectives (Janeš, 2014; Niven, 2002; Simon, 2000; Ittner & Larcker, 1997). These strategic objectives, which are assumed to be derived from a specified formulated strategy (Kaplan & Norton, 1993; 1996a, 1996b, 1996c, 2000). However, some studies have predicted the environmental uncertainty to affect the implementation of this strategic derivation. Bukh and Malmi (2005, p. 23) indicate that, an environmental uncertainty may influence BSC measures to be not selected based on an organisation's strategy. They argue that any chosen strategy is highly vulnerable to be wrong under the high level of the environmental uncertainty therefor affecting the validity of BSC if its measures were selected based on this strategy. They therefore suggest that relying on an organisation ability to cope with the environmental uncertainty in the sense of the so-called an emergent strategy[8] may be more viable than relying on a specified strategy for selecting BSC measures. This argument suggests that:

P3: The environmental uncertainty contingent variable would influence the selection basis of BSC performance measures in certain way;

P3a: Organisation that faces a high level of environment uncertainty would not rely on pre-specified strategic objectives for identifying its BSC measures; while relying on other basis(s) for accomplishing this task (such as the direct interaction with the business environment).

P3b: Organisation that faces a low level of environment uncertainty would select their BSC measures based on strategic objectives derived from a formulated specific strategy.

3.4.3.1.4 Environmental uncertainty effect on the cause and effect relationship:

As illustrated in Chapter Two; BSC cause and effect relationship concept was originally expressed subjectively by using a sequence of if-and-then statements (Kaplan & Norton, 1996b, p.65; 1996c, p.149), later on, it has been documented into the concept of the strategy map,

[8] Mintzberg & Waters (1985) defines the emergent strategy as an ex post strategy that is shaped from the interaction between an organization and its environment, instead of being deliberately intended. Mintzberg & Waters, (1985, p. 271) argues that "the emergent strategy does not have to mean that the management is out of control, in contrast, it is flexible and responsive…., it willing to learn, such behaviour is especially important when the business environment is unstable".

whereby the cause and effect relationships are articulated graphically in a single sheet to make them visible and more explicit (Kaplan and Norton, 2000). However, although the cause and effect concept and it's recent development into the strategy map is considered as an essential basis for developing and using BSC (e.g. Assiri et al., 2006; Zuriekat, 2005; Lawri & Cobbold, 2004; Niven, 2002), several studies have provided the empirical evidence that, many organisations have not built their BSC implementation on the basis of cause and effect relationship (e.g. Čizmić & Crnkić, 2010; Yongvanich & Guthrie, 2009; Ittner et al, 2003a; Malmi, 2001). Given this evidence, the question here is that; Dose the environmental uncertainty has an influence on the adoption and/or the implementation of BSC concept of cause and effect relationship?

In relation to this question, Bukh and Malmi (2005) argue that building BSC on the basis of cause and effect relationship may not be proven as applicable under the condition of the high level of environmental uncertainty. They explain that the high level of environmental uncertainty can affect BSC measures to be frequently changed in the way that can negatively affect the willingness of managers to adopt the concept of cause and effect relationship. Rompho (2011) further illustrates that although some organisation build BSC on the basis of cause and effect relationship, such relationship become invalid. And this is because of the rapid change in the business environment, which affects the performance measures that were causally linked to lose their causal linkage.

Based on the aforementioned discussion, it can expect that, since the high level of environment uncertainty can result in a frequent change in BSC measures; an organisation that faces a high level of environment uncertainty would not adopt the concept of cause and effect relationship, or abandon it over time - alternatively, this organisation would implement the concept of cause and effect relationship subjectively in the sense of if-and-then statements without using the strategy map. This is because such mapping process can be considered to be a time consuming as managers expect the next changes are comping soon as response to the change in the business environment. On the contrary, since BSC measures would not be vulnerable to the continuous change under the condition of the low level of environmental uncertainty; an organisation that operates in such environmental uncertainty would adopt the concept of the cause and effect relationship, and implement it objectively though developing the strategy map. Relying on this argument the following propositions are posed:

P4: The environmental uncertainty contingent variable would influence the adoption and/or the implementation of BSC cause and effect relationship concept in certain way.

P4a: Organisation that faces a high level of environment uncertainty would either not adopt the cause and effect relationship concept, or implement this concept subjectively without using the strategy map.

P4b: Organisation that faces a low level of environment uncertainty would adopt BSC concept of cause and effect relationship and implement it objectively by using the strategy map.

3.4.3.1.5 Environmental uncertainty effect on setting targets for BSC measures:

As illustrated in Chapter Two; two types of targets are supposed to be set for each measure on BSC, stretch targets (for 3-5 years period) and milestones (short-term targets derived from the stretch targets) (Kaplan & Norton, 1996c). Moreover, these targets are assumed to be developed explicitly in the way that represents the target as an exact value to be achieved in a given period (Kaplan & Norton, 1996a; 1996b; 1996c). Kaplan and Norton (1996c) assert that the milestones would enable mangers to set their initiatives and allocate their organisation's resources in the way that ensures the achievement of the short-term financial goals and the long-term strategic goals at the same time. Despite this, some empirical studies have found that, while some organisations do not set targets for BSC measures (e.g. Yongvanich & Guthrie, 2009; Speckbacher et al., 2003; Malmi, 2001), other organisations have implemented this process in different ways (e.g. Agostino & Arnaboldi, 2012; Ahn, 2001). Ahn (2001) asserts that in practice, managers may not concentrate on establishing long-term/stretch targets for their BSC measures; instead, they establish incremental short-term targets across years. The question here is that; Dose the environmental uncertainty has an influence on the adoption and/or the implementation of the process of setting targets for BSC measures?

Agostino & Arnaboldi, (2012) indicate implicitly to the influence of the environmental uncertainty on the implementation of BSC setting targets process. They illustrate that, organisations that implement BSC in the sense of the interactive control system - this is stimulated by the high level of environmental uncertainty - do not set explicit values as targets for their BSC measures. Instead, they apply an implicit way for this purpose. This is in which the effectiveness of organisation performance is verified through identifying the variance between the current outcomes and past outcomes of BSC measures in terms of positive or negative.

Considering this finding along with the indication that the high level of environmental uncertainty can minimize the ability of decision makers to predict the future events due to the frequent change in the environment elements (Daft, 2001; Donaldson, 2001; Chenhall & Morris, 1986; Duncan, 1972), it can be argued that: (1) since the frequent change in the business environment can minimize the predictability of decision makers into the future, organisations that face a high level of environmental uncertainty is expected to not set targets for its BSC measures - alternatively, they may set incremental short-term targets instead of setting milestones that derived from stretch targets or long-term targets. This is because the stretch targets or/and the long-term targets can be highly indefinable under the condition of the high level of environmental uncertainty. On the contrary, (2) since the predictability of decision makers into the future is supposed to be high under the condition of the low level of environmental uncertainty (owing to the stability of the environment elements); an organisation that faces a low level of environmental uncertainty is expected to adopt the process of setting targets for BSC measures with considering both the stretch targets and milestones.

The preceding argument suggests the following propositions:

P5: The environmental uncertainty contingent variable would influence the adoption or/and the implementation of setting targets for BSC measures in certain way.

P5a: Organisation that faces a high level of environment uncertainty would either not set targets for its BSC measures; or set exclusively incremental short-term targets across years apart from the longer term targets.

P5b: Organisation that faces a low level of environment uncertainty would adopt the process of setting targets for BSC measures, and implementing it through establishing stretch targets and milestones for its BSC measures.

3.4.3.1.6 Environmental uncertainty effect on BSC organisational alignment processes:

As illustrated in Chapter Two; BSC is developed further to involve four processes of organisational alignment. These are (1) top-level managers' participation in developing BSC; (2) educating and communicating BSC to lower-level managers and employees; (3) cascading BSC to lower-level managers and employees, and (4) linking the compensation system to BSC. However, although many studies have emphasised the importance of implementing BSC in this

sense of organisational alignment system (e.g. Jordão, & Novas, 2013; Chen & Jones, 2009; Chavan, 2009; Bloomquist & Fach, 2008), there is empirical evidence that many organisations have not adopted those alignment processes in their BSC implementations (e.g. Agostino & Arnaboldi, 2012; Soderberg et al., 2011; Yongvanich & Guthrie, 2009; Speckbacher et al., 2003). The question here is that; Dose the environmental uncertainty has an influence on the adoption and/or the implementation of BSC organisational alignment processes?

In the absence of BSC empirical studies for answering this question, the current study relies on the organisational structure based studies for developing its proposition on the relationship between the adoption and implementation of BSC alignment processes and the environmental uncertainty. According to early contingency-based studies such as (e.g. Lawrence & Lorsch, 1967; Hage, 1965; Burns & Stalker, 1961) the way in which an organisation structures itself is contingent upon the business environment. Burns and Stalker (1961) assert that under the stable environment, the organisational operational processes become recurrent in the way that reflects routine processes. They assert that in this situation the top managers would have the adequate knowledge and information to direct the whole organisation effectively through centralising the decision-making authority (centralisation), and relying on documentation that includes job rules, procedures, regulations, and policy manuals. On the contrary, they indicate that; under the unstable environment, the uncertainty in the tasks conducted inside an organisation becomes greater. Consequently, an organisation is prompted to participating lower-level managers and employees. This is because of that the knowledge and the information required for dealing with the uncertainty is not confined to the top management level. Instead, they are disseminated among all units and departments of an organisation. Burns and Stalker (1961) therefore emphasise that in order to attain performance effectiveness under the condition of the high level of environmental uncertainty; an organisation needs to delegate the decision making authority to lower organisational levels (decentralisation), and to rely on the communication and the interaction between different organisational parts for determining how the job can be done. In support, Chenhall & Moers (2015) emphasise that the need for innovation in the high level of environmental uncertainty, requires an organisation to structure itself in the way that ensures the integration of ideas across an organisation. This in turn demands applying processes such as a direct contact between managers, liaison roles and personnel, and formal patterns of communication and participation.

Based on the foregoing discussion, one can expect a logic relationship between environmental uncertainty, and the adoption and implementation of BSC organisational alignment processes as follows. (1) Since organisations, under the high level of environmental uncertainty, are prompted to utilise more from its employees' knowledge, talents and skills in identifying and creating better ways for dealing with the high level of uncertainty, these organisations are expected to implement BSC in decentralised way. This is through (i) involving the majority of top-level managers in developing BSC; (ii) educating and communicating BSC to a wide range of its members at the different organisational levels, involving both managers and employees at these levels; (ii) cascading BSC by motivating and delegating lower-level members to participate in developing and implementing BSC; (iv) rewarding a wide range of top and lower-level managers and employees based on BSC. (2) Sine the top-level managers, under the low level of environmental uncertainty, would have the adequate knowledge and information that are needed for managing and controlling the whole organisation; organisations that face a low level of environmental uncertainty are expected to implement BSC in centralised way. This is through (i) developing BSC relying on one or few organisational members who have the sufficient knowledge and completed picture of organisation's goals and activities; (ii) non BSC communication or communicating BSC to limited number of managers at lower organisational levels; (iii) non- BSC cascading or cascading BSC to limited number of managers at lower organisational levels; (iv) non-linkage between BSC and compensation system or implementing this linkage in limited way considering a limited number of organisational members. Based on the aforementioned argument, the following propositions are posed:

P6: The environmental uncertainty contingent variable would influence the adoption or/and the implementation of BSC alignment processes in certain way.

P6a: Organisation that faces a high level of environmental uncertainty would adopt and implement BSC alignment processes extensively through considering a wide range of its members in different levels to be involved in these processes.

P6b: Organisation that faces a low level of environmental uncertainty would not adopt BSC alignment processes, or implement them in limited way through considering few of its members to be involved in these processes.

3.4.3.1.7 Environmental uncertainty effect on BSC organisational learning processes:

As illustrated in Chapter Two; BSC is supposed to be implemented in the sense of the two types of organisational learning, the single loop learning[9] and the double loop learning. Kaplan and Norton (1996a; 1996c; 2001b) indicate that, besides using BSC for the single-loop learning, organisations should update their BSC (including BSC strategic objectives, performance measures, and the cause and effect relationships) in the sense of double-loop learning to be more consistent with the new conditions of the business environment. The extant empirical studies indicate that implementing BSC in the sense of the double-loop learning is essential for re-identifying the measures on BSC to be more realisable and appropriate for an organisation's environment, and therefore enhancing the successful implementation of BSC (Agostino & Arnaboldi, 2012; Braam & Nijssen 2004). Given this, the propositions on the relationship between environmental uncertainty and BSC organisational learning processes are posed as follows:

P7: The environmental uncertainty contingent variable would influence the adoption or/and implementation of BSC organisational learning processes in certain way.

P7a: Besides implementing BSC in the sense of the single-loop learning, an organisation that faces a high level of environmental uncertainty would update its BSC in the sense of the double-loop learning process.

P7b: Organisation that faces a low level of environmental uncertainty would implement BSC essentially in the sense of single-loop learning apart from implementing it in the sense of the double loop-learning.

3.4.3.2 Propositions on the effect of strategy on BSC implementation:

The strategy has been the main focus of many contingency-based studies in order to investigate the design and implementations of different management accounting practices such as MAS and PMS (e.g. Haedr, 2012; Tsamenyi et al., 2011; Gosselin, 2011; Fakhiri et al; 2009; Abdel-Kader & Luther, 2008; Auzair & Langfield-Smith, 2005; Zuriekat, 2005; Hoque, 2004; Langfield-Smith, 1997). And recently some studies have investigated the effect of strategy on

[9] The single loop learning process is the process in which deviation between the actual results and the pre-established goals prompts mangers to question the actual results of the past performance. And therefore taking corrective actions that expected to promote organization's performance towards meet the pre-established goals.

some aspects of BSC concept (e.g. Sonh et al., 2003). Relying on the relevant findings of these studies, and the characteristics of the cost-leadership strategy and differentiation strategy, which are the types of strategy adopted in this study, the study will derive its propositions on the relationships between the strategy contingent variable and BSC implementation as follows:

3.4.3.2.1 Strategy effect on BSC perspectives:

Different types of strategy would place different emphasises on BSC perspectives. This argument has been evoked by different BSC studies such as (Jusoh et al; 2007; Sohn et al., 2003; Olson and Slater, 2002). In this context, Sonh et al., (2003) find that organisations that pursue innovation-oriented strategies such as prospector strategy would emphasise the use of customer perspective and learning and growth perspective more than the other BSC perspectives. On the contrast, the financial perspective and the internal business processes perspective are more emphasised in organisations that adopt the cost-oriented strategies such as defender strategy. Following this empirical evidence, and considering the differences in the strategic priorities between cost-leadership strategy and differentiation strategy illustrated previously (see Subsection 3.2.4.2), one can argue that: (1) the cost-leader organisation with its main strategic priority of competing on price and its focus of cost reduction, it is expected to pay a greater attention to the use of the internal business processes perspective beside the traditional financial perspective. This is in order to measure and manage the cost of its business therefore fulfilling its strategic priority of competing on price. In addition, since this type of organisations applies limited activities related to research and development, and customer services; they are expected to pay less attention to the customer perspective and the learning and growth perspective. (2) Since the cost reduction does not represent the main focus of differentiator organisations, instead they concentrate essentially on building customer brand loyalty through providing unique products and/or services; these organisations are expected to greatly emphasise the relative importance of the customer perspective and the learning and growth perspectives in their BSC implementation. This is in order to identify continuously the demands of its customers and to monitor and manage its intangible assets-employees, systems, procedures- towards meeting effectively and uniquely those demands.

Based on this discussion, the following propositions are proposed:

P8: The strategy contingent variable would influence the relative importance of BSC perspectives in certain way.

P8a: Organisation that pursues differentiation strategy would implement BSC with giving the customer perspective and the learning and growth perspectives more relative importance than the other perspectives of its BSC.

P8b: Organisation that pursues cost-leadership strategy would implement BSC with giving the financial perspective and the internal business processes perspective more relative importance than the other perspectives of its BSC.

3.4.3.2.2 Strategy effect on BSC performance measures:

According to Otley (1999) performance measures must reflect the critical factors of implementing an organisation's strategy. Concerning this relationship between the strategy and performance measures, the contingency-based PMS studies provides the general evidence that; organisations that pursue innovation-oriented strategies are more associated with the use of non-financial measures than financial ones, while organisations that purse cost-oriented strategies are more associated with the use of financial measures than non-financial measures (Gosselin, 2011; Fakhiri et al., 2009; Auzair & Langfield-Smith, 2005; Hoque, 2004; Chenhall, 2003; Ittner et al., 1997). With more focused perspective and based on the different characteristics of the differentiation strategy and cost-leadership strategy, the current study argues that (1) a cost-leader organisation with its characteristics of cost-reduction, productivity maximization, relying on existing products as the main source of revenue, applying limited activities related to research and development, customer services, and advertisements; this type of organisation is expected to (i) implement BSC with more emphasise on the performance measures related to the competitive factors of cost and productivity; (ii) confine its BSC measures to the internal measures with no or little attention giving to the use of the external type of measures (customer survey). (2) A differentiator organisation and because of its main concern of building customer brand loyalty by providing customers with differentiating and innovative products and services; it is expected to (i) implement BSC with more emphasis on the performance measures related to the competitive factor of innovation; (ii) emphasise the importance of using external type of measures (i.e. customer survey), since their usefulness for providing frequent information on the customer demands and thus enhancing the ability to exploit the new opportunities for innovation.

Based on the above argument the following propositions are suggested:

P9: The strategy contingent variable would influence BSC implementation through organisation's choice and use of performance measures.

P9a: Organisation that pursues differentiation strategy would implement BSC with giving more relative importance to the performance measures related to the innovation activities.

P9b: Organisation that pursues cost-leadership strategy would implement BSC with giving more relative importance to the performance measures related to the cost and productivity.

P9c: Organisation that pursues differentiation strategy would use and emphasise the importance of using external type of measures (i.e. customer survey) in its BSC implementation.

P9d: Organisation that pursues cost-leadership strategy would place no or little emphasis on the importance of using external type of measures (i.e. customer survey) in its implementation of BSC.

3.4.3.2.3 Strategy effect on BSC organisational alignment processes:

Several researchers state that the attainment of innovation goal prompts an organisation to effectively utilise its employee's knowledge, talents and skills, these which can be stimulated through empowering employees and encouraging them to a real participation in developing organisation goals and identifying their ways of achievement (e.g. Niven, 2002; Kaplan & Norton, 1996c, 2001b; Burns & Stalker, 1961). Thus, since the main goal of differentiator organisations is attaining innovation, they are expected to implement BSC with an extensive use of BSC organisational alignment processes, since they are assumed to stimulate the real participation of lower level members in developing and planning ways by which an organisation's goals can be achieved (Kaplan and Norton, 1996c; 1996b). On the other hand, as Porter (1980) declared, the cost-leader organisations with their main goal of cost reduction would apply tight cost control. This cost control which restricts the authority of decision making in lower organisational levels, in the way that inhibits the empowerment and participation of lower level managers and employee's in developing organisations goals (Porter, 1980). Thus, it can be expected that; organisations that follow cost-leadership strategy would either not adopt the organisational alignment process of BSC, or implementing them in limited way through considering relatively few organisational members to be involved in the implementation of these processes.

Based on the above argument, the following propositions are posed:

P10: The strategy contingent variable would influence the adoption and the implementation of the organisational alignment processes of BSC in certain way.

P10a: Organisation that follows differentiation strategy will adopt and implement BSC organisational alignment processes extensively through considering a wide range of its members in different levels to be involved in these processes.

P10b: Organisation that pursues a cost-leadership strategy would not adopt BSC alignment processes, or implement them in limited way through considering a relatively few of its members to be involved in these processes.

Chapter Four:

Research methodology

4.1 Introduction:

The research methodology is defined by (Howell, 2013) as the general strategy of the research that outlines the way in which the research is to be conducted and, among other things, identifies the methods used for collecting data and specifying findings. Concerning the important of the research methodology, Yin (2013) states that a researcher has to describe the methodology part as if he describes the most important part of his study, which demands the research to specify a logical plan for getting from here to there, where here are the study questions, and there are the answers of those questions. Thus, this chapter is designed to clarify the methodological issues related to the study investigation including the specification of study type, the adopted research approach, the study design, the case definition and selection plan, the other preparations prior to the fieldwork, the fieldwork investigation, the data analysis procedures, and finally the study report structure and the strategy adopted for writing-up the study report.

4.2 Study type and research approach:

The current study represents descriptive and explanatory types of research. Bernard (1988) defines the descriptive research as the meaning of making complicated things understandable by reducing them to their components. Explanatory type on the other hand is defined by Draper (1988) as the research type that involves a range of activities including: providing requested information or description, justifying an action or belief, giving reasons, supporting a claim, or making a causal statement. Therefore, the current study is defined as a descriptive and explanatory study because of its main purposes of (1) describing the implementation of BSC through examining the practical adoption and implementation of its conceptual components, (2) describing the financial outcomes of BSC through examining the influence of BSC implementation on organisational financial performance, (3) explaining why BSC is implemented as it has been and why the financial outcomes of this implementation appears as it is. This explanatory purpose of the study is reflected explicitly in investigating the causal relationships between certain contingent variables and BSC implementation through applying the contingency theory.

To accomplish these descriptive and explanatory purposes, the study adopts a case study research approach. Yin (2013) in his investigation of the appropriateness of using the research approaches (survey, case study, experiment), advocates the appropriateness of using a case study research when, (1) the purpose of the study is to describe and explain the phenomenon, since the case study research is an empirical inquiry that can effectively capture the complexity of the case and provide a deep investigation of the phenomenon in its real-world context; (2) the study focuses on investigating contemporary events-as opposite to entirely historical- in which a researcher can observe these events directly as well as gaining reporting on them through conducting interviews with alive relevant persons; (3) the main aim of the study is to provide in-depth understanding of the phenomenon considering its surrounding contextual conditions. These three conditions, as it can be seen, are all embedded in the current study. That is, the current study is a descriptive and explanatory study; it examines organisations that are currently implementing BSC, and it involves the investigation of contextual factors (contingent variables) that potentially have influences on BSC implementation.

The adoption of the case study research in the current study can be further justified by:

1- The call of many researchers to use such research approach for investigating the practical implementation of BSC (Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Perkins et al., 2014; Said, 2013; Agostino & Arnaboldi, 2012; Sawalqa et al., 2011; Othman et al., 2006; Hogue & James, 2000). For instances, Zuriekat (2005, p 10-18, 10-19) acknowledges that a questionnaire survey restricts the researcher from ascertain in more details the exact nature of responses, thus, to obtain a more complete picture, attention should be focused on using more in-depth case studies to provide a greater understanding of how organisations are dealing with BSC and its assumptions. Southern (2002) in turn confirms that there is a need for a systematic comparison through conducting a case study approach to investigating BSC concept. As this would provide valuable insights into how BSC implementation can differ among organisations and how the different implementations can affect the gained benefits. He further indicates that investigating BSC in this way would allow more realistic classifications of BSC concept, which would be more than beneficial for predicting the value of BSC implementation.

2- The appropriateness of case study for testing presumed causal linkages between variables (propositions), which is the case in the current study; as it investigates the relationships between contingent variables and BSC implementation. Yin (2003) emphasises that the idea that case

study research is only a preliminary method and cannot be used to describe and test propositions is misconception; a case study research is far from being only exploratory study (p.7-6). He asserts that the case study is a powerful tool for testing propositions so, therefore generalising theory; it involves an in-depth inquiry in a case which enhances an effective examination of the main study object, the case contextual conditions, and the relationship between them. In addition, Miles and Huberman (1994) state that the case study research with its qualitative analysis has a strong capability of testing propositions, seeing whether specific predictions can be confirmed, since it is absolutely local, and deals effectively with the complex network of events and processes in a given situation.

3- The call of many researchers to investigate the robustness and the analytic generalisability of the contingency theory of management accounting through using a case study approach, instead of using a survey method which represents the overwhelming feature of contingency-based management accounting studies (e.g. Liu et al., 2014; Hoque, 2004; Chanhall, 2003; Hoque & James 2000; Otley, 1980; Gordon & Miller, 1976). In this context, Otley (1980, p. 425) declares that it is unrealistic to expect purely statistical methods of analysis to unravel the complex pattern of interaction between the contingent variables. He emphasises that the researcher must have a closer involvement for accomplishing this task, hence, there is strongly support of following a case study approach to investigate the relationships among contingent variables. In addition, Haedr (2012) states that further studies are required to investigate the relationship between contingent variables and the design and the effectiveness of management accounting systems by applying a case study approach which would provide better explanation of such relationships. Thus, adopting the case study approach in this study, besides being a response to the aforementioned confirmed calls, it adds to the limited efforts to investigate the contingency theory by applying a case study research approach (Agostino & Arnaboldi, 2012; Ditillo, 2004; Dill, 1958).

Having identified the study type and the applied research approach; the discussion is going toward identifying the adopted type of case study. There are two types of case study research, which are a single-case study and a multiple-case study (Yin, 2013; Miles & Huberman, 1994). In his discussion of which type of case study research is better than the other, Yin (2013, p. 63-64) asserts that the multiple-case study may be preferred over the single-case study. He emphasises that if you can even do (two-case) studies, your chance of doing a good case study will be better than conducting a single-case study, since the analytic conclusions that arising from two cases

will be more powerful than those coming from a single case. Miles and Huberman (1994, p. 172-173) in turn emphasis that conducting a multiple-case study enhances the understanding of how the local conditions of cases can influence certain object and thus developing more reliable and robust description and powerful explanation. They further state that a multiple-case study also assists a researcher to calculate where certain order of incidents or events is most likely to occur or not occur, find negative cases to strengthen a theory, and build thought examination of similarities and differences across cases. For these reasons the current study would adopt the multiple-case type of case study research.

4.3 Overview of the study design:

Miles and Huberman (1994) distinguish two types of qualitative/case study research designs, loose design and tight design. The loose design represents that in which there is no explicit determination of the study structure before the fieldwork being conducted. That is, the conceptual framework of the study will emerge from the study's field, while the study questions, data collection instrumentation, sampling of people to be participated in the study are all will be determined gradually during the fieldwork. On the contrast, the tight design refers to that a researcher begins with well-delineated structure, in which the study conceptual framework, questions, theoretical propositions, case definition, sampling, instrumentation are all defined before conducting the fieldwork. However, the tight design does not mean that the predefined study structure cannot be revised and modified; on the contrary, this can be continuously done by new emerged information or discovery during the fieldwork (Yin, 2013; Miles & Huberman, 1994).

The choice in the current study is that adopting the tight design. As it can be seen in Chapter One (i) the study started with determining its questions as well as its objectives which show how the study is going to answer the determined questions. Furthermore, in Chapter Three, section 3.4, (ii) the study built its theoretical framework that is presented in graphical forms showing the study variables and the anticipated relationships between them; (iii) the study then assigned an explicit operational definition for each of its variable, and (iv) finally it developed the theoretical propositions that represent the predicted relationships between the study variables. In addition, later in this chapter, (v) the study identifies the case study definition, (vi) sets its sampling plans, (vii) develops the study's instrument for data collection, (viii) identifies the measurement ways of the study's variables, (ix) specifies its methods of data collection, (x) and

clarifies the other preparations undertaken prior to fieldwork. This choice of adopting the tight design in the current study is justified in general by the following reasons:

1- Tight design avoids a researcher the data overload. It makes the data collection effectively more selective through clarifying and specifying what will be studied and what will not be studied (Yin, 2013; Miles & Huberman, 1994). Emphasising the importance of the prior development of theoretical propositions as one of the tight design features, Yin (2013) states that developing theoretical propositions before data collection is fundamentally important for a case study research as they would direct a researcher where to look for relevant data, rather than attempting to cover everything about the case.

2- Tight design makes the comparison across cases more effective. It prompts a study to start with standardised theoretical framework, questions, theoretical propositions that will be investigated within each case so, consequently, making the comparable display and analysis across cases effectively feasible (Yin, 2013; Miles & Huberman, 1994).

3- Tight design enhances the generalisability of case study findings. It provides a theoretical basis, whereby the findings of case study can be generalised. Yin (2013) asserts that it is fatal to consider the statistical generalisation to be the way for generalising case study findings[10], since the case(s) involved in a case study are not sampling units and also they are too small in number to represent any larger population. Instead, a case study researcher has to consider the analytic generalisation that can be achieved through corroborating, modifying, rejecting the theoretical propositions that developed in the initial design of the study. He further emphasises that the case study is not generalizable to population, rather than the goal of case study is to generalise and expand a theory (Yin, 2013).

4- Tight design enhances an effective selection of cases to be involved in a case study. Besides the study questions, the theoretical propositions identified in the tight design would assist a research to select the appropriate case studies by which the theoretical propositions can be confirmed, challenged or expanded (Yin, 2013; Miles & Huberman, 1994).

[10] Statistical generalisation is in which a researcher makes an inference about a population on the basis of data collected from a sample of that population (Yin, 2013).

4.4 Case definition:

Defining the case is an essential demand that indicates the scope of the study findings applicability - the other cases in which the study findings can be applicable (Miles & Huberman, 1994). Two aspects are highlighted in defining a case, which are defining the nature of the case and bounding the case (Yin, 2013). Defining the nature of the case refers to that defining whether the case is individual person, small groups, communities, decisions, programs, organisations, or specific events, as well as it refers to defining the phenomenon that the researcher is interested to investigate about the case. Bounding the case on the other hand means that to define the aspects of a case that a researcher can study within the limits of his time and means (Miles & Huberman, 1994). The main enablers of accomplishing these two aspects of case definition are study questions and framework as they clarify the main interest of the study and the study variables (Miles & Huberman, 1994). The relevant literature also can be a guide for defining the case. As they enable a researcher to define a case study to be similar to those previously studied in the previous studies, therefore making the comparison between the study findings and previous studies feasible (Yin, 2013).

Considering the main interest (object) of the current study embedded in its questions and framework, which is BSC implementation; the nature of the case study is defined as an organisation that is implementing BSC, at least through its initial version[11]. On the other hand the cases are bounded to involve the follows:

1- Libyan organisations. The main reasons for establishing this definition boundary are (i) the lack of studies that investigated BSC concept in less developed countries in general and Arabic countries such as Libya in particular; (ii) the general lack of research on the management accounting in Libya; (iii) the call of many researchers to investigate the management accounting practices in such countries, which is believed to provide more information and details on how the relatively new management accounting systems such as BSC are implementing in different context from that they were implemented and tested for long time (e.g. Hoque, 2014; Liu et al., 2014; Said, 2013; Haedr, 2012; Sawalqa et al., 2011; Khan et al., 2011; Yongvanich & Guthrie, 2009; Leftesi, 2008; Ismail, 2007; Alkezza, 2006); (iv) expanding the contribution of the current

[11] The initial version of BSC, as it is discussed in Chapter Two of the study, represents BSC as multidimensional PMS that encompasses a set of financial and non-financial measures combined into four perspectives

study to involve further the context contribution, and finally (v) the possibility of collecting data, as Libya is the home country of the researcher.

2- Manufacturing organisations. This is because of that this type of organisations is the main concern of BSC reflected in the earlier BSC publications (See Kaplan & Norton 1992, 1993). In addition, this type of organisations represents the main interest of the major BSC previous studies especially those investigated BSC concept on the shade of the contingency theory (e.g. Lee et al, 2014; Gosselin, 2011; Sawalqa et al.,2011; Hoque, 2005; Zuriekat, 2005; Hoque & James, 2000).

3- For-profit organisations; as this type of organisations represents the main focus of BSC that reflects in maintaining the financial perspective as one of the main perspectives of BSC concept, although BSC is evolved later by its inventors to be applied in for-non-profit organisations.

Hence, the full definition of the case that is to be involved in the current study is specified as follows: "Libyan for-profit manufacturing company that is currently implementing BSC at least through its initial version"

4.5 Selection plan:

Respecting the selection plan; some criteria can be applied for selecting each case within a multiple-case study, (1) selecting the case that has the main interest of the study in place, (2) ensuring the sufficient access to the data; (3) given the access to many cases the study can be then strengthened by selecting significant cases that are of general public interest (Yin, 2013).

However, in any given situation the selection of cases to be involved in multiple-case study has to enhance the generalisability of the study findings (Miles & Huberman, 1994; Yin, 2013). Whereas, the main goal of the case study research as illustrated previously is to generalise and expand theory, not to generalise from sample to population. Thus, the logic in selecting cases is not sampling logic in which the number of cases has to be representative to a larger population. Instead, the selection of cases in multiple-case study research should be based on the study initial theoretical propositions through selecting cases that ensures the application of the replication approach (Yin, 2013). This in which the cases can be selected as they are predicted to show similar results "literal replication"; or as they are predicted to show contrast results but for anticipated reasons demonstrated in the study propositions "theoretical replication"; or both (Yin, 2013).

Considering the above discussion, the initial plan for selecting cases to be involved in this study can be set as follows:

1- Identifying the companies that potentially have BSC in place. This will be based on the experience of the researcher, as he had conducted a survey-based research on the adoption of BSC in Libyan manufacturing companies, besides asking consulting companies and software vendors for known possible BSC adopters.

2- Contacting these companies, and other companies that are nationally important in their industry and they are not known (by the researcher) whether they are BSC adopters or no. This will be through conducting meetings with the representatives of those companies. The main aims of this step are that (i) explaining the study aims and objectives; (ii) introducing the basics of BSC concept, so that each company can determine whether it has partially or fully BSC in place or no.

3- Having identified the companies that consider themselves as BSC adopter; these companies will be asked for their permission for the researcher to conduct the preliminary examinations of their appropriateness for the participation in the study.

4- Having gained the permission to conduct the preliminary examination, a second wave of meetings will be run with some key organisational members in each company for (i) investigating the company's adoption of BSC. This will be through asking brief questions about the components involved in the company's BSC, so insuring that the company has adopted the initial version of BSC at least; (ii) collecting information about the company's context in relation to the contingent variables involved in the study; (iii) collecting certain information related to the company's financial performance, and gaining an overview on the financial effect of BSC within the company.

5- Having conducted the preliminary investigation and hopefully obtaining the access to many BSC adopter companies, the following sequence criteria will be applied for the final selection of the cases: (i) the sufficient access to the data, (ii) the ability to apply the replication approach whether literally or theoretically or both for testing the study propositions, (iii) the national importance of the company in its industry.

On the other hand, concerning the sampling plan of the units of data collection (organisational members will be involved in the study), the study aims to involve organisational members who

have connection, knowledge and experiences with the adoption, development and the use of BSC in each company. To identify those members, a discussion with a senior manager or key informant in each participated company will be conducted. However, as Miles and Huberman (1994) say samples in qualitative studies are often not entirely pre-specified, but can evolve as the fieldwork begins. Therefore, the initial sampling of participants in the current study can be expanded as the research will follow the answers among participants.

4.6 Triangulation and data collection methods:

Denzin (1978, cited in Miles & Huberman, 1994) state that triangulation can be applied (1) by data sources, the inclusion of variety of data sources: persons, times, places, etc. (2) by data collection methods, the use of multiple methods for collecting data: interview, documentary review, observation, (3) by theory, the use of multiple theoretical perspectives for interpreting same data set, (4) by data types, the use of recording, qualitative and quantitative text.

In the current study, triangulation is applied through: examining the study pre-identified propositions against other rival propositions that might be emerged from the fieldwork (theory triangulation); applying various sources of data in each data collection method, especially in interview method by seeking to obtain answers on a same issue from a wide range of relevant people positioned in different organisational levels (data sources triangulation); and through using multiple methods for collecting the required data, interview, documentary review, and observation (methodological triangulation). These data collection methods in turn are discussed as follows:

4.6.1 Interview method for data collection:

Interview is the most important data collection method used frequently in a case study research (Mason, 1996**;** Ritchie & Lewis, 2009**;** Ryan et al., 2002). This is attributed to the interview power for providing detailed, focused and rich understanding of people perceptions, attitudes and experiences in relation to the object of the study, as well as for its assistance with seeking explanations and identifying other relevant sources of data (Yin, 2013; Yin, 2009; Saunders et al., 2009; Patton, 2002; Easterby-Smith et al., 2002; May, 1997). Given this; the interview is used as the principal data collection method in the current study.

May (1997) distinguishes four types of interviews. (1) Structured interviews, in which the questions are specified and accompanied with fixed range of answers (closed-ended answers) which an interviewee would choose between them. (2) Unstructured interviews, in which there are no pre-identified specific questions to be posed to interviewees, instead the interviewees are encouraged to speak openly and give as much information as possible on the topic of the study. (3) Semi-structured interviews, it combines the directionality of the structured close-ended interview with the flexibility of the unstructured open-ended interview. The questions in the semi-structured interview are pre-determined in order to ensure that all the important points related to the study inquiry are covered, while the interviewees are not adhere to fixed answers. Instead, they are encouraged to express their experience and knowledge in relation to any given inquiry. (4) The group interview, by which the researcher focuses upon a group interaction around the issue of interest. Among these four types, the study adopts semi-structured interview. This is because it allows a researcher to prompt and probe deeper into the giving situation, it allows him also to ask a participant more detailed questions in interaction manner rather than abiding only by the pre-determined questions (Kajornboon, 2005).

The initial plan for applying this method of data collection is that: (a) in the stage of the preliminary fieldwork investigation; interviews will be conducted and recorded relying mainly on the note taken; (b) in the stage of the main fieldwork investigation; formal interviews will be carried out through (i) conducting face to face interviews, in which each participant will be interviewed alone as an aim to increase the quality of collected data (Miles & Huberman, 1994); (ii) applying the replication approach for conducting interviews through confirming and corroborating the findings of one interview by conducting new interviews; (iii) recording the interviews using tap records and note taken. However, in the situation that an interviewee refuses to give permission or appears to be not comfortable with using tap recording, notes will be taken extensively instead, in order to record the main relevant points of an interview (Yin, 2013); (iv) conducting interviews as much as the theoretical saturation had been reached (Yin, 2013; Miles & Huberman, 1994); (v) each interview is planned to be conducted at participant's workplace but, however, it can be conducted anywhere else in which a participant feels more comfortable (Miles & Huberman, 1994).

4.6.2 Documentary review and direct observation:

The application of documentary review is one of the data collection method used in a case study research. The strength of using such method is attributed to the properties of documentation. These are identified by Yin (2013, p. 106) as stable - can be reviewed repeatedly; unobtrusive - not created as a result of the case study; specific - can contain the exact names, references, and details of an event; broad - can cover a long span of time, many events, and many settings. However, as Yin asserts documents must be carefully used and should not be accepted as literal recordings of events, instead they should be used to corroborate and augment evidence from other sources (Yin, 2013, p. 107). The main purposes of using documentary review method in the current study are (1) seeking converging and corroborating evidence to those obtained by the interview method in relation to a company historical development and current situation, a company formal strategy, and the development and implementation of each component of company's BSC; (2) reviewing the financial reports of company in order to identify the change in its financial performance after implementing BSC. However, in the situation that the researcher is not allowed to take copies of documents, notes will be taken during reviewing the documents in the case sitting instead.

On the other hand, since a case study takes place in the real-world setting, observation data collection method can be used for providing additional evidence. It enables a researcher to cover actions in time as well as covering the context of the studied case (Yin, 2013). Therefore, the direct observation method is intended to be used in the current study through: (1) attending meetings in which BSC and its outcomes are discussed so; therefore additional evidence can be obtained on the company's implementation of BSC and its financial effect; (2) observing a case side-work including the manufacturing processes, so therefore, additional confirmatory evidence can be collected on the context of the case. Otherwise, the observations will be recorded by taking notes and/or photographs.

4.7 The instrument of the study:

The study instrument in the current study represents the interview guide for conducting the semi-structured interview. Respecting the formulation of questions involved in the study instrument; Miles and Huberman (1994) assert that questions in the instrument have to be closely keyed to the variables of interest, which embedded in the study questions and theoretical framework. In this regard, Yin (2013) clarifies that two main levels of questions should be

considered when designing the study instrument: level "1" questions which refers to the questions interred into the instrument, while level "2" questions pertains to the main study questions that have to be in the researcher mind during conducting the fieldwork. Thus, the level "1" questions have to be accurately articulated and formulated in the way that helps the researcher to get answers for the level "2" questions. Furthermore, he emphasises that the questions in the instrument are in fact posed to the researcher not to the interviewee, they are queries to the researcher, helping him to remind the information that needed to be collected, and why (Yin, 2013, p. 89-90).

On the other hand, regarding the type of data to be collected by using the study instrument, Miles and Huberman (1994, p. 207) emphasise that we have to face the fact that numbers and words are both needed if we are to understand the words. Gherardi and Turns (1987, cited in Miles & Huberman, 1994) assert that in qualitative research, using numbers is useful when data are standardised and there are clear rules for identifying what is variation and what is error. Yin (2013) in turn states that case study is not restricted by using only the qualitative type of data, on the contrary; case study can include and even be limited to the quantitative data. He emphasises that the use of numbers in the case study makes it more understandable and makes people feel more comfortable with the study findings. Miles and Huberman (1994) identify three main reasons for using numbers in the qualitative research, which are (a) to see rapidly what has been got in a large amount of data, (b) to verify propositions, (c) to keep a researcher analytically honest. They further clarify that the qualitative information can be either counted directly or converted into ranks or scales through asking a participant to estimate them or making the estimation by the researcher during or/and after the fieldwork.

Considering the above discussion, the study instrument is developed as follows:

1- The study instrument was designed in the way that enables the measurement of the study variables, the verification of the study propositions and, therefore answering the study questions (see appendix A). It is structured to involve the following sections: Sections One and Two aim at collecting general information on the participants and their organisations; Section Three aims at collecting data on the two contingent variables of environmental uncertainty and business strategy; Section Four aims at achieving multiple purposes which are (i) collecting general data on an organisation's BSC adoption; (ii) collecting data on BSC implementation considering the adoption and implementation of each BSC conceptual component; (iii) collecting data on the

non-financial/subjective benefits of implementing each BSC component (iv) collecting data on the financial benefits obtained from BSC implementation; (v) capturing the participants' view-points on the potential effect of the contingent variable on the implementation of BSC. For achieving the latter aim, each question in the Section Four of the instrument is followed up by "why" question, which is believed to be beneficial for posing the questions relating to the contingent relationships between each component of BSC and the contingent variables. In addition, posing "why" question can also mitigate the influence of the research's believes on the participant as well as it motivates the participant to give rival explanations on any giving point, which would be the focus for further investigation (Miles & Huberman, 1994).

2- The instrument questions were formulated as guides to the researcher for collecting the required data for answering the main questions of study. This guiding manner in developing the instrument questions can be seen explicitly in Section Four of the instrument; where an expanded set of questions are used to cover all the important points related to certain inquiry of the study[12]. The guiding manner in developing the instrument questions can be seen also through developing the instrument in an interactive way. This is in which questions are asked as response to the participant answers by using "if (NO), then" and "if (YES), then" sentences. These sentences in fact are posed to the researcher to direct him in running the discussion with the participant and deriving more explanation and verification for the study inquires.

The study instrument was a result of deep discussions with the researcher's supervisors, three of his colleagues and two senior executives of potential participated companies. All their feedbacks were taken into accounting for amending the initial version of the study instrument. The main feedback of the senior executives was that avoiding posing direct questions about the potential influence of the contingent variables on BSC implementation. The reasons for that explained by one of the senior executives as follows: (1) it is difficult to say that the environmental uncertainty, for example, influences BSC to be implemented in a certain way. This is because we do not know what the environmental uncertainty actually means. And even if some of us know this concept, it is still very difficult to determine the effect of the environmental uncertainty on BSC implementation, as we do not know how other companies, which face

[12] For example, in subsection 4.1 of the instrument includes five questions, each question focuses on an important aspect of the adoption and implementation of BSC perspectives. This is instead of using a single question for examining BSC perspectives in the way that can misguide the researcher in covering all the important points related to this inquiry.

different level of environmental uncertainty from our company, are implementing BSC; (2) he further states that some of whom you are going to interview might answer such direct questions but, however, I can probably assert that 70% of their answers will be personal answers that reflect their background academic knowledge. Therefore, the answers will not be relevant to the situation of the company. These feedbacks were seriously considered in further discussions with the supervisors and colleagues, which result in a substantial modification of the study instrument. That is, the initial plan was to devote the questions of the instrument to obtain direct answers from the respondents on the influences of the contingent variables on BSC implementation, therefore using the traditional methods of analysis such as narrative analysis, thematic analysis, or grounded theory analysis for verifying the relationships between the study variables. However, having got the above feedback, the initial plan is changed to adopt the pattern matching technique through applying the theory based analytic strategy as a basis for testing the relationships between the study variables, and the cross-case analysis for verifying such relationships (See subsection 4.9.3 for details). Besides, using the "why" question for providing additional supportive evidence as illustrated above.

4.8 The measurement of the study variables:

In order to enhance the construct validity of the study and make its findings comparable to the previous study as well as avoiding the research's subjective judgement in measuring the study variables, the study, after giving an operational definition for each variable in Chapter three, subsection 3.4.3, it demonstrates the ways in which these variables are measured as follows:

4.8.1 Measuring the environmental uncertainty:

As discussed in Chapter Three, subsection 3.4.3.1, the environmental uncertainty variable was operationalised in two ways, as the change in the business environment, and as PEU. For applying these two operational definitions, nine items are used (see section 3 part 1 of the instrument). These items are developed from the instruments used by (e.g. Lee et al., 2014; Hoque, 2005; Hoque, 2004; Baines and Langfield-smith, 2003). Participants are asked about how they believe the external environment of their company has been changed over the past three years in related to each identified item (measuring the change in the company environment); and how they perceive the past and the future environmental change in terms of predictable or unpredictable in related to each identified item (measuring PEU). During the discussion of each environmental uncertainty item, the researcher converts the qualitative answer of a participant

into a rank on seven-point liker scale. Then he takes a feedback from a participant on this rank, so therefore, the necessary adjustments of the converted ranks are made. Therefore, the environmental uncertainty level of a company is specified through; (i) calculating the "mean score" of all participants' answers-for each company (ii) and then adjusting this mean score on the light of any other evidence raised from other data collection methods.

4.8.2 Measuring the business strategy:

As mentioned in Chapter Three, subsection 3.4.3.2, the two general strategies of Porter (1980) of cost-leadership and differentiation strategies are adopted in this study. These two strategies will be measured individually by using two groups of items (e.g. Haedr, 2012; Auzair & Langfield-smith, 2005). The cost-leadership strategy is measured through using four items and the differentiation strategy is measured through using six items (see section 3, part 2 of the instrument). Participants are asked to describe their company strategic orientation in relation to each item in the two groups. Therefore, the mean score relating to each strategic group will be defined using the same procedures defined for measuring the environmental uncertainty variable. Hence, the company will be considered as a differentiator if the mean score of differentiation items is higher than the mean score of cost-leadership strategy and versus versa.

4.8.3 Measuring BSC implementation:

BSC implementation is the main interest of the current study. It is measured by assessing the adoption and implementation of each component from that constitute the fully developed concept of BSC[13]. Section Four of the study instrument is devoted mainly to achieve this goal of measuring BSC implementation. In this instrument's section almost each BSC component is given a particular subsection, whereby the researcher can collect the relevant data by asking participants, reviewing documents and making observations. The collected data then are analysed qualitatively through using the three analytic processes of Miles and Huberman (1997) (discussed with details in section 4.9).

[13] As discussed throughout the previous chapters, these components are identified as follows: performance perspectives; strategic objectives; performance measures; the cause and effect relationship; BSC targets and their application (initiatives development and resources allocation); BSC organisational alignment processes involving: BSC education and communication, BSC cascading, and linking BSC to compensation system; and finally the process of organisational learning.

4.8.4 Measuring BSC financial effect:

This variable in fact reflects the influence of BSC implementation on a company financial performance (financial performance effectiveness). For measuring this variable; the study applies two sequential and complementary stages. The first stage: in which the Return on Assets (ROA)[14] financial measure is used to measure the change in the financial performance of the company after implementing BSC. That is, relying on the actual financial reports of each company, the researcher calculates the total change in ROA[15] between the prior year of BSC implementation and the years of BSC implementation. Second stage: in which participants are asked to evaluate the contribution of BSC implementation in creating the total change in ROA. This will be on a 6-point scale ranging from 0 (No contribution) to 5 (Very high contribution), while participants will be asked to clarify subjectively their ranking choice.

Particularly, the second stage is adopted to avoid probable mistaking findings that can be resulted from considering only the change in the financial performance when judging the financial effect of BSC. To demonstrate: although the change in the financial performance can be positively high, it can be not because of BSC implementation, instead because of other factors. For examples, it can be a result of implementing other system(s) during BSC implementation, or because of the change in the business environment as it becomes more munificent during BSC implementation. Therefore, to ensure an accurate measurement of BSC financial effect, it has been decided that: to measure the change in the financial performance of the company after implementing BSC, and then seeking participants' perceptions on the extent to which BSC implementation has contributed in creating that financial change.

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[14] ROA is used in this study because, (i) it is considered to be a prime measure for measuring the financial performance effectiveness, since its effectiveness for evaluating the efficiency of management and its employed mechanisms in utilizing the invested capital for generating financial earnings (Atrill & Mclaney, 2015; Selling & Stickney, 1989); (ii) the wide use of this financial measure for assessing the financial performance effectiveness that can be stimulated by BSC (e.g. Khan et al, 2010; Davis & Albright, 2004; Ittner et al, 2003a).

[15] The total change in ROA= the average of ROA for BSC implementation years (-) ROA for the year before BSC implementation. In which:

- The average ROA for BSC implementation years = (ROA for the first year + ROA for the second year + ROA for the third year + etc.) / the number of BSC implementation years.

- ROA = Net profit at the end of a year / Average total assets, (which is calculated by dividing the sum of total assets at the beginning and at the end of the financial year by 2).

4.9 Preparations prior to the fieldwork:

The preparation prior to the fieldwork reflects the final arrangements before going out to a field (Yin, 2013; Miles & Huberman 1994), which represents-in the current study- preparing the ethical approval, designing the early analysis methods, and creating the early descriptive codes.

Since nearly all case studies are about human affairs, a case study researcher, before going to the field, has to obtain a formal approval for his/her plan to protect human subjects involved in the study (Yin, 2013). Thus, following the ethical approval guidance prepared by Salford University (the institution of the researcher), the study ethical approval was prepared to clarify (1) the study title, questions, objectives, the rational for undertaking the study and the outline of the study methodology; (2) the procedures for gaining informed consents, those include the preparation of the company information sheet, the company consents form, the participant information sheet, and the participant consents form; (3) the procedures undertaking for data protection. Having prepared the initial form of the ethical approval; it was submitted to the Research Ethics Panel of Salford University in 19/08/2015, and has been approved in 26/10/2015 (see appendix B).

Otherwise, Miles and Huberman (1994, p.50) emphasise that early data analysis is fundamentally useful in doing case study research as it helps a researcher cycle back and front between thinking about the existing data and generating strategies for collecting new data. Considering this usefulness, three methods for early data analysis are adopted from the combinations of the relevant methods described by Miles and Huberman (1994), with conducting some modifications on them to suit the study purposes. These methods are: Contact summary[16] sheet, Documentary summary form[17]; and Data accounting sheet[18].

[16] Contact summary sheet represents a summary of mean points borne from an interview in relation to study questions, variables, propositions, and any emerging rival propositions, moreover, this sheet includes the reflecting remarks made by the researcher on the interview. Thus, the contact summary sheet is filled out after each interview through reviewing the interview tap and research notes on the interview. The main aim of using this type of early analysis methods is to identify where the researcher should place most energy in next interviews.

[17] Documentary summary form is prepared for each reviewed document in order to document the name of the document, the events in which a document has been collected or reviewed, the significant of the document for the study, and for giving brief summary of the document content.

[18] Data accounting sheet is used to know how many and what type of evidence are in hand in relation to each question in the study instrument. The data accounting sheet is filled out as the fieldwork is going on so, therefore, it helps in the planning for the next step in data collection

Furthermore, in order to enhance the efficacy of using the above methods, the researcher specified a preliminary set of descriptive codes grounded on the study questions, variables and propositions. Miles and Huberman, (1994) define the codes as summarising notions, tags or labels used for categorising and clustering the collected data in accord to the study questions, propositions, variables or themes. The early development of codes is assumed to be helpful in identifying the pieces of information that will be entered into the early analysis forms (methods). That is, by reviewing the collected data and looking simultaneously to the pre-specified codes, the researcher can more accurately identify the relevant information relating to each question handled by each early analysis method. Moreover, the early specification of codes enables the researcher to modify and develop them along the way of data collection, by discarding and/or adding other codes that reflect new themes or issues emerged from the fieldwork (Miles & Huberman, 1994).

4.10 The fieldwork investigation:

This section describes how the pre-set methodological plans (identified above) were carried out in the study field, and what output has been resulted from the real implementation of these methodological plans. To do so, this section is divided into two subsections. The first represents the preliminary fieldwork investigation, which pertains to the early steps undertaken for selecting the cases and gaining their participation consents. The second subsection represents the main fieldwork investigation. It describes the procedures undertaken for collecting data, and the evidence that has been gathered.

4.10.1 The preliminary fieldwork investigation:

Following the case definition and selection plan discussed previously, seven Libyan manufacturing for-profit companies were firstly identified as targeted cases to be involved in the current study. This identification was based on (1) a company potential adoption of BSC, which have been anticipated by the researcher as he has a previous experience of conducting a survey-based research on BSC adoption in Libyan for-profit manufacturing companies, (2) a company importance, reputation and strategic position in Libyan economic. Moreover, three other companies were identified based on the discussions conducted with three Libyan consultants in management accounting and several members of different Libyan universities.

After identifying the ten targeted companies and obtaining the ethical approval from Salford University in 26/10/2015, the researcher phoned each company in order to arrange meeting to discuss the possibility of the company to participate in the study. By doing so, the researcher had succeeded in arranging meetings with the representatives of six companies. However, the four other companies refused to participate in the study from the beginning. This was because of that they did not want to share their information with any person outside the company. This was despite the explanation provided by the researcher on the study procedures for protecting the privacy and confidentiality of the company and any given data.

In each meeting, the researcher introduced himself; clarified and discussed the concept of BSC; and inquired about the company adoption of BSC. Thus, when the company representative evaluated his company to has BSC in place; the research further discussed the information sheet including the study aim and objectives, the participation requirements, the voluntary nature of participation, the anonymity issue (not disclosing the company name) and the procedures undertaken for protecting the data and company's privacy and confidentiality. Thus, when the company representative was interested in the study; the researcher further asked for a permission to conduct the preliminary investigation with him and some of key organisational members in his company[19].

Twenty-one interviews were conducted in the preliminary fieldwork investigation. They were conducted over 13 days from 28/10/2015 to 09/11/2015, and lasted between less than one hour and less than two hours. The outcomes of these interviews were that (i) identifying three companies as inappropriate for the study, since they do not even have the initial version of BSC in place[20]; (ii) identifying three companies as appropriate for the study, as they adopt at least the initial version of BSC and hold the study variables in the way that enables the accomplishment of the replication approach. Following this preliminary examination, the research went back to the three appropriate companies asking for their final consents of participation, which have been obtained officially and in writing manner.

[19] As planed; the preliminary investigation was conducted through (i) asking the interviewees brief questions about the components involved in their company's BSC; and their company context in relation to the contingent variables of the study; besides, (ii) collecting certain information related to the company's financial performance, and gaining an overall view on the financial effect of BSC within the company.

[20] These companies do not classify their used financial and non-financial performance measures in different perspectives

The three participated companies; they all preferred their names to be anonymised in the study so, therefor, research codes are used as substitutes for companies' real names. That is, the first company is given the research code (CRM), the second company is given the research code (NIF), and the third company is given the research code (ISC). However, they allowed the researcher to disclose their real names in the situations of academic evaluation. On the other hand, although the researcher was allowed to review the relevant documents to his study investigation, he was required to not take any copy of any document from any member involved in the study, before asking the company top management for permission.

Having agreed on the above conditions; the final arrangements before starting the main fieldwork investigation in each company, were to identify the preliminary sample of people who will be interviewed, and to prepare the preliminary timetable for conducting the interviews. In doing so, a list of people was identified in each company based on the discussion made with the company general manager in relation to people who were involved in developing BSC and those whereby BSC is currently implemented within the company. However, as it has been discussed with the companies' general managers, these lists are preliminary lists, so further people may be involved in the study as the fieldwork is going on. Following that, each company has assigned one of its members for preparing the interviews timetable, arranging further interviews, and assisting the researcher for conducting certain observations. Those fieldwork arrangers were the manager of monitoring and information office of CRM Company, the general manager of NIF Company, and the manager of R&D of ISC Company.

4.10.2 The main fieldwork investigation:

The main fieldwork investigation was conducted from 12/11/2015 to 28/08/2016. It covered a period of 3 months and 10 days in CRM from 12/11/2015 to 21/01/2016; a period of 9 months and 3 days in NIF from 23/11/2015 to 28/08/2016; and more than one month period in ISC from 08/12/2015 to 16/01/2016. During this period several semi-structured interviews were conducted, in addition to the evidence collected by using the documentary review and the observation methods. They are discussed as follows.

4.10.2.1 The conducted interviews and their procedures:

Beside the 12 interviews conducted in the preliminary fieldwork investigation in the three case studies[21], additional 51 semi-structured interviews were conducted during the main fieldwork investigation. These 51 interviews were conducted with organisational members from different organisational levels in the three case studies[22]. They involve: 15 interviews conducted in CRM, 14 interviews in NIF, and 22 interviews in ISC. Summaries of the interviews conducted in each company are shown in (appendixes C, D, and E), including the date, time, the interviewee's job title and the time duration of each interview.

The 51 interviews were all conducted face to face at the work-place of each participant, except three interviews, which were conducted by phone. They were all recorded by using tap recording and note-taken. 34 of 51 interviews were pre-specified in the preliminary lists prepared before starting the main fieldwork. However, 14 interviews were decided on during conducting the main fieldwork as an aim to gather further confirmatory and corroborating evidence. Moreover, 3 interviews were conducted after the main fieldwork for gathering further information.

The interviews were conducted in Arabic language as it is the native language of interviewees as well as the researcher. An interview session began with discussing the participant information sheet[23]. Following that, when the participant was interested to participate in the study, he/she was given the participant consent sheet to review, ask, and therefore sign. Here it is worth to mention that, all organisational members the researcher met gave their willingness to participate in the study and they all signed the consent sheet (except the three interviews conducted by phone). However, they preferred to keep their real names confidential and using their job titles instead.

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[21] In the preliminary fieldwork investigation 4 interviews were conducted in each case study, to be in total 12 interviews. See appendixes J, K, and L for details on the date, the interviewee job title and the time duration of each interview.

[22] As planned; the interviews in all the three companies were conducted in the way that ensures the accomplishment of data sources triangulation through interviewing different people from different organisational levels on the same issue. That is, collecting evidence on each study question from several relevant organisational members.

[23] The participant information sheet is by which (i) the participant was given brief description of the study general aim, objectives and demands; (ii) he/she was altered the voluntary nature of his/her participation as well as the choice of keeping his/her name anonymised in the study if it is preferred so, therefore using his/her job title instead; (iii) he/she was affirmed the confidentiality of any information given to the researcher.

During an interview, any given question was posed to the participant and re-posed in different ways when the participant appeared to not properly understand the question. Some questions were dropped in the situations that the participant was not interested in the question or he/she did not have an appropriate answer as the question was out of his/her work responsibility. In these situations the participant was asked to suggest the appropriate person(s) for answering these questions. On the other hand, when the participant expressed other point or issue was not planned to be discussed, he/she was motivated to express his/her viewpoint. This was helpful to enhance the participant's belief in his/her value of participation as well as to enhance the understanding of the researcher about the case. Otherwise, the researcher was listening carefully to the participant answers in order to grasp his/her though and translate it on the light of the study main questions and theoretical propositions, thus reflecting notes were taken. Moreover, the researcher purposefully did not show the participant how much the research knows about the case. This helped in encouraging the participant to give as much information as he/she knows about certain point as well as allowed the surprising answers to be raised.

At the end of the interview, the participant was asked for any further relevant information that has not been mentioned during the interview, and he/she was asked also to suggest other person(s) thought to be relevant to the study interest. This helped in checking the appropriateness of the sampling plan and interviewing other people who were not selected from the beginning. Finally, some participants showed their willingness to contribute further in the study by giving their emails address and phone numbers to the researcher. This was very helpful for obtaining more explanations on some unclear points raised during the data analysis phase.

After conducting each interview, the researcher filled out the contact summary sheet. This is by which the researcher summarised the main points raised from the interview, and wrote down his reflecting notes and evaluation of the interview. Having filled out the contact summary sheet, the researcher reviewed it and filled out the data accounting sheet. The data accounting sheet involved identifying the instrument questions that have been answered and those have not been answered sufficiently by the interviews conducted so far. The use of these two early analysis methods was rather helpful in the planning for the next interview so, therefore, pursuing effectively the evidence across interviews.

4.10.2.2 Documentary evidence and observations:

The documentary review and observation methods of data collection were used in this study for accomplishing the methodological triangulation so, therefore, providing corroborating evidence to those collected by the interview method. In the three companies, documents were reviewed in relation to the companies' historical developments and current situations; their contexts relating to the study contingent variables; their implementation of BSC, and financial reports related to the period before and after BSC implementation (see Table 4.1).

Table 4.1 the documents reviewed and collected from the case studies

Type of document	CRM company	NIF company	ISC company
Organisational framework	Reviewed and collected	Reviewed	Reviewed and collected
Company strategy and strategic objectives statements	-	Reviewed	Reviewed and collected
BSC reports	Reviewed	Reviewed	Reviewed
BSC development procedure reports	Reviewed	Reviewed	Reviewed
Reports on meetings conducted for discussing BSC outcomes	Reviewed	Reviewed	Reviewed
Company financial reports	Reviewed	Reviewed	Reviewed
Database of compensation system	Reviewed	Reviewed	Reviewed
Customer survey	-	Reviewed	-
Customer complain form	-	Reviewed	-
Marketing researches conducted	-	Reviewed	-

As it can be seen in the study instrument, most questions are followed by asking the interviewee to provide document(s) that corroborate his/her answer for any given question. Hence, during the interviews, the researcher was asking the participants to provide him with the relevant documents to review. Some of these documents were reviewed during the interviews and others were reviewed after the interviews in the situations that the documents were not available at the interviews' places. For each reviewed document the researcher filled out a documentary summary form. Therefore, the researcher used data accounting sheet for accounting the questions that have been further supported by documentary evidence and those had not, to be sought in the next round of data collection. At the end of data collection period, the researcher prepared a list of the reviewed documents in each company, the list then was given to the top management for a permission to take copies of the listed documents. However, not all reviewed documents were

collected. This was because of the failure to obtain the permissions from the companies to take copies of certain documents, as they were considered as private documents, so they were not wanted to be shared outside the company.

Moreover, additional confirmatory evidence was obtained by making direct observations of the work-sites of the three companies. Whereas, beside visiting the administration buildings of the three companies, the researcher visited the stores of raw materials, the manufacturing plants, R&D laboratories, the stores of finished products, and the marketing sites. During these observations, the researcher in each company took notes on the diversity and volumes of company products; the company manufacturing and technological systems; the company activities related to innovation and employees training; the interaction between the company and its employees; and the process of delivering products to customers and after sales services.

However, against the study initial plan; the researcher couldn't use the direct observation method for providing additional evidence on the companies' implementation of BSC - through attending meetings in which BSC and its outcomes are discussed. This was because of the failure to obtain permissions from any participated company to attend such meetings. NIF and ISC considered such attendance to be an intervention that can affect negatively achieving the purpose underlying the meetings. Moreover, such meetings in CRM were considered to be very confidential in the way that makes it impossible to allow any person except the targeted ones to attend the meetings, even if that person is a member of the company.

4.11 Data analysis:

Miles and Huberman (1994, p.8) define the data analysis as the task of reaching across multiple data sources (recordings, artifacts, diaries) and to condense them, with somewhat less concern for the conceptual or theoretical meaning of these observations [.....] in deciding what to leave in, what to highlight, what to report first and last, what to interconnect, and what main ideas are important. Taking account of this definition, the data analysis in the current study has been conducted in two stages, during data collection and after data collection.

As illustrated previously three early analysis methods were used during the data collection, the contact summary sheet, the data accounting sheet, and the documentary summary form[24]. The

[24] For using these methods, the researcher was listening to the interviews' records, reviewing the field notes and simultaneously the early identified descriptive codes for filling out the method forms.

use of these methods prompted the timely understanding of the researcher in relation to the interviewees' believes, thoughts and meanings about the study interest, and the reviewed documents' and conducted observations. The use of those method also assisted the researcher with planning and managing the interviews and the events related to the other data collection methods; gathering confirmatory evidence and pursuing surprising and rival explanations; examining the sufficiency of the collected data for providing a clear picture of each case in terms of the study interests. Otherwise, they helped the researcher in modifying and developing the descriptive codes specified before data collection to cover the new themes and issues raised from the fieldwork.

After conducting the fieldwork investigation, the researcher went back to the interviews' records for transcription. The interviews were transcribed by the researcher and then reviewed by some of his colleagues. The main reason for transcribing the interviews by the researcher was to relate him back to the interviews' original setting, thus capturing and writing down all the relevant points the participants raised during the interviews. The other reason was to allow the researcher to review and check the reliability of his early notes taken on the interviews. For transcribing each interview; the researcher listened to the interview record, reviewed the summary contact sheet of the interview, and then transcribed and translated the relevant important ideas raised from the interview into English language[25]. Having transcribed and translated the interviews, the researcher firstly: utilised the descriptive statistic (the statistic means) for analysing the data collected relating to the study's contingent variables (the environmental uncertainty and business strategy); and secondly: utilised the three interlocking processes of Miles and Huberman (1994) for carrying out the main analysis of the qualitative data relating to (i) BSC implementation, (ii) the interviewees' perceptions on the financial and non-financial benefits of BSC implementation, (ii) the interviewees' direct comments on the relationships between the contingent variables and BSC implementation. The three processes are data reduction; data display; and conclusion drawing and verifications.

4.11.1 Data reduction:

Data reduction refers to the process of selecting, focusing, abstracting, and transforming the data appeared in the written-up field notes or transcriptions (Miles & Huberman 1994, p.11). In

[25] The transcribed interviews, their records, the other fieldwork materials, and English translated-based materials were all sent to a legal translation office that reviewed and valuated the validity, reliability, and representativeness of the translated materials (see Appendix F).

order to curry out this process of data reduction, the descriptive codes were used. The descriptive codes as illustrated previously are tags of the main points related to the study questions, variables and propositions. These descriptive codes were specified before the fieldwork, and later on, they were modified and developed to consider the new issues and themes emerged from the fieldwork. Hence, by using the descriptive codes, the researcher categorised and clustered the data embedded in the interviews' transcriptions and the other fieldwork material according to the main points related to the study questions, variables and propositions. That is, identifying the chunks, phrases, sentences or paragraphs in the fieldwork text on the light of the descriptive codes so, therefore, conveying these text segments to their associated descriptive codes. Hence, the coded segments were reviewed carefully and compared in order to move from the descriptive level of analysis to the inferential level. That is, capturing and writing up the inferences rose from the coded segments for identifying (i) the adoption situation and the implementation way of each BSC component within each company, (ii) the view-points of participants on the relationship between BSC components and the company contextual factors (contingent variables); and (iii) their perceptions relating to the effect of BSC implementation on the their companies' financial performance.

4.11.2 Data display:

The second flow of analysis activities was data display. Miles and Huberman (1994) defined the data display as an organised, compacted assembly of information that permits clear understanding of the meanings of data in terms of what is happen in the case, how that is happen and why, toward drawing valid conclusions or/and taking further analysis. For accomplishing the data display, they suggested several types of display matrices that can be used whether at the level of an individual case or across cases (See Miles & Huberman, 1994). Miles and Huberman (1994) define the display matrix as boxed format consists of rows and columns, with data entries that can involve direct quotations; summaries, phrases, or abstract; researcher explanations and judgments; ratings, abbreviations; and other summarised and condensed data that extracted from the coded data and other field notes. They emphasise that using the display matrices requires a researcher to think about his study questions and data needed to answer these questions, therefore, the choice of matrices to be used, the design of those matrices formats, and the decision on data to be entered into these formats have all to be driven by the study questions and variables (Miles & Huberman, 1994).

Given this, in the current study two main types of matrix were used: the summary sheet, and the contrast table. (1) The summary sheet is used at the level of the individual case for outlining the study main descriptive findings relating to the case contextual factors, the case empirical implementation of BSC, the financial outcome obtained by the case through its implementation of BSC. (2) The contrast table is used to contrast BSC implementation and its financial outcomes between the case studies. It is used also to contrast the empirical pattern of BSC implementation of each case with BSC implementation that predicted by the propositions of the study. In addition, this type of matrix is used further for contrasting the propositions findings across cases.

4.11.3 Conclusion drawing and verification:

The third and final flow of analysis activities is related to the conclusion drawing and verifications. For accomplishing this task the researcher applied three analytic strategies. These are: the descriptive analytic strategy, the theory-based pattern matching, and the cross-case analysis (Yin, 2013; Dul & Hak, 2008; Miles & Huberman, 1994).

First: the descriptive strategy represents the applications of the previous two analysis activities of data reduction and data display. Those conducted towards identifying and describing the actual empirical pattern of BSC implementation, its financial effect, and the contextual factors of each case study. Figure (4.1) describes the procedures undertaken for applying the descriptive analytic strategy.

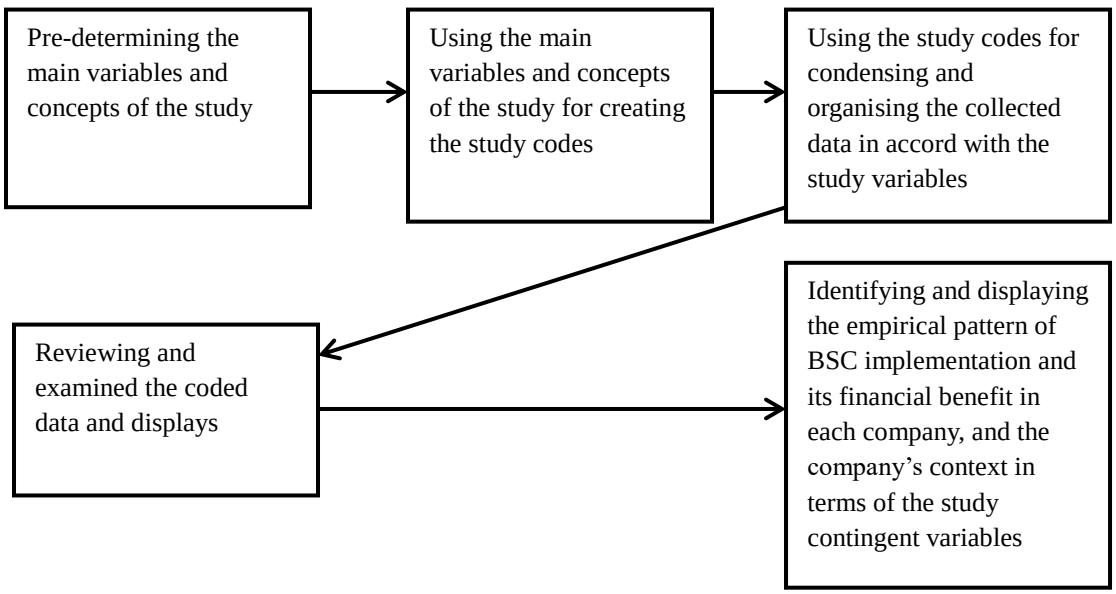

Figure 4.1: The descriptive analytic strategy procedures.

Second: after gaining the descriptive findings of each case study (through applying the descriptive analytic strategy) the researcher used the theory-based pattern matching technique to test the relationships embedded in Model (A) of the study framework. That is, testing the study propositions on the basis of the selection fit approach by which the contingent fit is examined without considering the organisational performance effectiveness. The pattern matching technique was applied at the level of the individual case through comparing the observed empirical patter of BSC implementation of each case with the pattern of BSC implementation predicted by the study propositions. Thus, when the empirical pattern matches/non-matches the predicted pattern, the relevant proposition is confirmed/rejected from the angle of the selection fit approach. Figure 4.2 shows the procedures undertaken for applying the pattern matching technique.

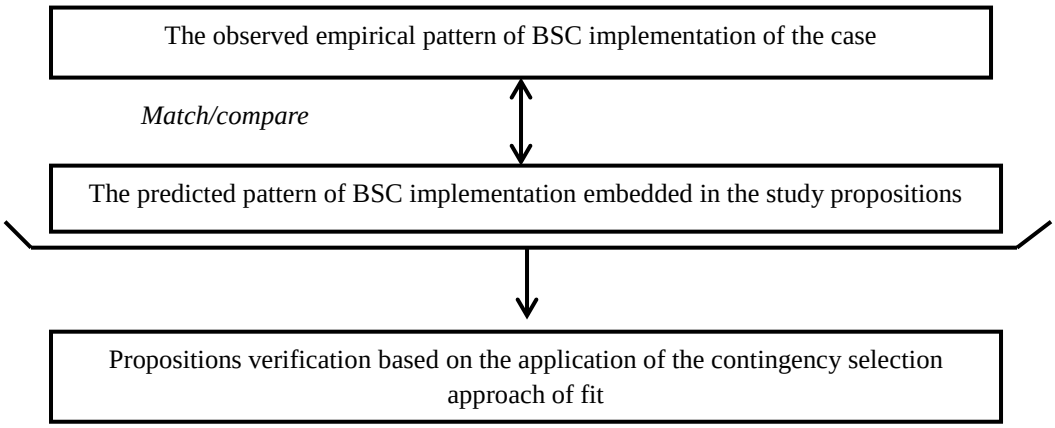

Figure 4.2: Pattern matching technique procedures.

Finally: the researcher applied the cross-case analysis for: (1) Determining the similarities and differences in BSC implementation and financial outcomes across the case studies. Thus, drawing a clear understanding on how BSC was implemented, and how the organisational financial performance was affected by the implementation of BSC. (2) Applying the interaction fit approach reflected in the model (B) of the study theoretical framework to verify the findings obtained from applying the selection fit approach. That is, verifying the findings of the study propositions by taking account of the effect of BSC implementation on the financial performance across cases; thus, drawing robust inferences on the role of the contingent variables in shaping the implementation of BSC and its financial effect.

4.12 Study report structure and writing-up strategy:

A study report is defined as a device for communicating the study and its findings with other people (Yin, 2013). Bearing this in mind; the rest of the study report was structured to include four chapters. The next chapter presents the descriptive findings obtained in relation to the contingent variables, BSC practical implementation and financial effect. The chapter is structured to include a section for each individual case. This is followed by the chapter of the comparative analysis of the study's descriptive findings, then the chapter of testing the study propositions; and finally the conclusion chapter. Moreover, the writing-up of the rest of the study's report follows a series of research issues and answers derived from the study main questions. Therefore, the same research issues were reported in each individual case' section. Adopting this strategy of writing-up is believed to provide a clear exposition of the study findings from each case and across cases, by which readers can examine the answers for the same or related research issues in all cases. So they can make their own comparisons and get deeper understandings of the study findings. In addition, since some readers may be interested in the answers related to specific research issues concerned in this study, the adopted strategy for writing-up helps them effectively in meeting their interests in a timely manner (Yin, 2013).

Chapter Five

Within-case descriptive analysis

This chapter presents the study results of applying the descriptive analytic strategy in relation to the study fifth, first, and second objectives. These aim at describing the study variables within each case study (the contingent variables of environmental uncertainty and business strategy); the empirical pattern of BSC implementation, and its financial effect.

5.1 CASE STUDY ONE: CRM

In this section; the study firstly provides background information on the case of CRM and its adoption of BSC concerning the time and motivation of this adoption (Subsection 5.1.1); secondly, it examines the environmental uncertainty and the business strategy contingent variables at CRM (Subsection 5.1.2), thirdly, the study provides a detailed description on CRM empirical pattern of BSC implementation considering the company's adoption, development, and use of each BSC component (Subsection 5.1.3), fourthly, it explores and describes the effect of CRM's implementation of BSC on its financial performance (Subsection 5.1.4). Therefore, the study ends this section by providing a descriptive summation of the overall findings obtained from CRM case study.

5.1.1 Overview of CRM and its BSC adoption:

CRM is a Libyan for-profit private limited company with labour force of 290 full-time employees; was established in 2007 with a total capital of DL 55 million (around $39,688,267). CRM produces diverse types of building materials focusing essentially on ceramic tiles with production capacity of 4.2 million square meters per annum. It distributes its production nationally concerning mainly the middle and west regions of Libya with a moderate market share. Respecting its BSC adoption; BSC was firstly introduced in CRM at the end of 2013 and has been officially adopted since the beginning of 2014. The main motivator for its adoption of BSC was the former financial senior executive. Who acquired his knowledge of BSC through certain academic courses, and therefore suggested it to the top management for the adoption with an essential aim of organising and activating the role of performance measurement system in the company.

5.1.2 Contingent variables at CRM:

5.1.2.1 Environmental uncertainty at CRM:

By using the first part of the third section of the study instrument, and applying the measurement procedures defined in Chapter Four, Subsection 4.8.1, the level of environmental uncertainty is determined and reported in Table 5.1.

Table 5.1: CRM environmental uncertainty (the change in environment, and the predictability of the change)

Environment elements	**Level of change** On 7 points scale	**Predictability of change** On 7 points scale
Competitors' number.	5.25	2.25
Competitors' actions with respect to introducing new products, price and quality.	4.25	2.25
Customer demands, tastes and preferences in regard to price, quality and delivery.	5.75	3.25
Suppliers' actions in respect to raw material price, quality, delivery and availability.	6.25	3
Manufacturing technology.	6.5	3.25
Government regulation/policies.	4.25	1.75
Economic environment (inflation, growth rate, labour rate).	6	2.25
International factors such as the word economy, imports and foreign exchange.	5.75	2.5
Development of new products or services in the industry.	6.25	4
Overall mean	**5.583**	**2.75**

The above table shows that the level of change in CRM business environment is higher than the scale's middle score (3.5) by an overall mean of 5.583. This indicates that CRM operates in an unstable environment referring to a high level of environmental uncertainty. The results further show that CRM managers' predictability of the change in their company's business environment is below the scale's middle score (3.5) by an overall mean of 2.75. This in turn indicates that PEU at CRM is high referring also to a high level of environmental uncertainty. Thus, based on the aforementioned results it can be concluded that the level of environmental uncertainty at CRM - considering both the environment change and PEU - is high.

5.1.2.2 CRM's business strategy:

By using the second part of the third section of the study instrument, and applying the measurement procedures defined in Chapter Four, Subsection 4.8.2, the strategic orientation of CRM is determined and presented in Table 5.2.

Table 5.2: CRM business strategy

Items	Cost leadership On 7 points scale	Differentiation On 7 points scale
Providing lower price product than competitors	4.286	
Maximizing product volume	4.333	
Improving cost-efficiency of production system	4.667	
Reduce the activities' cost that is not pertained to production process such as costs of advertisement and after-sale services	3.333	
Introducing innovative products		5.429
Improving product's features/design in timely manner		5.714
Customizing products and service as response to customers' needs		5.667
Providing high quality products than competitors		5.857
Making dependable delivery		4.5
Providing effective after-sale services and support		4.429
Overall mean	**4.155**	**5.266**

The above table shows that CRM places more emphasis on the differentiation priorities by mean score of 5.266 comparing to its emphasis on the cost-leadership priorities which came with a mean score of 4.155. These findings prompt the business strategy of CRM to be classified as differentiation strategy.

5.1.3 CRM implementation of BSC:

This sub-section is concerned essentially with describing CRM empirical pattern of BSC implementation. It provides a detailed description of CRM's adoption and implementation of each BSC component.

5.1.3.1 CRM's BSC perspectives:

CRM has adopted BSC with its four initial perspectives (financial perspective, customer perspective, internal business processes perspective and learning and growth perspective). On the other hand, all BSC users in CRM - those involved in the interviews - have argued in support of the validity and sufficiency of the four initial perspectives used by their company. For example, Production Senior executive stated that, *"we adopted these four perspectives, as we believe them to be adequate for viewing all the critical factors of our performance"* (PSE).

In consistent, Marketing Senior executive expressed that "*we consider these perspectives to be valid for providing a holistic view on the most important activities and aspects of our company's performance*" (MSE).

However, while CRM adopts the four initial perspectives, it has not used them in a balanced way for evaluating its performance. CRM gives the financial perspective the highest relative importance among BSC perspectives (GM; MSE; IAM, M&IM; FSE; AASE; CD). This was attributed to the annual financial information provided by this perspective, which CRM considers as the most important indications of the effectiveness of its overall performance. Besides, the role of this perspective in evaluating and monitoring CRM ability to generate and provide the financial resources needed for meeting its obligations (GM, MSE; FSE; IAM; OSE, QSE). The high relative importance of the financial perspective is shown in comments such as *"As the general manager of CRM, I consider the financial perspective to be the most important perspective of BSC. This is because its role in measuring the annual financial outcome of the company, which represent our main concern"* (GM); *"It is clearly that the company place more emphasis on the financial perspective in comparison to the other perspective. As it helps with monitoring the cash that is needed for paying the shareholders and employees, as well as meeting the other obligations of the company"* (FSE).

Regarding the non-financial perspectives; CRM gives the internal business processes perspective the highest relative importance, followed by the customer perspective, while gives the learning and growth perspective the lowest level of relative importance (GM; MSE; IAM, M&IM; FSE; AASE; CD; OSE). In this context, CRM General Manager asserts that "*after the financial perspective, I consider the internal business processes perspective to be the most importance perspective of BSC. As it enables us to evaluate the company's activities and processes that shape our products and their values, including production cost, productivity, production innovation and diversity"* (GM). Otherwise, the Manager of Monitoring and Information Office explained the relatively lower level of importance given to the customer perspective. He explained that: *"the company does not seek a systematic direct feedback from its customers on their demands. Instead, it relies remarkably on the industry standards and the help of the external experts for determining its products' features and diversity. And this in my opinion represents a case of treating the customer perspective with a low level of importance"* (M&I M).

Concerning the lowest level of relative importance given to the learning and growth perspective; the Administrative affairs Senior Executive stated that *"the company uses the learning and growth perspective with the aim of measuring the level of employees' commitment to the pre-identified job prescriptions. This is instead of using it to measure the satisfaction level of employees, or enhancing their capabilities especially those related to improving and introducing new products. [....].The company does not use employees satisfaction survey, and it relies essentially on external experts for accomplishing the task of products improvement and innovation"* (AASE). In consistent, H&R Director asserts that *"the top management does not give sufficient attention to improve the capabilities of employees, and it has just recently added some performance measures related to the employees' training to its BSC"* (H&RD). In addition, the Financial Senior Executive provides the evidence that *"the resources allocated for employees training represent 1.10% from the company total expenses, while the resources allocated for using external experts represents 18% from the total expenses*" (FSE).

5.1.3.2 CRM's BSC performance measures:

BSC of CRM consists of 31 financial and non-financial performance measures. 10 of them are used within the financial perspective, and 5, 11, 5 measures are used within the non-financial perspectives of customer, internal business processes, and learning and growth respectively. Although CRM uses outcome and driving types of measures into BSC implementation, it has not distinguished between those types in its BSC report. Regardless, the majority of BSC users in CRM could distinguish between the two types of measures. They identified 9 driving measures out of the total 16 measures used in both the internal business processes and the learning and growth perspectives (See Appendix G).

Among the outcome and driving measures; CRM gives the higher relative importance to the outcome measures for managing and evaluating its performance; especially those outcome measures related to profitability and liquidity (GM; FSE; MSE; QSE; H&RD). In this regard, the Quality Senior Executive stated that "*although the company gives attention to the driving measures, this attention is restricted by the higher attention given to the financial measures related to the profitability and liquidity [....]*[26] (QSE). This higher relative

[26] He further explains that "currently, we classify the units of each type of the company's products into three classes according to the degree of their quality (high quality, medium quality, and low quality). And the efforts until now are focused on increasing the volume from the first class, and minimizing the volume from the other classes but, without making a real effort for eliminating them. Since such elimination requires a real investment

importance level given to the outcome measures over the driving measures is further confirmed by CRM General Manager. He stated that "*we need to manage our improvement decisions in the way that does not affect negatively our financial results or make them worst. As we need to improve our profitability to satisfy the shareholders, and we need cash to pay for our annual obligations"* (GM).

Otherwise, although some CRM members appreciate in general the importance of using the external type of measures such as customer survey, CRM has not used such type of measures. Instead, the company receives its customers' feedback unsystematically when customers convey their complaints to it, while it relies on internal performance measures such as sales growth rate as an indication of its customer satisfaction (PSD; MD; QSE)[27].

Marketing Senior Executive explained the reasoning behind the non-use of the customer survey, He said that *"we as a company do not deal with the final customer; instead we deal with intermediate customer (retailers). And because they are frequently available at the company site, we find it easier to ask them for their opinions on our products and services than giving them a survey to fill out"* (MSE). This restriction of getting customer feedback to the intermediate customer is criticised by the Senior Executive of Operation Management. He emphasised that "*to discuss the opinions of the intermediate customers is not substitute for seeking feedback from the final customer on the company products and services. This is because of that there is a quite difference between the evaluations of the two types of customers. The intermediate customer evaluates the product in terms of how much profit he can make from reselling it; while the evaluation of the final customer is concerned with the value of the product in terms of quality, cost, and so on. Therefore, this later evaluation should be the most important one for the company in order to measure and therefore improve its products' value*" (PSE).

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in new production lines and machines rather than mere maintenance. And because such investment can affect negatively the short-term financial figures, this investment seems to be not desirable by the higher management (QSE).

[27] PSD states that "*In fact, we have not used external measurement tools; instead, we discuss customer complaints and suggestions when we receive them"*. In addition, MD confirms that *""Although the use of customer survey is an important for measuring the satisfaction level of customer, the company has not used such survey, and instead it relies essentially on sales growth rate as an indication of customer satisfaction"*.

5.1.3.3 CRM selecting basis of BSC measures:

CRM has not adopted the strategic basis for selecting its BSC performance measures. That is, the performance measures in CRM's BSC have not been selected based on specified strategic objectives derived from a formulated strategy (AASE; GM; QSE; IAM). *"They – BSC measures- were not selected based on strategic objective; since, we do not have specified strategic objectives or a specific formulated strategy"* (AASE).

Instead, the majority of the performance measures used on CRM's BSC was identified directly based on CRM's regular activities and operational processes, this was by a certain company that manufactured CRM plants and designed its operational and managerial systems (GM; QSE; MSE). These measures, which *"we used to use as mixture of financial and non-financial performance measures before adopting BSC"* (MSE); and *"they are well-known measures and used widely in the industrial domain"* (PSE).

Having decided on adopting BSC; CRM has classified its pre-used financial and non-financial performance measures into BSC perspectives based on *"[.....], the nature of the performance measures in relation to each perspective of BSC"* (QSE). Moreover, some other performance measures were added during the development process of BSC, which were not used before in CRM. The majority of these additional measures *"were financial in nature"* (GM); and the others were identified for *"measuring some activities and processes related to marketing and production"* (AASE).

5.1.3.4 Cause and effect relationship in CRM's BSC:

The concept of cause and effect relationship has not been adopted in CRM. That is, CRM has not selected or finalised its BSC measures considering the cause and effect relationships among them (GM; MSE; FSE; IAM; AASE; QSE; PSE). In this context, the Marketing Senior Executive said that *"we have not considered such cause and effect relationships when we developed BSC. Instead, we classified our pre-used financial and non-financial measures into the four BSC perspectives relying meanly on discussing the measures' appropriateness in relation to the concern of each BSC perspective"* (MSE).

The majority of CRM users of BSC have revealed a lack of knowledge regarding the concept of cause and effect relationship. CRM's GM stated that *"we do not have a clear picture of this concept of cause and effect relationship, except the logical connection between the four BSC perspectives"* (GM). This absence of the concept of cause and effect relationship

in turn explains why CRM has not classified its used BSC measures into driving measures and outcome measures, while the both types of measures are used in CRM's BSC.

5.1.3.5 CRM's BSC targets:

CRM has not adopted BSC process of setting targets. It has not set explicit-targeted values for BSC measures. This absence was attributed to the inability to specify realistic values as targets, which in turn was attributed to the unpredictability of CRM's business environment resulted from the frequent change in its elements (GM; FSE; M&I M; QSE; MSE). In this regard, CRM General Manager emphasised that, *"setting explicit realistic targets for BSC measures requires the business environment to be stable and predictable, and this is not the case with our business environment. Especially, in relation to customer preferences, the availability of raw materials, and the exchange price of the national currency"* (GM). The financial senior executive further stated that *"the fluctuations in consumers' tastes, marketing competition, exchange rate, and the economic changes, are all represent serious obstacles to set targets for our BSC measures"* (FSE).

However, this absence of BSC targets seems to affect negatively the company's ability to use BSC for the purposes of the initiatives development and the resources allocation. That is, instead of relying on BSC for developing its initiatives and allocating its resources, CRM gives the most priority to the traditional budgetary system for accomplishing these purposes (IAM; FSE; GM; M&I M; MSE; CD). In this regard, the Financial Senior Executive said that *"we pre-specify the action plans and the plans of the resources allocation through the annual budgets. Starting from identifying the desired production volume based on the available capacity of the plants; along the way towards specifying the expenses, revenue, cash, and the profit for the next year"* (FSE). Given this, BSC in CRM is mainly used for *"monitoring the change in the performance over time, therefore evaluating the outcomes of our previous actions and considering if we need to undertake improvement actions"* (GM).

5.1.3.6 Organisational alignment process in CRM's BSC implementation:

5.1.3.6.1 CRM top managers' participation in BSC development:

CRM top management consists of the general manager, six senior executives, and two managers of monitoring and information office, and internal audit office. They had all participated in the adoption and the development processes of CRM's BSC (GM; MSE; QSE; PSE; AASE) expect the financial senior executive, who was promoted in his position after the

development stage of BSC, and the two directors, who were recruited in CRM after BSC being totally developed.

In CRM; BSC was firstly proposed by the former financial senior executive, and then approved for adoption by the general manager after discussing its concept and potential benefits in a meeting involved all the top-level managers (GM; QSE; MSE; PSE; AASE). *"Indeed, we all participated in making the decision of BSC adoption; the general manager and all top-level managers at that time"* (QSE).

After adopting BSC; CRM top-level managers have participated in developing BSC. However, this participation did not base on a strategic consensus among top-level managers, which in turn affected BSC development process to be not utilised for ensuring the organisational alignment at top management. Instead, this participation was focused mainly on classifying pre-used performance measures into BSC perspectives, while those measures were originally identified by an external party rather than the top-level managers (GM; MSE; QSE; PSE; AASE). In addition, although some other measures were added later to BSC, these additional measures were also not added based on a strategic consensus. Instead, they were added based on individual suggestions of some senior executives (PSE; QSE; AASE).

5.1.3.6.2 BSC cascading in CRM:

CRM had not made any effort for cascading its BSC to lower organisational levels. The development process of BSC in CRM was confined completely to the top managerial level, without considering the lower-levels managers or employees to be involved in this process (MD; CD; TD; FA; R&D D). In this vein, the Cost Department Director emphasised that *"I do not have any idea about how these measures were identified"* (TD).

Respecting the use of BSC at the organisational levels; BSC in CRM is used mainly by the top management. In the way that the general manager monitors and evaluates all the components of BSC, while each senior executive monitors and evaluates the outcomes and the driving measures related to his job responsibility. Otherwise, as the case with BSC development, the lower-level members have not been involved in the use of BSC, apart from the role of the departments' directors in calculating and reporting the outcomes of BSC measures to the top management. The director of technical department expressed this situation by stating that *"respecting the use of BSC; we are information providers and decision executors, not decision makers"* (TD). That is, in addition to their non-participation in

developing BSC measures, the departments' directors have not been given the required authority for planning and affecting the outcomes of those measures (CD; MD; TD)

The absence of adopting BSC cascading process in CRM is reasoned by the intention behind CRM adoption of BSC, and the centralised structure of CRM. The General Manager stated that *"we adopted BSC to gain a holistic and organised view of the company performance that can assist the decision makers at the top management. And this does not require the staff at the lower organisational levels to participate in developing BSC or even using BSC measures. Instead, it requires them to provide the data needed for using BSC; and to execute the decisions of their managers"* (GM). However, this seems to affect negatively the commitment of lower-level members to implement BSC (TD; R&D D; HRD); *"the senior executives are the main responsible for the outcome of BSC measures, as they exclusively developed and use them. We at the lower levels are free of this responsibility as long as we commit to the job terms and the decisions made by our superiors"* (TD).

5.1.3.6.3 BSC education and communication in CRM:

CRM adopted BSC process of education and communication but, it implements this process exclusively at the top management level. At the adoption stage of BSC, the former financial senior executive, who was the main motivator for adopting BSC in CRM, had communicated his knowledge regarding BSC concept to the general manager and the other senior executives (GM; MSE; PSE); *"The majority of top-level managers had no idea about what BSC is, before the former financial executive presented his proposal on BSC"* (MSE).

Having that, and after developing CRM's BSC, *"each senior executive had communicated BSC measures to his departments' directors"* (GM). However, this has considered neither educating the concept of BSC nor communicating the entire corporate BSC to the directors. Instead, it involved communicating individual performance measures to the departments' directors, each in relation to his job responsibilities. Moreover, this communication process has not involved either explaining the reason underlying the company choice of adopting BSC or the rationale for the choices of its performance measures (CD; MD; HRD; TD; PSE). As the case with departments' level; CRM has not undertaken any steps for educating and communicating its BSC to its lower organisational levels (CRM; IAM; PSE; TD; M&I M; FA).

The absence of BSC education and communication to the lower organisational levels - departments level, units level, and employees (individual) level - is justified by the means of the high centralisation level applied in the company. In this context, CRM general manager explained that, *"Although the use of BSC needs data from the lower levels, it does not require BSC as a system to be communicated to the employees at the low-levels. This is because BSC is irrelevant to their operative nature of work. Let me say it in other words, measuring and managing the company performance is not the responsibility of the lower levels, but it is the responsibility of top-level managers. Those have the authority of decision making and can be supported by systems such as BSC in monitoring and controlling their subordinates' performance"* (GM).

5.1.3.6.4 Linking BSC to the compensation system in CRM:

CRM has not linked its compensation system to its BSC. Instead, it still relies on the pre-identified employment prescriptions for identifying the basic salaries of its members. Otherwise, it gives production bonus to its employees working at the operation and quality units, while gives sales bonus to its employees working at marketing management. However, these rewards are given basically based on the break-even point rather than linking them to BSC measures[28]. *"The main goal of our use of the bonus system is to catch up with the break-even point and therefore go out the zone of the loss as far as we can"* (MSE).

Considering this absence of linking BSC to the compensation system, the Financial Senior Executive states that *"in fact, we has not consider such linking before, while we consider the break-even point as an effective basis for rewarding"*(GM).

5.1.3.7 Organisational learning in CRM's BSC:

CRM implements BSC in the sense of single-loop learning apart from using it for double-loop learning. The single-loop learning in CRM implementation of BSC represents *"viewing how we can improve the company's performance on the light of BSC feedback"* (MSE). However, at the absence of developing targets for BSC measures; the feedback in CRM single-loop learning is obtained through investigating the outcomes of BSC measures

[28] That is, the production rewards are given as a fixed amount of money on each product unit produced after the production volume at the break-even point. Similarly, the sales rewards are given as fixed amount of many on each unit of sales exceeds the sales volume at the break-even point.

on the light of the past outcomes of those measures (GM; FSE; MSE; QSE). Otherwise, In CRM, the process of single-loop learning is conducted officially on a half-yearly basis. It starts at the level of departments, where the departments' directors calculate the outcomes of BSC measures, and therefore report them to their senior executives. Who in turn evaluate and report those outcomes to the Monitoring and Information office, whereby the overall corporate BSC report is prepared and then reported to the highest corporate level (GM; M&I M; HRD; MD; CD). At the highest corporate level, *"we - the general manager and the senior executives - evaluate the report of BSC, identify and investigate the deviations from those outcomes of the previous year. And then decide on how we can treat the negative deviations and foster the positive ones"* (QSE).

Concerning the double-loop learning; although CRM operates in a highly changeable business environment, it has not implemented BSC for the double-loop learning. That is, CRM has neither updated BSC on the light of the change in its business environment nor considered its business environment when developing BSC. Instead, the performance measures on CRM's BSC, as mentioned previously, were identified based on the regular activities and operational processes of the company. And they – BSC measures - have not been updated since the first development of CRM's BSC (MSE; PSE; FSE; R&D D; M&I M)-except for some performance measures related to employees training. These measures were added recently to CRM's BSC as response to the suggestion of Human Resource Director, not as response to its business environment (HRD)[29].

Concerning this absence of implementing BSC in the sense of double-loop learning, CRM General Manager stated that *"in the past, we have not conducted an official examination of the business environment, but this seems to be important for updating the aims of our business in general and for updating our BSC implementation in particular"* (GM).

[29] HRD comments that *"these measures* – employees training measures - *are suggested by me and accepted by the top management to be added to BSC* [….]; *in fact, the main reason for suggesting those measures is to monitor the company performance in terms of the training activity, which represents one of main activities of Human Resources Department, apart from any other reasons"* (HRD).

5.1.4 BSC effect on CRM financial performance:

The financial performance of CRM - measured as ROA - shows a net improvement of 0.815%. This was from -0.65% in 2013 (the year before implementing BSC) to 0.165% that represents the average of ROA during the years of BSC implementation (2014 and 2015). That is, over the first-year implementation of BSC, ROA had increased by 0.77% from -0.65% to -0.12%. Then it has continued to grow up to reach a ratio of +0.45% at the end of 2015, which represents CRM second-year implementation of BSC, and the year in which the fieldwork of the study was conducted.

To determine the financial effect of BSC in CRM, the interviewees were asked to evaluate the extent to which BSC implementation in their company have contributed in the improvement of its financial performance indicated above. The answers of the interviewees responded to this inquiry is shown in Table 5.3.

Table 5.3: The perceived contribution of CRM's implementation of BSC in improving its financial performance

Respondents	Perceived contribution rating
General Manager (GM)	Moderate
Monitoring and information manager (M&I M)	Very low
Internal Audit Manager (IAM)	Low
Financial Senior Executive (FSE)	Non-exist
Administrative affairs Senior executive (AASE)	Non-exist
Production Senior Executive (PSE).	Non-exist
Marketing Senior executive (MSE).	Low
Quality Senior Executive (QSE)	Very low
Human resources Department Director (HRD)	Non-exist
Marketing Department Director (MD)	Non-exist
Cost Department Director (CD)	Non-exist

The table above shows that, despite the improvement in CRM financial performance over the years of BSC implementation, the majority of the respondents perceived their company's implementation of BSC to have no contribution in that financial improvement. In this regard, the Senior Executive of Operation Management stated that, *"we cannot deny that, BSC has helped us with organising our use of the performance measures. But, unfortunately*

this has not made a noticeable change in our way of managing and controlling the company performance. This may be because of our improper way of using BSC. So, I can declare that, our implementation of BSC has no a contribution in improving the financial performance of the company" (QSE).

Instead, the improvement in CRM financial performance was substantially attributed to the changes in CRM business environment[30] (M&I M; IAM; MSE; MD; FSE), which "*have affected the increase in CRM sales volume and the gross margin of product unit"* (MSE). On the other hand, the no financial effect of BSC was assigned to the shortcomings of BSC implementation in CRM. These included: (1) The non-development of BSC targets, which considered to be essentially important for evaluating the performance of each year by considering its particular circumstances (QSE; PSE; R&D D; AASE); in this context, the Production Senior Executive asserted that *"implementing BSC by comparing the outcomes of its measures across years without setting targets for BSC measures is the mean weakness of our BSC implementation. It resulted in neglecting the particular circumstances of each year when we evaluate the company's performance. We have to do something about this [.....]; yearly-based targets are capable of solving this problem"*. (2) Centralising the use of BSC in the way neglects the role that the lower-level managers and employees can play in succeeding BSC implementation (AASE; M&I D; MD). (3) Given the financial perspective more relative importance in the way restricts the improvement in the non-financial perspectives of performance (QSE; PSE). To conclude, the Administrative Affairs Senior Executive declared that *"we apply new management system in a traditional fashion of control. Although we use BSC that considers different financial and non-financial aspects of performance, we still rely on the traditional financial and the top-down control, in the way that inhibits the positive role of BSC in improving the company performance"* (AASE).

Having provided a detailed description on CRM contingent variables and its BSC implementation and financial effect; the main points related to these elements are summarised in Table 5.4:

[30] These include (1) the decline in the related goods imported into the domestic market, especially the imports from Egypt and Tunisia, which represent the main competitors of CRM goods; (2) the increase in the domestic market demand of the building materials due to the reconstruction policy adopted in Libya after the revolution whether by the government or by individuals; (3) the remarkable increase in the selling price of CRM types of products comparing to the purchase price of raw material which remained relatively constant.

Table 5.4: Summary sheet relating to the study findings of CRM

Environmental uncertainty level: High level of environmental uncertainty. **Strategy type:** Differentiation strategy.			
BSC components		**Adoption**	**Implementation**
Perspectives			● Using the four initial perspectives of BSC apart from involving any additional perspectives. ● Using BSC perspectives in an imbalanced way in which: - The financial perspective is given the highest relative importance among BSC perspectives. - The internal business processes perspective rank second. - The customer perspective is given a lower relative importance level. - The learning and growth perspective is given the lowest relative importance among BSC perspectives.
Measures	**Numbers & types**		● Using 31 performance measures in BSC. ● Using outcome and driving types of measures in BSC, with giving the outcome measures more relative importance than the driving measures. Especially, those outcome measures related to the profitability and liquidity. ● Not using external type of measures in its BSC implementation.
	Selection basis		● BSC measures have not been selected based on specified strategic objectives. Instead, they were identified based on the regular activities and operations processes of the company.
C&E concept		Not-adopted	-
Setting targets		Not-adopted	-
BSC organisational alignment processes	**Top-level managers participation**	Adopted	●All top-level managers participated in developing BSC. ●This participation was focused mainly on classifying their pre-used performance measures into BSC measures, while those measures were originally identified by an external party rather than CRM top-level managers ●All top-managers participate in using BSC.
	Education & communication	Adopted	● Educating and communicating BSC mainly to the managers at top management. ● Non-education of BSC to the lower organisational levels. ● Non-communication of BSC to the lower organisational levels.
	Cascading	Not-adopted	-
	Compensation linkage	Not-adopted	-
Organisational learning processes		Adopted	● Implementing BSC essentially in the sense of single-loop learning apart from using it for double-loop learning.
The effect of BSC implementation on the financial performance : Non-existent			

5.2 CASE STUDY TWO: NIF

In this section; the study firstly provides a background on the case of NIF and its adoption of BSC concerning the time and motivation of this adoption (Subsection 5.2.1); secondly, it examines the environmental uncertainty and business strategy contingent variables at NIF (Subsection 5.2.2); thirdly, the study provides a detailed description on NIF empirical pattern of BSC implementation (Subsection 5.2.3); fourthly, it explores and describes the effect of NIF's implementation of BSC on its financial performance (Subsection 5.2.4). Therefore, the study ends this section by providing a descriptive summation of the overall findings obtained from NIF case study.

5.2.1 Overview of NIF and its BSC adoption:

NIS is a Libyan for-profit private limited company with a labour force of 1200 full-time employees. It was established in 1994 and is currently the leader of Libyan food industry with market share of approximately 60% and capital of DL 500 million ($360,802,425). NIF produces diverse types of products, including milk, dairy, cheese, ice cream, and juice with production capacity of 250000 tons per annum. It has its distribution centres and sales agents in each city in Libya as well as it exports to different neighbouring countries with more focus on Tunisia market. Otherwise, NIF has gained different national and international awards such as Libyan Quality Mark, ISO 9001:2000 of Quality Management System, ISO 22000 of Food Safely Management System, the Gold Star in the quality and innovation as well as the quality diploma (QC100) from BID American Institution, the Platinum Award of Quality from Otherways French Institution. Respecting its BSC adoption; BSC was firstly introduced in NIF at the beginning of 2012 and has been officially adopted since the beginning of 2013. The main motivation for BSC adoption in NIF was the belief of its General Manager that BSC can assist the company with improving its performance in a systematic manner. This belief was gained after the attendance of NIF's General Manager to various seminars and workshops about BSC.

5.2.2 Contingent variables at NIF:

5.2.2.1 NIF's environmental uncertainty and business strategy:

By using the part 1 and 2 of the Section Three of the study instrument, along with applying the same measurement procedures applied in the previous case; the study has arrived

at the results presented in Table 5.5 and Table 5.6 relating to NIF's level of environmental uncertainty and business strategy respectively. These results are discussed as follows.

5.2.2.1.1 Environmental uncertainty at NIF:

As it can be seen from Table 5.5, the level of change in NIF business environment is higher than the scale's middle score (3.5) by an overall mean of 5.222. This indicates that NIF operates in an unstable environment referring to a high level of environmental uncertainty. The results also show that NIF managers' predictability of the change in their company's business environment is below the scale's middle score (3.5) by an overall mean of 3.148. This in turn indicates that PEU at NIF is high referring also to a high level of environmental uncertainty. Thus, based on the aforementioned results it can be concluded that the level of environmental uncertainty at NIF - considering both the environment change and PEU - is high.

Table 5.5: NIF environmental uncertainty (the change in environment, and the predictability of the change)

Environmental elements	Level of change On 7 points scale	Predictability of change On 7 points scale
Competitors' number.	3	2
Competitors' actions with respect to introducing new products, price, and quality.	5	2
Customer demands, tastes and preferences in regard to price, quality, and delivery.	3	5
Suppliers' actions in respect to raw material price, quality, delivery, and availability.	7	3
Manufacturing technology.	5.333	4.666
Government regulation/policies.	5	2.333
Economic environment (inflation, growth rate, labour rate).	6	2.333
International factors such as the word economy, imports, and foreign exchange.	6.333	2
Development of new products or services in the industry.	6.333	5
Overall mean	**5.222**	**3.148**

5.2.2.1.2 NIF's business strategy:

Table 5.6 shows that the mean score of NIF on differentiation priorities (6.519) was noticeably higher than its mean score on the cost leadership priorities (3.750). This in turn implies that NIF paid more attention to the differentiation activities in its market competition

more than the activities related to the cost-leadership strategy. These results prompt the business strategy of NIF to be classified as differentiation strategy.

Table 5.6: NIF business strategy

Items	Cost leadership On 7 points scale	Differentiation On 7 points scale
Providing lower price product than competitors	4	
Maximizing product volume	5.25	
Improving cost-efficiency of production system	4.25	
Reduce the activities' cost that is not pertained to production process such as costs of advertisement and after-sale services	1.5	
Introducing innovative products		6.667
Improving product's features/design in timely manner		6.5
Customizing products and service as response to customers' needs		6.667
Providing high-quality products than competitors		6.778
Making dependable delivery		6.5
Providing effective after-sale services and support		6
Overall mean	**3.75**	**6.519**

In respect of its formal strategic orientation; NIF and after deciding on adopting BSC had specified its strategic orientation through conducting brainstorms sessions at its top management. These sessions by which "*we analysed our previous pattern of running the business, and then we evaluated its appropriateness taking account of the past performance outcome, customers' preferences and competitors movements*" (HR&IT SE). The brainstorm sessions resulted in clarifying NIF's strategic orientation and building a consensus upon its appropriateness. This strategic orientation has been expressed by different NIF's members as "achieving customer satisfaction by providing high quality and innovative products and services" (GM; MD; A&T D; OSE, PQCD; QS). Yet, in spite of this specification of its strategic orientation, NIF has not transcribed it into a certain strategy statement. Instead, the strategic orientation of NIF was communicated subjectively or through descriptive texts. This is until the development of BSC when NIF strategic objectives were re-specified to reflect the company's strategic orientation.

5.2.3 NIF implementation of BSC:

This sub-section is concerned essentially with describing NIF empirical pattern of BSC implementation. It provides detailed descriptions of NIF's adoption and implementation of each BSC component.

5.2.3.1 NIF's BSC perspectives:

NIF has adopted the four initial perspectives of BSC, the financial perspective, the customer perspective, the internal business processes perspective, and the learning and growth perspective. On the other hand, all BSC users in NIF - those involved in the interviews - have argued in support of the validity and sufficiency of these four initial perspectives. For example, NIF Human Resources and IT Senior Executive state that "*Sufficiently, the four perspectives of BSC allow us to manage, evaluate, and continuously improve our both tangible and intangible assets towards implementing our strategic goal of customer satisfaction* (HR&IT SE). NIF General Manager in turn put it "*These perspectives must be tracked systematically if we need to compete in our market"* (GM).

However, while NIF adopted the four initial perspectives, it has not used them in a balanced way when evaluating and managing its performance. NIF gives the financial perspective the lowest relative importance among BSC perspectives (GM; OSE; S&M SE; A&TD; QS; PD). This was attributed to the short-term focus of the performance measures used in the financial perspective; which in turn is believed to have a negative effect on the non-financial perspectives if the financial perspective is emphasised for the decision making. NIF General Manager explained that *"when making decisions; the excessive thinking about the financial perspective would affect negative the intuition to accept initiatives that can improve the non-financial perspectives of performance. This is because, such initiatives deplete cash, while they don't have immediate financial outcome. Thus, instead of restricting our decisions to the financial perspective; we use this perspective for evaluating the cumulative financial outcomes of our improvement-based initiatives undertaken in relation to the other BSC perspectives"* (GM).

Among the non-financial perspectives; NIF gives both the internal business processes perspective, and the learning and growth perspective the same relative importance, while it gives the customer perspective the highest level of relative importance (GM; DGM&F SE; OSE; HR&IT SE; S&M SE). The importance of the customer perspective is highly appreciated in NIF. This is because of its leading role in adapting the company's performance to the change in customers' demands so, therefore enhancing its ability of competition. This is shown in comments such as: *"we are operating in a market where the demands of customers are frequently shifted. Thus, for our success, it is not optional to pay the most attention to the customer perspective in order to determine the demands of customers towards meeting them"* (GM). *"The customer perspective enhances our ability to capture the demands of customers.*

And this is essentially important requirement to compete in our market" (S&M SE). *"we need to know what we should produce before we produce, and we need to know how we can improve before we undertake any improvement initiative; this information are essentially provided by the customer perspective"* (OSE).

Concerning the equal relative importance given to the internal business processes perspective, and the learning and growth perspectives; the Senior Executive of HR&IT explained that *"Transferring a certain idea into a tangible product is important as much as the importance of creating the idea itself"*. NIF's General Manager in turn emphasised that "*they* [the learning and growth perspective, and internal business processes perspective] *are at the same importance level since they both allow us to manage our tangible and intangible assets in the way that ensures meeting the demands of customers"*. Additionally, the Deputy of NIF General managers confirmed that *"we do not pay attention to one perspective at the expense of the other; instead we deal with these two perspectives* [the learning and growth perspective, and internal business processes perspective] *as complements toward meeting the customer demands".*

5.2.3.2 NIF's BSC performance measures:

NIF's BSC involves 49 financial and non-financial measures. 8 of them are involved in the financial perspective and the other 9, 19, 13 measures are used within the non-financial perspectives of customer, internal business processes, and learning and growth respectively. NIF uses the three types of BSC measures, outcome measures, driving measures, and external measures. It uses 25 measures classified as outcome measures into the four BSC perspectives, while uses 24 measures classified as driving measures into the non-financial perspectives, including the customer survey which is used as external measure in the customer perspective (See Appendix H).

Among these types; NIF emphasises the importance of the driving measures more than the outcome measures, while the latter are considered being *"backward indicators"* (GM). The driving measures is appreciated in NIF as they provide it with timely information on its main strategic competitive factors of quality and innovation; while NIF considers such information to have a rather important role in managing and evaluating its overall performance (OSE, GM; DGM&F SE; PD; A&TD). In this regard, The Quality Supervisor confirms that "*The decision makers give the driving measures a considerable attention, especially those*

pertained to the quality and innovation. They frequently evaluate these measures and take decisions rapidly when any deviation occurs in them" (QS).[31]

On the other hand, NIF emphasises the importance of using the customer survey as an external type of measures. This was attributed explicitly to the role of such measurement tool in providing an external feedback from customers as well as identifying their changeable demands; this information which NIF uses as an important input for enacting the continuous development of its performance (MD; OSE; GM; A&TD). The Marketing Director put it, "*We distribute our customer survey throughout the market, whether by using the social websites, or offering it as a hard copy or making contracts with specialised companies. This is to identify customers' demands and getting their feedback, which are indeed essential information for developing our performance on a continuous manner"* (MD). The Deputy of GM in turn emphasised the effectiveness of the external type of measures over the internal measures in evaluating the customer satisfaction level. He explained that, *"the internal type of measures including sales growth rate does not often bring a reliable indication of customer satisfaction level. Since, the increase in the sales rate, for example, can be not because of the increase in the customer satisfaction about the company's products. Instead, it can be because of other reasons, such as the decrease in the import rate"* (DGM&F SE).

5.2.3.3 NIF's BSC strategic objectives (selection basis of BSC measures):

NIF adopted the strategic basis for selecting its BSC measures. Prior to the adoption of BSC; NIF had its objectives that represented the individual objectives of its general managements, which in turn "*were mere job descriptions"* (DGM&F SE). After deciding on adopting BSC and building a consensus on NIF's strategic orientation, NIF had re-specified its objectives based on the consented strategic orientation. This strategic re-specification was done firstly at NIF general managements; *"based on the company's strategic orientation; each general management has identified the corporate strategic objectives that related to its job"* (GM). The strategic objectives that identified at the general managements were discussed further at the highest corporate level (the level of the general manager). This was to evaluate their feasibility, coordination, and their effectiveness in reflecting NIF's strategic orientation. After accrediting the strategic objectives, they have been taken as the basis for the

[31] Other relevant comments including: "*The managers consider the driving innovation measures as if they are the only measures on the BSC"* (A&TD). *"The driving measures enable us in a timely manner to measure and evaluate the activities responsible for improving our performance measured by the outcome measures"* (PD).

identification of BSC measures, which conducted at the level of general managements, *"firstly, each general management identified performance measures for the corporate strategic objectives that are related to it"* (OSE). Having that, the initial identified performance measures were discussed at the highest corporate level for *"further evaluation of their strategic appropriateness"* (GM); and for constructing NIF's corporate BSC, "*we combined the appropriate measures into the adopted BSC perspectives, relying for that on the nature of measures in relation to each type of BSC perspectives, therefore we finalised the combined measures based on discussing the relationships among them"* (HR&IT SE).

5.2.3.4 Cause and effect relationship in NIF's BSC:

NIF adopted the concept of BSC cause and effect relationship. The cause and effect relationships were considered in the two stages of developing NIF's BSC, at the initial stage of selecting the performance measures in each NIF's general management, and at the final stage for constructing BSC at the highest corporate level. At the initial stage, the performance measures were selected considering the cause and effect relationships (1) between the outcome measures and strategic objectives, *"we selected the outcome measures based on the company's strategic objectives that related to our management"* (MD); (2) between the outcome measures and driving measures, "*after identifying the outcome measures, we cascaded them down to the lower levels for identifying the driving measures"* (OSE).

At the final stage; BSC was constructed considering the cause and effect (1) between BSC perspectives, "*we adopted the four perspectives of BSC as they causally connected in the way that allows us to implement our strategic orientation, […]*[32] (HR&IT SE); (2) between the outcome measures and strategic objectives, *"after identifying the outcome measures at the level of general managements, we discussed further their strategic appropriateness at the higher corporate level. Then, we combined the appropriate ones into BSC perspectives*" (OSE); (3) between the outcome measures across BSC perspectives, *"we take the outcome measures of customer perspective as the main basis for the final selection of the other*

[32] He further explains that, "we consider the customer perspective to have a tight connection with the learning and growth perspective, since we use the customer perspective for getting information on customer demands and their feedbacks. This information which we rely essentially on them for identifying the training programs required for improving our employees capabilities. In turn, the improvement in the learning and growth perspective would improve the quality of value-chain operations whether in terms of creating ideas or creating commitment for the task accomplishment. This would in turn affect positively the level of customer satisfaction and therefore our ability in fulfilling the shareholders demands through maximising the return on their investments.

outcome measures across the perspectives of BSC" (GM); (4) between the outcome measures and driving measures in each perspective, *"after deciding on the outcome measures in each perspective, we selected the measures that have causal connections with the chosen outcome measures to be involved as driving measures into BSC perspectives"* (DGM&F SE).

The cause and effect relationship is also considered in NIF for the process of updating BSC and the decision-making process. "*Of course we consider the causal logic for updating the performance measures on our BSC*" (OSE). "*We analyse the cause and effect relationship between BSC measures for examining the probable outcomes of our contemplated decisions, especially the strategic ones; therefore deciding if we would undertake such decisions or no*" (DG&F SE). *"We debate such relationships frequently for analysing the deviation in the actual outcomes of BSC measures in order to determine the deviation' causes and therefore take the correction decisions"* (PD).

Though, NIF consider the cause and effect concept in its BSC implementation, it does not use the strategy map for articulating such concept. Instead, it analyses the cause and effect relationships between BSC components subjectively in terms of the mental analysis and through debates. "*We analyse the cause and effect concept mentally without using an official documentation*" (DG&F SE). *"We do not have a strategy map; instead we articulate the cause and effect relationships on the blackboard or outside papers when required"* (HR&IT SE).

The main reason for the non-use of the strategy map is explained by NIF General Manager as *"the use of the strategy map can restrict the thinking of decisions makers to those relationships documented into the strategy map; while this can have a disruptive effect on the company performance. This is because of that the relationships that identified to be valid at certain point of time can lose their validity due to the change in the company surrounded circumstances. Thus, we have decided from the beginning to adopt the concept of the cause and effect relationship as a pattern of thinking, planning and analysing not for restricting decision makers; especially, when we need them to respond rapidly to the changes in the business environment"* (GM). Asking why not using the strategy map with updating its relationships to suit the new conditions of the company circumstances, The Human Resources and IT Senior Executive replied *"the lines between measures are frequently changed due to*

the change in the surrounded situations and decisions circumstances. Thus, if we insist on drawing up the strategy map we would lose precious time in a frequent manner" (HR&IT SE).

5.2.3.5 NIF's BSC measures targets:

NIF has adopted BSC process of setting measures' targets. It sets explicit-targeted values for all the outcome measures and the driving measures in the four perspectives of its BSC.

In its earlier stage of BSC implementation, NIF started with setting 5 years-long stretch targets for its BSC measures. From these targets, it has derived annual-milestone and shorter-term targets. However, throughout the first year of its BSC implementation, NIF has frequently changed its long-term targets on the light of its actual accomplishment of the shorter-term targets. This frequent change was caused by *"the change in the external environmental elements including the price and the availability of raw materials"* (OSE).

At the end of the first-year BSC implementation; NIF considered abandoning setting targets for its BSC measures. But, eventually it decided to abandon the stretch type of targets and their correlated milestones, and continue its BSC implementation with setting incremental annual targets across years (HR&IT SE; GM, SM SE; OSE, DGM&FSE). Asking the reason for using the latter type of targets, the Senior Executive of Human Resources and IT said that, *""this is to maintain our opportunity to gain the promised benefits of setting targets for BSC measures; these benefits which we realised later. After the use of the annual targets and their derived shorter-term targets, we recognise that they are more applicable and useful than the stretch type of targets when the surrounded situations are highly changeable"* (HR&IT SE).

The stretch type of targets was perceived to be highly unpredictable in the way that can have a negative effect on the company performance if they continued to be used; as the Senior Executive of Sales and Marketing put it *"We spent much time trying to set realistic values as stretch targets but, we failed to do so. Given this failure, we decided to abandon this type of targets, since the continuous use of the stretch targets with badly developed values will absolutely demotivate us and lead to frustrated results"* (S&M SE). To conclude, NIF's General Manager state that *"we arrived at the fact that to set annual targets for BSC measures is more meaningful and controllable than assigning specific numbers as longer-term targets. This is because of the high level of unpredictability resulted from our volatile business*

environment. Therefore, we decided to bare our strategic objectives in mind and proceed toward them by setting objective targets across years" (GM).

Thus, NIF for setting targets for BSC measures, it sets annual targets for the forthcoming year; taking account of (a) the deviation analysis of BSC measures related to the previous year, (b) the marketing researches including customer survey, (c) the environmental circumstances predicted for the forthcoming year, (d) the resources availability and estimated acquisitions (GM; OSE; S&M SE; HR&IT SE). Therefore, it breaks down the annual targets into shorter-tem periods.

The targets of BSC measures are appreciated in NIF for clarifying its strategic goals, and for providing a systematic basis for initiatives development, resources allocation and performance evaluation and development. The relevant comments, for example, include, *"They - the targets of BSC measures - have a considerable usefulness for making the company's strategic goals much clearer to everyone in the company in the way enhances the achievement of those goals"* (HR&IT SE). "*Such targets avoid us the randomness in identifying our initiatives and running our business, while such randomness can result in time loss and resources poor utilisation* (MD). "*They allowed us to consider each year with its particular circumstances rather than evaluating the performance of one year by comparing it with other years' performance"* (DGM&F SE).[33]

5.2.3.6 Organisational alignment process in NIF's BSC implementation:

5.2.3.6.1 NIF's top-level managers' participation in BSC development:

NIF's top management consists of the general manager, his deputy, and three senior executives. They had all participated in developing NIF's BSC; *"I and all the senior executives had participated in developing the company's BSC […], their participation - the senior executives - as I expected, has its positive impacts on their commitment to the successful implementation of BSC"* (GM). The general manager had played an essential role

[33] Other relevant comments including, *"They provide us with an effective system for setting and implementing our strategic plans"* (GM). *"Of course they are important, especially for conveying the performance evaluation processes from a personal assessment process to a systematic process. Whereas, at the absence of the targets, the opinions related to evaluating the company performance would be various. You would find some evaluators say that the performance is good comparing to other companies' performance. Simultaneously, you would find others who say that the performance is bad comparing to performance of previous years"* (PQCD).

in NIF adoption and development of BSC; *"he - the general manager - was the motivator for adopting BSC system, and the facilitator in developing it"* (DGM&F SE).

The general manager and the senior executives have *"worked as a team for developing BSC"* (S&M SE), including: (1) building a consensus on BSC adoption and development procedures; (2) clarifying and building a consensus on NIF's strategic orientation; (3) re-specifying NIF's strategic objectives; (4) identifying the performance measures and structuring BSC; (5) setting targets for BSC measures; (HR&IT SE; S&M SE; OSE; DGM&F SE)[34].

5.2.3.6.2 BSC cascading in NIF:

NIF has applied two types of BSC cascading. The first type represented the participation of the middle and lower levels managers as well as the key employees in developing NIF's BSC. "*We conducted different interactive workshops at the general managements in order to stimulate the participation of the lower-levels members in developing BSC*" (HR&IT SE). In each general management, except the financial general management, the first workshop was conducted at its top level. In this workshop, the department directors with their senior executive re-specified NIF's strategic objectives related to the responsibilities of their general management, and then identified the outcome measures related to those objectives. The second wave of workshops was conducted at the departmental level. In these workshops each department director with his subordinates, whether units managers or key employees, identified the driving measures based on the identified outcome measures pertained to their job responsibilities (MD; PD; PUM; QS; PAS; LT). On the other hand, in the financial general management, one workshop was conducted. This involved the financial senior executive and all his subordinates, in which they re-specify NIF's financial objectives, and

[34] The relevant comments including: *"at the beginning of the project, we conducted sequent meetings involved me, the general manager, and the rest of senior executives. In these meetings, we discussed BSC concept and its potential benefits, and after a deep dialogue we decided to adopt the system; and then we set procedures for developing it"* (GM); "*we started our journey for developing BSC by clarifying our strategic orientation and building a consensus upon it. This step has been done at the higher corporate level, involving the general manager and all the senior executives* (S&M SE);*"after clarifying and agreed on the company's strategic orientation, the general manager had empowered each senior executive for re-specifying the strategic objectives, each one in relation to his management responsibility. Having accomplished this task, we met together with the general manager for evaluating and therefore accrediting them"* (OSE); *"each senior executive was the main responsible for identifying measures for the strategic objectives relating to his management. These measures, which were the basis for constructing BSC […]; we then constructed our BSC in a workshop involved the senior executives and the general manager"* (DGM&F SE); "*after constructing BSC, I, the general manager, and the other senior executives have developed targets for BSC measures"* (OSE).

then identify the financial outcome measures (DGM&F SE). The cascading process of developing BSC has been enforced further in NIF by seeking the feedback of the lower-levels members on BSC targets set by top management (GM; MD; QS; OT).

The second type of BSC cascading applied in NIF represents the use of BSC at all NIF organisational levels, including the highest corporate level, the level of general managements, the level of departments, the level of lower units, and the level of employees. "*After BSC was completely structured, we distributed it throughout the company, and encouraged every part to use it"* (GM). in NIF, the senior executives are responsible to the general manager mainly for the outcome measures related to their managements (OSE, HR&IT SE; S&M SE; DGM&F SE); while the directors are responsible to their senior executives for the driving measures related to their departments (MD; PD; A&T D; PQCD); at the time that, the unit managers and key employees share the responsibility with their department director for the driving measures, each in relation to his job responsibility (PUM; QS; PAS; LT; OT).

The underline reason and the benefit of developing NIF's BSC through this extensive cascading manner are shown in comments such as *"each person in our company is a specialist that has the most knowledge and skills in relation to his job. Hence, we was keen from the beginning of BSC program on participating every specialist in order to benefit from his knowledge for developing our BSC, and to encourage their positive role in succeeding its implementation"* (GM); *"our participation in developing BSC has motivated us for employing all our knowledge and experience in order to identify the strategic activities and the most appropriate measures for measuring them"* (MD); "*involving us in developing this system, make us eager to implement it successfully"* (QS); *"the use of BSC anywhere in the company has made the company goals clear to all its members. This in turn enables them to evaluate and manage their performance more effectively toward achieving those goals"* (PM).

5.2.3.6.3 BSC education and communication in NIF:

NIF has applied BSC education and communication process in integration with its adoption and implementation of BSC. Before deciding on the adoption of BSC, NIF general manager attended various workshops, seminars, and tutorials about BSC concept, through these education programs *"I have learned what BSC does mean, and what the company can gain from its implementation"* (GM). Given this, NIF general manager conducted several meetings with the senior executives to discuss the concept of BSC and its benefits, and to pose the idea of its adoption; *"I started with communicating my BSC knowledge to the senior*

executives" (GM). In these meetings, external BSC experts were also invited to provide further education on BSC concept and its development process; however,*" their participation was to demonstrate BSC concept and give advices on how it can be developed, while they did not participate directly in developing the company's BSC*"(DGM&F SE).

After deciding on adopting BSC, identifying its development process, and building the consensus on NIF strategic orientation; the second BSC educating and communicating wave was conducted in the workshops held in NIF general managements for developing BSC. In these workshops, the senior executives had educated and communicated BSC concept and NIF strategic orientation to their departments' directors, who in turn transferred their obtained knowledge to lower-levels managers and employees; *"at the development stage of BSC, we have rolled our strategy and BSC concept from the top to the lowest level of the company"* (HR&IT SE); *"The process of BSC education and communication has involved almost everyone in the company"* (PUM). BSC education and communication have been fostered further in NIF by BSC training programs given to many of its members; *"many of us have been given training programs on BSC system"* (S&M SE).

Moreover, after the development stage of BSC, the completed BSC including its all components has been communicated through all organisational levels by *"using brochures and through conducting meetings at the different levels of the company"* (A&T D). This in addition to the annual communication of BSC to lower organisational levels, *"at the beginning of each year, and after setting the measures' targets, the top management communicate BSC down to lower levels in order to discuss the feasibility of the targets and identify the requirements needed for achieving them"*(PD). BSC communication enforced further by the frequent meetings conducted throughout the company for discussing the outcome of BSC measures and the way of improving them; *"even daily, we discuss the measures' outcome between us and with our managers"* (OT).

5.2.3.6.4 Linking NIF's BSC to the compensation system:

After one year from its implementation of BSC, NIF has linked its compensation system to BSC; *"we have linked our compensation system to BSC after we became confident about the validity of our way of implementing BSC"* (HR&IT SE). Almost all NIF's members, at all organisational levels, are rewarded regularly based on their achievements of BSC targets (OT; PD; S&M SE; PUM; OSE; PAS). The exceptions here are the staff in Financial Management;

since this management is considered as *"it is assisting management has indirect effect on BSC measures. Therefore, we instead of reword its staff directly based on BSC, we reward them based on the quality and time accomplishment of their tasks*" (GM).

NIF general manager and his deputy are essentially rewarded based on the achievements of three main performance measures *"company market share, customer satisfaction rate, and economic added value"* (DGM&F SE). The senior executives in turn are rewarded based on the outcome measures relating to their managements, while the departments directors, units managers, and key employees are rewarding based on the driving measures pertained to their job responsibilities.

In NIF; BSC-based rewards represent annual bonus, without linking the basic salary - whether of the leaders or of the employees - to BSC. The main reason for this absence is explained by NIF's general manager as *"the prevalent work culture. In our community, any person wants to know the basic salary before deciding to work for the company. Thus, the pre-specification of the basic salary for each function is an essential condition for the employment negotiation"* (GM).

Otherwise, in its BSC-based compensation connection; NIF considers the achievements of BSC targets related to innovation-based measures for the highest rate of rewarding, since the innovation activities in NIF are considered as *"the most important activities that foster the competitive advantage of our company"* (HR&IT SE).

NIF uses both the objective and the subjective approaches for determining its leaders' rewards. Firstly it uses the objective approach[35], while it uses the subjective approach in the situation where there is a noticeable deviation in the targets achievements. That is, the subjective approach is used to consider the causes that prohibit a leader from achieving the targets or achieving better outcome than the actual one. Hence, if the causes are out of control, a leader is given the full planned reward; *"we essentially use certain percentages for BSC-based rewarding. However, when it is proven that the manager has done all what he*

[35] In its application of the objective approach; NIF calculates the actual outcome percentages of BSC measures in relation to their targets. These percentages then are compared to incremental percentages pre-identified as desirable outcomes (80%, 90%, 95-100%, Ex), which in turn, are connected to extra salaries given as annual rewards. Thus, if the actual outcome percentage of a leader is, for example, 80%, he would be given an extra salary as bonus, and if it is 90%, his bonus would be two extra salaries, etc.

have to do, and the bad target achievement is due to causes from outside the company, he would be given the entire reward […]; such external causes are those pertained to the availability or time delivery of the materials" (OSE). On the other hand, for rewarding its employees, NIF uses also both the objective and subjective approaches in a sequential manner. That is, for each managerial unit, the total rewards are calculated objectively based on the achievement of the targets related to this unit. Then, the direct manager and based on his personal subjective assessment of employees' performance determines who are deserved to be rewarded, and how much the reward will be (OT; PUM; QS; LT).

Linking BSC to the compensation system is appreciated in NIF. This is shown in comments such as *"it has created a harmony between the personal goals of the individuals pertained to improving their incomes and the company strategic goal of improving its value*" (DGM&F SE); *"this linkage has a positive effect on the employees' turnover and satisfaction rates"* (HR&IT SE); *"given rewards based on BSC has enhanced noticeably the employees' enthusiasm for achieving the measures' targets therefore the strategic objectives of the company as they connected with these targets"* (PUM).

5.2.3.7 Organisational learning in NIF's BSC:

NIF implements BSC in the sense of the two loops of organisational learning, the single-loop learning, and the double-loop learning. The single-loop learning in NIF's BSC represents the learning from deviations; *"the deviations in BSC measures propel us to reconsider our previous decisions and initiatives, and therefore take the required corrective actions"* (DGM&F SE). In NIF, the actual outcome of BSC measures are calculated and benchmarked with their pre-set targets on a daily or/and monthly basis, "*and therefore, identifying if there is any deviation"* (PUM). The deviation is primarily treated at the managerial unit that is responsible for the relevant measure; for that, *"we meet together whether officially or unofficially in order to determine the causes of deviation, and then, take the required action. Otherwise, we discuss the deviation with the higher managerial unit or others if their intervention is required"* (PD). Officially, NIF investigates its BSC feedback each three months, through a hierarchical process of reporting, discussing, and evaluating the outcome of BSC measures. This process starts from the lower-level units toward the level of general managements, and then, to the higher corporate level via the financial management,

which is the responsible for preparing the overall corporate report of NIF's BSC (QS; PD, OSE, S&M SE, DGM&F SE). At the higher corporate level, *"we conduct quarterly prolonged meeting for assessing the corporate report of BSC; [....] we discuss and analyse the deviations and their causes, and then set action plans to enhance the positive deviations and eliminate the negative ones"* (HR&IT SE).

Furthermore, the double-loop learning in NIF represents its BSC updating process. This includes: (1) updating the targets of BSC measures: the measures' targets are updating in NIF by increasing them in the situations that *"the business environment of the forthcoming period is predicted to be munificent"* (OSE); or *"due to our success in achieving the previous targets or exceeding them"* (S&M SE); or by decreasing them in the situation that *"the previous targets could not be achieved because of uncontrollable causes pertained to the business environment changes"*(GM); (2) updating BSC measures: the measures' updating in NIF represents *"replacing previous measures with those we think are more appropriate for representing the company strategic objectives and measuring their achievement levels"* (DGM&FSE); and *"adding new measures for monitoring certain activities, which their importance is increased due to the internal changes taken in response to the changes in the external business environment"* (PM). Furthermore, the updating process of BSC measures is conducted in NIF through considering the cause and effect relationship; "*In our company, the need for better measurement of the strategic objectives is the main reason for updating the outcome measures, and the need for the better management of the outcome measures is the main reason for updating the driving measures"* (MD). On the other hand, NIF conducts the double-loop learning in an interactive manner, in which the idea of updating is discussed at all concerned management units before its accreditation, whether an idea was suggested by the top levels or the lower levels (GM; QS; PD; PAS).

5.2.4 BSC effect on NIF financial performance:

The financial performance of NIF - measured as ROA - shows a net improvement of 8.633%. This is from 13% in 2012 (the year before implementing BSC) to 21.633% that represents the average of ROA during the years of BSC implementation (2013, 2014 and 2015). That is, ROA in NIF had increased by 4.3% over the first year implementation of BSC (2013). Then it increased from 17.3% to 22.2% between 2013 and 2014, to reach a peak of

25.4% at the end of 2015. Table 5.7 represent the perception of the respondents on the extent to which BSC implementation in their company has contributed in improving the financial performance during the period of BSC implementation.

Table 5.7: The perceived contribution of NIF's implementation of BSC in improving its financial performance

Respondents	Perceived contribution rating
General Manager.	Very high
Deputy of General manager & Financial Senior executive.	Very high
Operations Senior executive.	High
Human resources & IT Senior executive.	Very high
Sales and Marketing Senior executive.	High
Marketing Director.	High
Production Director.	High
Production quality department director	High
Production accounts Supervisor	High

The above table shows that the majority of the respondents perceive the implementation of BSC in their company to have a high contribution in creating the financial performance improvement shown above. This level of BSC financial contribution was clarified subjectively in sentences such as:

"Of course, BSC implementation in our company has a very high contribution in improving its financial performance, since it has significantly enhanced our management effectiveness. It provides us with the relevant information in an organised way considering all the critical aspects of our performance. It also provides us with a pattern of thinking about the causality. This pattern has enabled us to effectively analyse the relationships between the various activities in the way that enhanced our ability to affect the causes towards achieving the desired outcomes" (GM);

"BSC has played a significant role in formulating our strategic objectives and clarifying them to all company members. This is in the way that motivated their really useful suggestions about the ways of achieving the objectives; and their timely reactions for treating the causes of any potential deviation from those objectives. Taking this in account, I can assert that BSC implementation has a significant role in

creating the improvement of the overall performance of the company, therefore its financial performance" (OSE);

"Since its implementation; BSC has drawn the attention to survey the customers' demands and perceptions on the products and services of the company. This survey has significantly contributed in steering the company into the right direction toward fulfilling the customers' demands and achieving high levels of their satisfaction. This in turn has indeed resulted in increasing the sales of the company and improving its profit" (S&M SE);

"The sales revenue has noticeably increased during the period of BSC implementation. One reason for that is the connection developed between BSC and the rewards. This connection has motivated the salesmen to deliver on achieving the specified targets related to their work, therefore increasing the company's volume of sales" (MD);

"Specifying BSC targets have a greater enhancement to the company performance. They have become motivations for the employees to improve their capabilities and efficacy towards achieving the targets. On the other hand, they have enabled the company to get feedback on its performance and therefore evaluating it on a timely manner against these targets, or even set more motivated targets in the situations of achieving the previous ones. All these advantages have enhanced the continuous development of the performance and hence attaining high rating of profit" (PD).

Having provided a detailed-description on NIF contingent variables, its BSC implementation and financial effect; the main points in relation to these elements are summarised as shown in Table 5.8:

Table 5.8: Summary sheet relating to the study findings of NIF

Environmental uncertainty level: High level of environmental uncertainty. **Strategy type:** Differentiation strategy.			
BSC components		**Adoption**	**Implementation**
Perspectives			● Using the four initial perspectives of BSC apart from involving any additional perspectives. ● Using BSC in an imbalanced way in which: - The customer perspective is given the highest level of relative importance among BSC perspectives. - The internal business processes perspective and learning and growth perspective were ranked second - The financial perspective is ranked last.
Measures	**Numbers & types**		● Using 49 performance measures on its BSC. ● Using outcome and driving types of measures in BSC, with giving the driving measures more relative importance than the outcome measures. Especially, the driving measures related to the quality and innovation. ● Using and emphasizing the importance of using the external type of measures (customer satisfaction survey).
	Selection basis		● Selecting BSC measures essentially based on formulated strategic objectives.
C&E relationship concept		Adopted	● Implementing the concept of cause and effect relationship subjectively without using the strategic map. ● BSC perspectives, strategic objectives, outcome measures, and driving measures have been all involved into the company's implementation of the cause and effect relationship concept.
BSC targets		Adopted	● Setting incremental annual targets and shorter-term targets for all BSC measures. ● Relying essentially on BSC targets for developing the company's initiatives and allocating its resources.
Organisational alignment processes	**Top managers participation**	Adopted	●All top-level managers participated in developing BSC. ●This participation involved building a consensus upon the company's strategy, therefore selecting BSC measures based on that strategic consensus. ●All top-managers participate in using BSC.
	Education & communication	Adopted	● Educating and communicating BSC to all managers and key employees, at all organisational levels.
	Cascading	Adopted	● Middle-level managers, and lower-level managers, and key employees are all involved in developing BSC. ● Middle-level managers, and lower-level managers, and key employees are all involved in using BSC.
	Compensation linkage	Adopted	● Almost all organisational members at all managerial levels are rewarded based on BSC. ● The compensation system is connected to BSC, considering all the performance measures in the four BSC perspectives, with giving the achievement of BSC targets related to the measures of innovation the highest rate of rewarding. ● BSC-based rewards represent bonus, without connecting the basic salaries to BSC. ● BSC-based bonus are given on an annual basis. ● Using the objective and subjective approaches for rewarding its members based on BSC.
Organisational learning processes		Adopted	● Implementing BSC in the sense of both the single-loop learning and the double loop learning.
The effect of BSC implementation on the financial performance: High positive effect			

5.3 CASE STUDY THREE: ISC

In this section; the study firstly provides background information on the case of ISC and its adoption of BSC (Subsection 5.3.1), secondly, it examines the environmental uncertainty and the business strategy contingent variables at ISC (Subsection 5.3.2); thirdly, the study provides a detailed description on ISC empirical pattern of BSC implementation (Subsection 5.3.3), fourthly, it explores and describes the effect of ISC's implementation of BSC on its financial performance (Subsection 5.3.4). Therefore, the study ends this subsection by providing a descriptive summation of the overall findings obtained from ISC case study.

5.3.1 Overview of ISC and its BSC adoption:

ISC is a Libyan for-profit government-owned company with a labour force of 6489 full-time employees. It was found in 1989, and is currently the leading Iron and Steel Company in Libya with market share of almost 80% and capital of 4 Billion dollars. ISC produces different types of iron and steel products concentrating mainly on the reinforcing type of steel with production capacity of 1300000 tons per annum. It has sales distribution network covers all Libyan cities, and exports its products internationally to different countries including Morocco, Egypt, UK, China, Italy, and other European countries. Besides, its acquisitions of different awards including Libyan Quality Mark, ISO 9001:2000 of Quality Management System, ISO14001 of Environmental Management Standards, OHSAS 18001 of Health and Safety, the European Award of Quality, the award of Best Industrial Corporation in Africa, and recently the Arabic Goal Eagle of General Management.

BSC was firstly introduced in ISC at the second quarter of 2012, and had been officially adopted at the end of the first quarter of 2013. Before adopting BSC; ISC was using a PMS that consisted of a mixture of financial and non-financial measures. However, the former PMS is considers to be ineffective in planning and managing the company's performance. This was attributed to elements including the big number of used performance measures; the gap between them and the strategic objectives of ISC, and the absence of clear connections among the measures. Different ISC decision makers emphasised that such elements had negatively affected their ability to analyse and interpret the outcomes of the performance measures, and assess systematically how the improvement in one aspect of the performance can affect the other performance's aspects. This situation had prompted ISC to seek advices from certain consultant, who proposed BSC as an effective system for overcoming the inadequacy of the former PMS.

5.3.2 The contingent variables at ISC:

5.3.2.1 ISC's environmental uncertainty and business strategy:

To examine ISC contingent variables of environmental uncertainty and business strategy, the study has applied the same procedures used in the previous two cases. The results are displayed in Table 5.9, and Table 5.10, and discussed follows.

5.3.2.1.1 Environment uncertainty at ISC:

Table 5.9 shows that the level of change in ISC business environment is below the scale's middle score (3.5) by an overall mean of 2.8. This indicates that ISC operates in a stable business environment referring to a low level of environmental uncertainty. The results also show that ISC managers' predictability of the change in their company's business environment is higher than the scale's middle score (3.5) by an overall mean of 4.689. This in turn indicates that PEU at ISC is low referring also to a low level of environmental uncertainty. Thus, based on the aforementioned results it can be concluded that the level of environmental uncertainty at ISC - considering both the environment change and PEU - is low.

Table 5.9: ISC environmental uncertainty (the change in environment, and the predictability of the change)

Environmental elements	Level of change On 7 points scale	Predictability of change On 7 points scale
Competitors' number.	3	4.4
Competitors' actions with respect to introducing new products, price and quality.	2.2	5
Customer demands, testes and preferences in regard to price, quality and delivery.	2	5.4
Suppliers' actions in respect to raw material price, quality, delivery and availability.	2.4	5
Manufacturing technology.	2.2	5.4
Government regulation/policies.	4.6	3
Economic environment (inflation, growth rate, labour rate).	3.2	4.2
International factors such as the word economy, imports and foreign exchange.	4	3.8
Development of new products or services in the industry.	1.6	6
Overall mean	**2.8**	**4.689**

5.3.2.1.2 ISC business strategy:

Table 5.10 shows that the mean score of ISC on cost-leadership priorities (5.594) was noticeably higher than its mean score on the differentiation priorities (3.375). This means that ISC paid more attention to the cost-leadership activities in its market competition more than the activities related to the differentiation strategy. These results prompt the business strategy of ISC to be classified as cost-leadership strategy.

Table 5.10: ISC business strategy

Items	Cost leadership On 7 points scale	Differentiation On 7 points scale
Providing lower price product than competitors	5.5	
Maximizing product volume	6.875	
Improving cost-efficiency of production system	6.75	
Reduce the activities' cost that is not pertained to production process such as costs of advertisement and after-sale services	3.25	
Introducing innovative products		1.25
Improving product's features/design in timely manner		2
Customizing products and service as response to customers' needs		3
Providing high quality products than competitors		6.25
Making dependable delivery		5.75
Providing effective after-sale services and support		2.125
Overall mean	**5.594**	**3.375**

Respecting its formal strategy; ISC had already got its strategy in place before adopting BSC. This strategy was defined officially through a formal formulation process in the sense of what is known as a deliberate strategy. ISC has firstly identified its mission and vision through several brain storm sessions conducted at top management. Following that, a team consisted of different organisational members was assigned to conduct what is known as SWOT analysis [36] (Strengths, Weaknesses, Opportunities and Threats analysis). The outcomes of SWOT analysis were then reported to the senior executives at top management to define the company competitive factors and formulate its strategy (BTL; CEO). *"We relied on our mission, vision, and the outcomes of SWOT analysis in order to define the appropriate*

[36] The former leader of this team has explained the work conducted in this regard as follows "we firstly had revised and analysed the company's documents, and conducted interviews with different executives. This was to gain comprehensive insights into the company's internal environment and past performance. Based on the gained information, we identified the internal strengths and weaknesses of the company. Otherwise, we had gathered detailed information on the company markets, whether the internal or external market, through conducting marketing researches and reviewing certain international journals related to our company's industrial domain. This was to identify the opportunities and threats which the company can utilise and encounter respectively within its external business environment" (BTL).

strategy for our company" (CEO). This formulation process has resulted in defining ISC's strategy into the following statement: *"providing iron and steel products corresponding to the national and international standards of quality at competitive prices, with considering the environment safety demands, and the society responsibility"*. Following this formulation of ISC's strategy *"we conducted sequential meetings at top management for specifying strategic objectives for each aspects of our performance relying on our formulated strategy"* (DCEO).

5.3.3 ISC's implementation of BSC:

In turn, the study under this sub-section concentrates on providing empirical insights into ISC pattern of BSC implementation. This is through providing a detailed description on ISC's adoption and implementation of each component of BSC discussed earlier in the two previous cases of CRM and NIF.

5.3.3.1 ISC's BSC perspectives:

ISC had relied mainly on its strategy for identifying its BSC perspectives, *"we firstly analysed the company's strategy to identify the critical areas of the business that are needed to be measured and managed accurately for accomplishing our strategy"* (BTL). This process resulted in identifying five performance perspectives, the financial perspective, the customer perspective; the internal business processes perspective, the learning and growth perspective, and the environment perspective. However, officially, ISC's BSC is composed of the four initial perspectives of BSC. That is, the environment perspective has not been considered as an independent perspective in ISC's BSC report. Instead, it has been embedded into the internal business processes perspective, since *"we believe that the processes related to the environmental performance are part and parcel of the internal businesses processes"* (DCEO). On the other hand, all BSC users in ISC - those involved in the interviews - have argued in support of the validity and sufficiency of the four initial perspectives used by their company. For example, the Chief Executive Officer said: *"the four perspectives of BSC provide us with four lenses by which we can investigate and enhance the leverage of our business"* (CEO). The Deputy of ISC's Chief Executive Officer in turn confirmed that *"These four perspectives represent areas of evaluation where we can use performance measures to measure and control all the critical factors of our performance"* (DCEO).

However, while ISC adopts the four initial perspectives, it has not used them in balanced way when evaluating and managing its performance. ISC gives the internal business processes

perspective the highest relative importance level (by assigned relative weight of 40%). This was attributed to ISC consideration that the internal business processes perspective has the main role in determining the company success in the financial and customer perspectives. In addition to its role in determining what should be done respecting the improvement in the learning and growth perspective. ISC embarks substantially on this perspective for measuring and managing its performance against its competitive factors of quality, cost-efficiency, productivity, environment safety (CEO; TM; PP&C M; ISE; IMM; DCEO). The high relative importance given to the internal business processes perspective is shown in comments such as: *"We focus primarily on the internal business processes perspective for evaluating our performance, as it provides us with predictable indications on our marketing acquisition and financial improvement"* (CEO); *"The internal business processes perspective is the main basis for evaluating the performance of employees and deciding on the training programs required for improving it"* (TM)[37].

On the other hand, ISC gives the second level of the relative importance to the learning and growth perspective (by assigned relative weight of 25%). This is due to *"its important role in enhancing the company performance in the internal business processes perspective"* (DCEO). Whereas, ISC utilises the learning and growth perspective mainly for qualifying its employees to meet its strategic objectives in the internal business processes perspective. This *"focuses essentially on improving the employees skills and capabilities related to resources utilisations and cost-efficiency"* (TM), and for that ISC possesses a major training centre and targets 25% of its employees for the training programs annually. In this respect ISC's Chief Executive Officer asserted that *"the relatively high level we give to the learning and growth perspective is necessary for minimising the gap between the employees' level of performance and that demanded by the production process*" (CEO).

[37] Other relevant comments include: *"On the light of the management pattern of the company, I can confirm that the internal business processes perspective is given the highest level of importance among BSC perspectives. This is because its tight connection with the processes of measuring and managing our company's critical factors of competition, especially those pertained to the quality, productivity and production cost"* (IMM). "*Our main goal is to direct the company performance to deliver on the quality standards with a high level of cost-efficiency. Hens, and because these goals are connected mainly to the internal business processes perspective, we give relatively this perspective the most considerable level of importance"* (DCEO). *"It is clear for us in the industrial safety administration that the top management pays considerable attention to the internal business processes perspective especially in relation to the environmental aspects. And for that, it has made remarkable investment for replacing the traditional machines and technologies with advanced ones that are environmentally friendly"* (ISE).

Otherwise, although the financial perspective is appreciated in ISC for monitoring the total cost and evaluating the long-run financial outcome of the company performance, it was given relatively lower importance level (by assigned relative weight of 20%). The underlying reason is explained by the Deputy of Chief Executive Officer; he said that *"we assigned a low weight to the financial perspective in order to mitigate its effect of compelling our decisions and business initiatives to the short-term financial achievement [.....]; based on our experience these short-term achievements do not guarantee or even indicate the long-term improvement, which represents our main concern* (DCEO). Finally, despite its use for measuring the company market share, the customer perspective is given the lowest relative importance level among BSC perspectives (by assigned relative weight of 15%). This was attributed by ISC's members to the stability of customer's demands and preferences towards the company's products (iron and steel). Consequently, ISC relies essentially on the industry standards for designing its products and determine their level of quality, instead of relying on its customers (CEO; DCEO; R&D M; IMM; LMM; QCM). In this respect, the Manager of Local Marketing explains that "*in our industry, the good customer relationship is subjected to providing products correspond the industry standards with competitive prices. And this does not demand placing a higher weight on the customer perspective for managing the company performance. Instead, it demands a good monitoring and management of the company's performance against the industry standards as well as applying a good control over the cost*" (IMM).

5.3.3.2 ISC's BSC performance measures:

BSC in ISC encompasses 73 financial and non-financial measures. 6 of them are used in the financial perspective, while the other 4, 46, 17 measures are used respectively in the non-financial perspectives of customer, internal business processes, and learning and growth. Otherwise, ISC uses both types of measures, the outcome measures and driving measures. It uses 21 measures classified as outcome measures into the four perspectives of BSC, while uses 52 measures classified as driving measures into the two perspectives of internal business processes, and learning and growth (See Appendix Q).

Among these types of measures; ISC gives the driving measures more relative importance than the outcome measures. This is attributed to the role of the driving measures in attaining an effective planning and an immediate monitoring and evaluation of ISC critical strategic activities, especially those related to quality, productivity and cost-efficiency (CEO; QCM; CCM; TASE E&PSE; TASE; E&PSE). The relevant comments, for examples, include: *"as the leaders of the company, we understand that, it is not wisdom to concentrate on the results and leave the causes, so we rely essentially on the driving measures for planning and*

evaluating the company performance towards improving the outcome measures and achieving the strategic objectives" (TASE); *"The company invests considerably for improving the efficiency of the activities related to quality, productivity, and cost, these represent the main subjects of the driving measures"* (E&PSE).[38]

Otherwise, ISC has not used the customer satisfaction survey in its implementation of BSC, while it considers such external measure to be not important in its case. ISC - with the stability in its customer demands - sees the customer satisfaction to be an absolute result of providing products that meet the industry standards with competitive prices. Therefore, it sees its ability of providing such products to be effectively measured and managed by using the internal performance measures apart from using the customer satisfaction survey. Consequently, ISC relies essentially on the internal measures used in its BSC internal process perspectives for measuring and managing the correspondence between its products and its industry stands as well as its operation cost. Otherwise, it uses internal measures including the sales growth rate and customer complain rate for providing lagging indications on the customer satisfaction level (IMM; LMM; DCEO; R&D M; CEO; QCM).

The Chief Executive Officer put it "*to meet the demands of customers in our market you need to manage your products against the industry standards with taking care of cost. Providing this, we do not use the customer survey as we know exactly what the customer needs. Instead, we embark on the internal operational measures such as quality-based measures in order to manage our products to meet those demands. The customer feedback on the other hand can be known through monitoring the sales growth and the rale of customers' complaints"* (CEO). The Local Marketing Manager in turn expressed that *"Our products are standardised across the industry. Hence, we can know how customers well evaluate our products before our products go out to the market. This is by looking to quality report"* (LMM).[39]

[38] Other relevant comments include: *"The company gives the priority to the driving measures over the outcome measures in its performance management and evaluation processes"* (QCM*);"We give a considerable attention to the driving measures as they are directly and tightly related to the competitive factors of the company"* (CCM).

[39] Other relevant comments include: *"In the case of our company, there is no potential benefit from using the customer survey, since the demands of our customers are stable and well known for everyone. Therefore, the use of customer survey can waste our time and money; instead of providing benefits"* (DCEO). *"There is no need for using customer survey, since the changes in the customer demands and preferences respecting our products are rare and almost non-existent"* (LMM);

5.3.3.3 ISC's BSC strategic objectives (selection basis of BSC measures):

ISC adopted the strategic basis for selecting its BSC measures. Prior to its adoption of BSC, and since its establishment; ISC was using a mixture of financial and non-financial measures defined over time based mainly on its operational processes (C&FSE; PP&CM; IAM). The majority of these measures were identified by the different companies that manufactured and designed ISC's plants and systems; while the other measures were employed by ISC for meeting the demands of certain quality certifications (TASE; R&DM; PM; CCM). Later on, and despite of developing its formal strategic objectives, ISC had not made any effort to revamp its performance measures to be in alignment with its strategic objectives; *"we were using the performance measures in isolation from the strategic objectives"* (E&PSE); this situation *"indeed had affected our ability to measure and guide the performance of the company in accord with the strategy"* (CEO).

However, after deciding adopting BSC; ISC relied mainly on its strategic objectives for selecting its BSC performance measures. In doing so, ISC undertook two steps. The first step was the preliminary step, in which ISC (1) classified its strategic objectives into BSC perspectives based on the purpose assigned to each perspective; therefore, (2) selected outcome measures for each perspective. In this preliminary step the outcome measures were defined as *"the performance measures among our previous ones that can be used for measuring the performance progress toward the strategic objectives classified into BSC perspectives"* (BTM). The second step was the final step, in which ISC relied on the concept of the cause and effect relationship for (1) finalising and tying up the connections among the strategic objectives and the outcome measures; (2) and therefore identifying BSC driving measures (BTL; BTM).

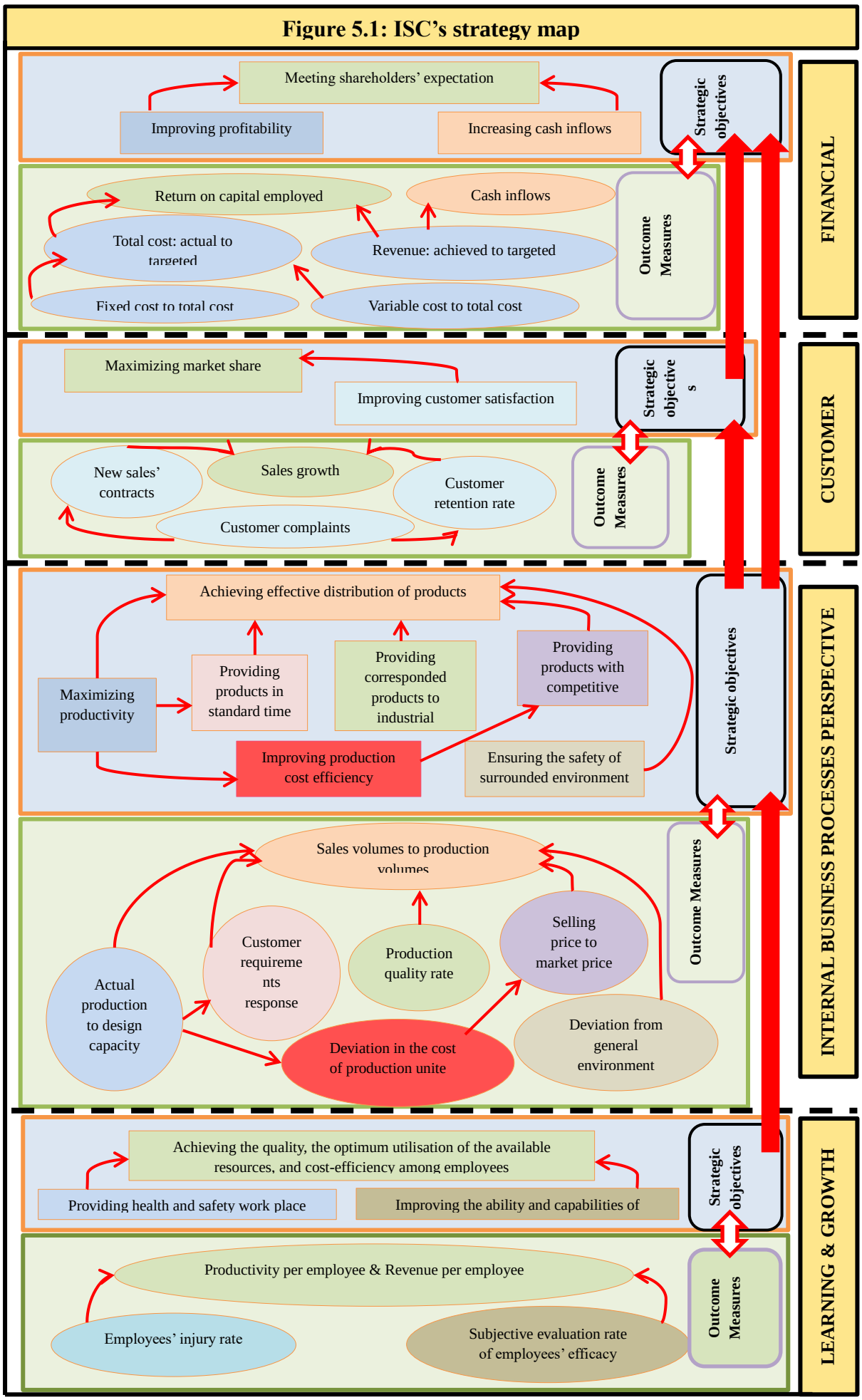
5.3.3.4 Cause and effect relationship in ISC's BSC:

ISC has adopted the cause and effect relationships in its implementation of BSC. It relied on this concept firstly for deciding on its BSC perspectives; *"we relied substantially on the cause and effect relationship for determining our BSC perspectives. And it was one of the elements prompted us for embedding the environmental perspective into the internal business processes perspective, instead of using it in isolation from the other perspectives of our BSC"*

(TASE). Secondly, ISC relied on the cause and effect relationship for accomplishing the strategic basis of selecting its BSC measures. Whereas, after the preliminary classification of its strategic objectives and outcome measures into BSC perspectives, ISC used the cause and effect relationship concept for: (1) finalising the strategic objectives considering the causal relationships between the strategic objectives in each perspective; and between the strategic objectives across the four perspectives; (2) finalising the outcome measures considering the causal relationships between the outcome measures and the strategic objectives in each perspective; and between the outcome measures themselves in each perspective. These two finalising process resulted in *"including just the strategic objectives and outcome measures that interlocking into the network of cause and effect relationship, while excluding the others from BSC"* (BTM). ISC relied further on the concept of cause and effect relationships for (3) identifying its BSC driving measures; *"we relied mainly on the final selected outcome measures for selecting the driving measures"* (PP&CM).

Having established these causal relationships; ISC has articulated them graphically through developing the strategy map (see figure 5.1), but apart from including the driving measures due to *"their big number, which could make the strategy map complexed and difficult to be understood"* (BTL). The strategy map was appreciated in ISC for its visual representation of the cause and effect relationship concept. It is used as an essential framework for guiding the decisions making and performance evaluation process. Representative comments on the applicability and usefulness of the strategy map include: "*the strategy map is a useful tool, by which we can effectively focus the decisions taking by deferent organisational members on the achievement of the company's intended strategic goals* (CEO); *"we use the strategy map as the main basis for making our decisions and evaluating their effects on the company performance"* (PP&CM). *"It provides a robust basis for guiding the decision making process among the company toward achieving its strategic objectives"* (DCEO); *"the strategy map represents an agreement between the key organisational members on the way of managing and evaluating the performance of the company"* (BTL); *"we mainly count on the strategy map's relationships for tracing the causes of the deviations in BSC measures and therefore taking the required decisions for treating them*" (IAM).

Figure 5.1: ISC's strategy map



5.3.3.5 Targets of ISC's BSC measures:

ISC adopted the process of setting targets for BSC measures. It sets explicit-targeted values for all its BSC measures whether the outcome measures or the driving measures in all the four perspectives. In his expression of the necessary of doing so, the Chief Executive Officer stated that *"To increase the usefulness of BSC, you need to consider all the performance measures on BSC for getting targets. This helped us with making our planning and evaluation of all the company processes and activities helpfully more objective"* (CEO).

ISC started its BSC implementation with setting 3-years-long stretch targets. To do so, it had firstly calculated the actual outcomes of its BSC measures for the year before implementing BSC. Then, it benchmarked them against the best practice from other companies and the industrial standards in order to identify the gap in its BSC measures. Based on the identified gap, ISC has set stretch targets for the outcome measures, which then used as bases for specifying the stretch targets of the driving measure. Therefore, relying on the stretch targets, ISC set annual milestones for its BSC measures, which in turn used for setting shorter-terms targets (R&DM; IAM; CCE; TM; PM; PP&CM).

Otherwise, considering the probable effect of the business environment on the use of the stretch type of targets, ISC's Local Marketing Manager asserted that *"the relative stability of our business environment, especially in terms of the products' types, the preferences of customers, the prices of raw materials; helps us with assigning long-term targets for our BSC measures*" (LMM). The Deputy of Chief Executive Officer in turn stated that *"although there are some changes in our business environment, these changes are temporary do not have much effect on our ability to use the stretch type of targets"* (DCEO).

The targets of BSC measures are used in ISC as the main basis for setting its initiatives and allocating its resources (IAM; CCM; E&PSE; TM; C&FSE; PP&CM). The Manager of the Internal Audit explained that *"we rely on BSC targets in the two stages of our initiatives identification. The first stage, in which the decision makers in each demonstrative division use BSC targets for identifying the preliminary initiatives. The second stage, in which the preliminary initiatives are finalised by the top management based on the degrees of their contribution in achieving BSC targets and the availability of the financial resources"* (IAM). In addition, the Senior Executive of the Commercial and Financial Affairs confirmed that *"based on the gap between BSC targets and our current performance, we set our initiatives and therefore used them as the main input for constructing our budgets"* (C&FSE).

Besides, BSC targets in ISC are appreciated for (1) providing objective clarification of its strategic orientation; *"they effectively help in translating the subjective statements of strategy, vision, and mission into objective and numeric goals that are more easy to be understood and acting upon their achievements"* (QCM); (2) providing a systematic basis for the performance evaluation; *"BSC targets provide us with a robust basis for monitoring and adjusting our performance with the planned ones […]; at the absence of these targets, any actual performance will be acceptable"* (CCM); (3) creating the competitiveness spirit among the company towards achieving its goals, *"they are really playing a significant role in making the diverse divisions of the company competing with each other for improving their performance and therefore achieving the overall goals of the company"* (IAM).

5.3.3.6 Organisational alignment processes in ISC's BSC implementation:

5.3.3.6.1 ISC's top-managers' participation in BSC development:

ISC defines its top management to consist two levels; the first level is the highest corporate level. It consists of the Chief Executive Officer, the Deputy of Chief Executive Officer, and the four senior executives of the company affairs. The second level is the level of general managements that consists of thirteen senior executives.

In ISC, the highest-corporate-level managers played the main role in introducing and adopting BSC. They had collectively approved the idea of adopting BSC[40], and accredited the plan of its development set by BSC team. This team in turn was also assigned by them to set and supervise the development process of BSC and its early stage of implementation (DCEO; E&PSE; IAM).

"Under the supervision of BSC team; all top-level managers have participated in developing BSC" (BTL). BSC team conducted several meetings at the top management for developing BSC. The first stream of meetings involved all the managers at the highest corporate level, in which they: viewed the strategy and rebuilt a consensus upon it, re-examined the representative of the strategic objectives to the company strategy, identified BSC perspectives, classified the strategic objectives into BSC perspective, and identified the cause and effect relationship between BSC strategic objectives. The second meetings' stream involved all the top managers whether those at the highest corporate level or the senior

[40] As illustrated previously; In ISC, the idea of BSC was offered by a certain external consultant who invited by ISC to resolve the shortcomings of the company's former PMS.

executives of the general managements. These meetings resulted in identifying the outcome measures of BSC, developing the strategy map, and later on, setting targets for the outcome measures. The third stream of meetings involved also all the top-level managers, in which they revised and accredited the driving measures, and later on, revised and accredited their developed targets (TASE; E&PSE; C&FSE, BTL). Respecting this participation of all top-level managers in developing BSC, the Chief Executive Officer asserted that *"involving all top managers in developing BSC is such important thing to employ their work experience and mobilising them for implementing BSC"* (CEO).

5.3.3.6.2 BSC cascading in ISC:

ISC has cascaded its BSC development and use but in limited way. After constructing BSC in terms of perspectives, strategic objectives, outcome measures and their targets by the top management; BSC was cascaded down to the lower members for identifying BSC driving measures and therefore their targets. However, this BSC cascading process was confined exclusively to the managers of the sub-managements at the middle organisational level without involving other ISC's organisational levels of departments, operational units, supervisors, and employees (BTM; PP&CM; ISE; TASE; R&D M; PM; OT).[41]

ISC considered the participation of its middle-level managers in developing BSC to be important for: (1) utilising their job knowledge and experience for developing BSC, *"it was important to participate the managers of sub-management in developing BSC, since their specialised knowledge and experiences of the performance at the operational levels. These are required for identifying and measuring the driving activities of our business"* (BTL); (2) motivating their commitment to BSC implementation; *"participating the middle-level managers in developing BSC is pre-emptive step for ensuring their BSC commitment and therefore making the rest of the company acting for the sake of this implementation*" (DCEO). Simultaneously, ISC considered the participation of the middle-level managers to obviate the need to involve the lower-levels members in developing BSC; as they - the middle level managers - are considered to have the adequate knowledge and experience of the activities and processes carrying out at the lower organisational levels (BTL; LMM; PP&CM; DCEO).

[41] A member of BSC team comments that *"We conducted several focus group interviews with the majority of sub-managements' managers for completing the development of BSC. Each interview involved the managers associated with each other in respect of a particular activity from those related to making and distributing products, and enhancing employees' capabilities and environment safety"* (BTM).

Concerning the use of BSC at the organisational levels; BSC in ISC is used mainly by the top and middle-levels managers. This is in the way that (i) the Chief Executive Officer monitors and evaluates all the components of BSC; (ii) the affairs senior executives and the senior executives of the general managements are responsible cooperatively to the Chief Executive Officer for the outcome measures; (iii) while the managers of the sub-managements are responsible mainly for the driving measures to both their direct managers and the highest level managers (CEO; BTL; TASE). To meet this responsibility the managers of sub-managements are delegated to set the initiatives for their BSC targets. They also are given the decision making authority for executing the initiatives accredited by the top management, as well as for adjusting their performance against their accredited targets (E&PSE; CEO; PP&CM; ISE; QCM). Otherwise, as the case with BSC development; the lower-level managers and employees have not been involved in the use of BSC apart from their role in providing the data required for using BSC by the above organisational levels (DCEO; PP&CM; BTL; PM; OT).

The limited use of BSC in ISC - considering its lower organisational levels - is justified by reasons including: (1) the familiarity of top and middle levels managers with the operational processes, which resulted from the routine nature of these processes, *"The routine nature of our business has prompted us, especially the managers of the sub-managements, to have the complete knowledge about the lower-levels processes and activities. This level of knowledge which we consider to be sufficient for developing and using BSC without involving directly the lower organisational levels"* (DCEO); (2) the inadequate education level of lower-level members, *"almost all the members at the lower levels are less than the educational level required to accommodate BSC system and appreciate its importance. Taken this into account, we saw that it would be better to use BSC at the top and the middle managerial levels, and then translate the insights of BSC into executive orders to the lower levels; rather than using BSC directly by the staff at those lower-levels* (TASE); (3) the highly centralised control structure applied by the company, *"there is no use of BSC in the level of departments and the levels below [.....]; in these levels we are required to direct the performance on the light of the decisions of the higher-levels managers and the bunch of the job instructions and procedures defined by them"* (PM).

5.3.3.6.3 BSC education and communication in ISC:

ISC has adopted BSC education and communication process, but implemented it in limited way focusing mainly on the levels of managers (highest corporate level, the level of general managements, and sub-managements level).

ISC started its BSC education process at the early stage before adopting BSC. This was through the discussion sessions conducted at the highest corporate level, in which *"the external consultant gave us - the highest corporate level managers - a comprehensive explanation on what BSC is, and how it can help us in solving the problems of our former PMS"* (TASE). After deciding adopting BSC and assigning BSC team; ISC had further arranged regular training programs on the concept of BSC; *"we entered into a contract with the external consultant to give BSC-based training programs at the training centre of the company"* (TM). These training programs targeted firstly the team of BSC, which consists of three general managers, four sub-managements managers, and the former director of the production affair. BSC training programs were then extended to include all the managers of the general managements and sub-managements and on a mandatory basis *"it was a mandatory for all the general managers and the managers at the level of sub-managements to attend BSC training programs"* (DCEO).

BSC education was further applied in integration with the communication processes of BSC. Several communication processes carried out in ISC for developing and using BSC. At its stage of developing BSC; ISC conducted different processes of communication including; (i) communicating BSC components developed at the highest-corporate level down to the managers at the general managements level *"to clarify to them the BSC work developed so fare by the highest-level managers, and then mobilise their participation in identifying BSC outcome measures and the strategy map"* (BTL); (ii) using the strategy map - within focus group interviews - for educating and communicating BSC components - developed by top management - to the managers at middle organisational level; (iii) the reciprocal communication between the top-level managers and middle-level managers hold for the final identification of the driving measures, and for setting BSC targets (BTL; BTM; QCM; IMM; IAM; CCM; E&PSE; TM; LMM; PP&CM).

Moreover, in the use stage of BSC; ISC conducts different BSC communication processes including, (i) the horizontal communication between the middle-level managers for identifying BSC-based initiatives; (ii) the communication of those initiatives up to the

top-level managers for revising, accrediting, and therefore for preparing the company's budgets; (iii) The communication of the outcome of BSC measures between the top-level managers and the middle-level managers through using the internal electric network; (iv) the meetings hold between the top-level managers and middle-level managers for discussing BSC feedback (QCM; IMM; IAM; CCM; E&PSE; TM; LMM; PP&CM).

Concerning BSC education and communication at ISC lower organisational levels; although BSC training programs were available to the lower-levels members, their attendance - unlike the case with the high-levels managers - was *"optional and the majority of them did not attend the training programs"* (TM). Furthermore, the lower-levels members were not involved in BSC education and communication processes conducted at the development and use stages of BSC illustrated above (OT; PM; BTM; QCM; CCM; PP&CM). The underlying reason here is explained by the Chief Executive Officer; he stated that *"the lower-level members are a fundamental composition of the company but, they are not decision makers and do not have much contact with the systems of performance management and measurement. Hence, rather than making them confused by BSC measures, we communicate them absolute numbers derived from the targets of BSC to act upon them under the supervision of their managers"* (CEO).

5.3.3.6.4 Linking ISC's BSC to the compensation system:

Since its first year of BSC implementation; ISC has connected its compensation system to BSC in the way that involves the members at all organisational levels to be rewarded based on BSC (C&FSE; CCM; DCEO; BTM; IAM; PM; OT). The Deputy of Chief Executive Officer explained that *"since the development stage of BSC, we considered the connection of BSC with the compensation system to be an important and primary step for aligning the staff with BSC implementation"* (DCEO).

In ISC, the compensation system is connected essentially to the internal business processes perspective, with main focus on its productivity-based measures. This was reasoned by the leader of BSC team as follows, *"we do so to motivate the productivity increase, which is essential for increasing the company ability of sales and for decreasing the cost of the production unit, therefore improving the profitability. But, this does not mean that we neglect the quality of production in our compensation system. On the contrary, we consider it essentially, since meeting the quality standards in our company is the main condition for*

accepting the units of production to be accounted for the productivity and therefore for the rewarding" (BTL).

Based on this connection; ISC gives extra payments to its employees in a form of monthly bonus and, however, apart from considering their basic salaries to be connected with BSC. Instead, the basic salary in ISC is "*specified in advance prior to signing the employment contract, considering for that the function's demands and an applicant's personal qualifications and experience"* (PM). The Senior Executive of Commercial and Financial Affair explains the reason behind the non-connection of the basic salary to BSC; he stated that *"the pre-specification of the basic salary is an initial condition from the perspective of employees, as it ensures the stability of their salaries and therefore the stability of their life. Thus, since connecting the basic salary to BSC might affect its stability; this connection will be surely rejected by the employees"* (C&FSE).

Otherwise, ISC relies essentially on the objective approach[42] for determining its BSC-based bonus apart from using the subjective approach. Asking the reason for not using the subjective approach while it can help with considering the effect of the external elements on the targets achievement level; the majority of answers were around the stability of ISC business environment (LMM; C&FSE; DCEO; PP&CM; PM). In this regard, the Local Marketing Manager illustrated that *"the availability and the quality of raw materials are insured by long contracts with our suppliers, on the other side, the uptake level of our products is very high. Therefore, the level of targets achievement depends almost mainly on how staff does their work, apart from any external effects"* (LMM).

Connecting the compensation system to BSC is appreciated in ISC, and this is shown in sentences such as "*It has resulted in increasing the employees' moral for the sake of increasing the productivity and the quality of the products"* (QCM). *"It has a noticeable effect on improving the employees' performance in relation to the cost-reduction"* (CCM). *"It has increased the cooperative and coordination spirit among the employees at the different*

[42] The objective approach is implemented in ISC through sequential steps in which; (i) the actual outcome of productivity-based measure is computed and compared with incremental percentages pre-identified as acceptable outcomes in relation to its target (75%, 90%, 90-100%); (ii) therefore, the bonus is determined through allocating a certain amount of money for each product unit that falls between 75% up to 90%, and allocating a higher amount of money for each product unit falls between 90% to 100%, while the production volume fall under 75% are not considered for rewarding; (iii) following that, the total amount of the bonus is distributed to the employees using different percentages. These percentages vary according to the relationships between the employees' job positions and the production process, in the way that the production employees are eligible for the largest portion of the bonus.

organisational levels to achieve the identified targets" (PP&CM). *"It plays an effective role in minimising the gap between the personal goals of employees and the goals of the company especially the strategic ones"* (CEO).

5.3.3.7 Organisational learning in ISC's BSC:

BSC in ISC is implemented essentially as a system of single-loop learning apart from using it by the means of the double-loop learning. The single-loop learning in ISC's implementation of BSC is expressed by the Chief Executive Officer as follows *"of course, we learn from BSC feedback; we consider the deviations in its measures as sources of directing and learning. They point out our mistakes that prevented us from achieving the specified targets, towards examining and specifying the ways of treating them"* (CEO). In doing so, ISC calculates the outcomes of its BSC measures on a monthly basis, and on a daily basis concerning certain driving measures related to the productivity, cost, and quality. Therefore, it benchmarks them with the pre-specified targets for identifying the deviations in BSC and specifying the required corrective actions (ISE; R&DM; IAM; CCM).

In ISC, each BSC-participated unit is the main responsible for calculating the outcomes of its used BSC measures; besides its responsibility for analysing the deviations and identifying their causes (BTM; IAM; PP&CM). It is also responsible for undertaking the corrective actions *"if the required actions are within the boundaries of its delegated authority"* (DCEO); otherwise, it is required to identify its relevant suggestions and discuss them with the higher managerial unit(s) (C&FSE; E&PSE; CEO). On the other hand, BSC feedback and its implications, including the outcomes of BSC measures, the deviations, and the corrective suggestions or/and actions, are all uploaded to the company's internal electronic network *"as soon as they have been specified"* (BTL). This is in order to be *"accessible to the managers at top management levels, and therefore being available for further discussion and evaluations"* (IAM).

ISC conducts three main official and regular meetings in relation to BSC feedback and implications. The weekly and monthly meetings conducted among BSC-user levels, these meetings are held mainly for discussing the feedback on BSC driving measures and the corrective actions undertaken in relation to their deviations (PP&CM; PP&CM; LMM; QCM). The quarterly meetings, these are conducted at the highest corporate level for investigating the overall report of BSC; *"relying on BSC information available on the company's internal network, and our direct communication with the different parts of the*

company, we as BSC team prepares the overall report of BSC. And then we send it to the chief executive officer for the quarterly meetings" (BTM). In the quarterly meetings, *"we review BSC report including the outcomes of all BSC measures. Therefore, if there are any deviations from the targets, we investigate their causes and the corrective actions undertaken so far in relation to them. Then, we undertake further actions if we considered the previous ones are inadequate"* (CEO).

Respecting the double-loop learning; although ISC has made changes in its BSC components, the underlying reasons have nothing to do with the external business environment. Instead, they were attributed to the company internal interaction with its use of BSC (PP&CM; TASE; CEM; QCM; BTL). In this respect, the Production Planning and Control Manager explained that *"the reasons underlying the changes conducted in BSC can be expressed by the means of the learning by doing [….]. During our use of BSC, we recognised that some of our specified targets cannot be achieved simultaneously, such those reflected the considerable low level of cost and the high level of quality. Thus, we decided to modify these targets by conducting what we considered an appropriate compromise. Moreover, by the same means of learning, we replaced some performance measure on BSC with other measures which we considered to be more suitable for accomplishing certain purposes of evaluation"* (PP&CM).[43] This non-interaction with the external business environment in terms of updating BSC is attributed by the Chief Executive Officer to the stability of ISC's business environment. He emphasised that *"the iron is the iron, and the processes of making it are same whether in the past, or in the present, or even in the future. That is, when the external environment does not change in the way that affects the type of products and their operational processes, any other changes are transient. Therefore, they have not to be taken as a cause for changing BSC measures or their targets, as this will affect the steadiness of using the system and its embedment into the company. However, if the business environment has imposed the necessity of updating our BSC, we would response and conduct the required updating*" (CEO).

[43] The Senior Executive of Technical Affairs in turn stated that, *"the changes made in some BSC targets represent corrections of the mistakes we made when developed BSC targets, these mistakes which represented the improper assessment of the company's capabilities and ability of improvement in relation to the human resources, as well as the improper assessment of some technical aspects related to the production and maintenance processes"* (TASE).

5.3.4 BSC influence on ISC financial performance:

The financial performance of ISC measured - as ROA - shows a net improvement of 3.4%. This is from 4% in 2012 (the year before implementing BSC) to 7.5% that represents the average of ROA during the years of BSC implementation (2013, 2014 and 2015). That is, ROA in ISC had increased by 3.9% over the first year implementation of BSC (2013). Then it has increased from 6.9% to 7.4% between 2013 and 2014 to reach a peak of 8.2% at the end of 2015 which represents ISC's third year implementation of BSC, and the year in which the fieldwork of the study was conducted.

Table 5.11 represents the perception of the respondents on the extent to which BSC implementation in their company has contributed in improving the financial performance during the period of BSC implementation.

Table 5.11: The perceived contribution of ISC's implementation of BSC in improving its financial performance

Respondents	Perceived contribution rating
Chief executive officer.	Very high
Deputy of chief executive officer.	High
Commercial and financial affairs senior executive.	High
Local marketing manager.	High
Cost control manager.	High
Engineering affair and projects senior executive.	High
Production planning and control manager.	Very high
Quality control manager.	High
BSC team leader.	Very high
Training administration manager.	High
BSC team member.	High

The above table shows that, the majority of the respondents perceive the implementation of BSC in their company to have a high contribution in creating its financial performance improvement. This high contribution of BSC was clarified subjectively in sentences including:

"What we need in order to improve the financial performance!! We need to think effectively how to utilise our resources in order to achieve sequential objectives

toward the financial one. And this is what BSC provides for us. It has allowed us to use strategically-based performance measures that connected to the company's strategic objectives along with their connection with each other. This in turn has its main positive effect on rationalising our way of planning the company performance and deploying its resources; which in sequence have resulted in improving the overall performance of the company and its financial performance" (CEO);

"One reason for considering BSC to have a high financial contribution is its role in eliminating the loss in the company resources. Before adopting BSC, there was what I can call the improvisation in making the decisions, which often resulted in loss in the company resources or at least using them in non-optimal way. However, this improvisation has been eliminated gradually after implementing BSC, by taking the targets on BSC as basis for the decision making and for allocating the resources of the company" (E&PSE);

"After implementing BSC, the sales of the company have increased by 29%, and the total cost has decreased by approximately by 20%, and this can be attributed directly to the use of the targets on BSC. Especially, those targets related to production costs and productivity, which have enabled us to identify the deviations in these elements and treat them in a timely manner" (C&FSE);

"The use of BSC in our company has really contributed in increasing its productivity, therefore increasing the sales and improving the company's financial performance. This can be attributed to two main elements. The first is the role of BSC in improving the quality of the operational planning process. The second is the connection developed between BSC targets of productivity and the compensation system, which indeed has its own positive effect on mobilising the employees to increase their productivity" (PP&CM).

Having provided a detailed-description on ISC contingent variables, its BSC implementation and financial effect; the main points in relation to these elements are outlined as shown in Table 5.12:

Table 5.12: Summary sheet relating to the study findings of ISC

Environmental uncertainty level: Low level of environmental uncertainty. **Strategy type:** Low-cost leadership strategy.			
BSC components		**Adoption**	**Implementation**
Perspectives			● Using the four initial perspectives of BSC. ● Using BSC in an imbalanced way in which: - Internal business processes perspective is given the highest level of relative importance among BSC perspectives. - Followed by the learning and growth perspective. - Financial perspective is given a lower level of relative importance. - Customer perspective is given the lowest level of relative importance.
Measures	**Numbers & types**		● Using 73 performance measures on its BSC. ● Using outcome and driving types of measures in BSC, with giving the driving measures more relative importance than the outcome measures. Especially, those driving measures related to the quality, productivity and cost. ● Not using external type of measures in its BSC implementation.
	Selection basis		● Selecting BSC measures essentially based on formulated strategic objectives.
C&E relationship concept		Adopted	● Implementing the concept of cause and effect relationship objectively through using the strategic map. ● BSC perspectives, strategic objectives, outcome measures, and driving measures have been all involved into the company's implementation of the cause and effect relationship concept.
Setting targets		Adopted	● Setting targets for all BSC measures, with considering targets types of stretch targets (3years-logn targets), milestones, and shorter-terms targets. ● Relying essentially on BSC targets for developing the company's initiatives and allocating its resources.
Organisational alignment processes	**Top-level managers participation**	Adopted	●All top-level managers participated in developing BSC. ●This participation involved building a consensus upon the company's strategy, therefore selecting BSC measures based on that strategic consensus. ●All top-managers participate in using BSC.
	Education & communication	Adopted	● Educating and communicating BSC mainly to the managers at top management, and middle-level managers, without involving the company members at lower organisational levels.
	Cascading	Adopted	● Involving the middle-level managers apart from involving the company members at lower organisational levels in developing BSC. ● Involving the middle-level managers apart from involving directly the company members at lower organisational levels in using BSC.
	Compensation linkage	Adopted	● All organisational members at all organisational levels are rewarded based on BSC. ● The compensation system is connected to BSC considering exclusively the productivity-based outcome measure in the internal business process perspective. ● BSC-based rewards represent bonus, without connecting the basic salaries to BSC. ● BSC-based bonus are given on a monthly basis. ● Using the objective approach for rewarding its members based on BSC.
Organisational learning processes		Adopted	● Implementing BSC essentially in the sense of single-loop learning apart from using it for the double-loop learning.
The effect of BSC implementation on the financial performance: High positive effect			

Chapter Six

Comparative analysis of the study's descriptive findings

6.1 Introduction:

The study in this chapter conducts a cross-case analysis of the descriptive findings obtained in the previous chapter. It identifies the differences and similarities between the case studies in their contingent variables, BSC implementation, and BSC financial effect. Hence, the study accomplishes its fourth and the fifth objectives towards providing clear answers for its first and second questions: (1) how BSC is implemented in practice? And (2) how does BSC implementation affect an organisational financial performance? Hence, this chapter is divided into three main sections. Section 6.2 aims at comparing the descriptive findings of the three case studies in relation to the study contingent variables. Section 6.3 concerned with comparing the descriptive findings of the three case studies relating to the implementation of BSC. Section 6.4 is concerned with comparing the descriptive findings of the three case studies relating to the financial effect of BSC implementation.

6.2 Cross-case analysis relating to the study contingent variables:

Table 6.1 contrasts the three case studies in relation to the contingent variables of the environmental uncertainty and the business strategy.

Table 6.3: Contrast table relating to cases' contingent variables of environmental uncertainty and business strategy.

Contingency variables		**Cases**		
		CRM	**NIF**	**ISC**
Environmental uncertainty	Level of change	High	High	Low
	PEU	High	High	Low
		High level of environmental uncertainty	High level of environmental uncertainty	Low level of environmental uncertainty
Business strategy		Differentiation	Differentiation	Cost-leadership

From the above table, it can be seen that, both CRM and NIF faces a high level of environmental uncertainty. They both operate in a business environment that is highly changeable and unpredictable. ISC on the other hand faces a low level of environmental

uncertainty; it operates in a business environment that is a stable and predictable. These first findings further indicate that there is no substantial difference between the two measurement ways of the environment uncertainty (the environment level of change, and PEU), as they both revealed similar findings. As it can be seen from the above table, there is a correlation between the level of environment change and the perception of managers relating to the level of environmental uncertainty. That is, when the level of environment change is high, the business environment is perceived by managers to be highly unpredictable, and versus versa. Concerning the types of business strategy, the above table shows that, both CRM and NIF pursue a differentiation type of strategy, while ISC pursues a cost-leadership type of strategy.

6.3 Cross-case analysis relating to BSC implementation:

It has been demonstrated in Chapter Two that, BSC concept was evolved over time from a multidimensional PMS[44] to a strategic management system[45], while this was attained through reconstructing BSC concept to embed several components (outlined in Table 6.2). It can be seen also in Chapter Two that, the study has decomposed its first question -"how BSC is implemented in practice - into sub-questions, which reflect the concerns of literature over the practical adoption and implementation of each BSC component (outlined in Table 6.2). Taking account of these questions, the study in the previous chapter (Chapter Five) has provided a detailed description of the practical implementation of BSC in each case concerning its adoption and implementation of each BSC component. Having that, the study in this section pulls together the findings of the three case studies relating to their adoption and implementation of each BSC component. Therefore, it derives cross-based inferences on the practical adoption and implementation of each BSC component; and hence, drawing an overview inference on how BSC as an entire system is implemented in practice.

[44] BSC as multidimensional PMS is the system that encompasses financial and non-financial performance measures grouped into four performance perspectives.

[45] BSC as a strategic management system is the system that extends beyond the purpose of the performance measurement to seek in a systematic way several other managerial purposes; including strategy clarification, strategic planning, strategy implementation, an organisational alignment, and an organisational learning.

Table 6.2: The outline of the study sub-questions in relation to its first main question

BSC components	Sub-questions
Perspectives	● What perspectives do organisations use into BSC? ● How do organisations use BSC perspective; are they used in a balanced or in an imbalanced way when planning and managing their performance?
BSC performance measures	● How many performance measures do organisations use in their implementation of BSC? ● What types of performance measures that organisations use in their implementation of BSC? ● How do organisations use the outcome and driving types of BSC, are they used in a balanced or in an imbalanced way? ● How do organisations identify their performance measures of BSC; do they identify them based on specified strategic objectives?
BSC concept of cause and effect relationships	● Do organisations adopt the cause and effect relationship in their BSC implementation? ● If they do, do organisations implement this concept subjectively or through using the strategy map?
BSC targets and their applications	● Do organisations set targets for their BSC measures? ● If they do; do organisations set both long-term and short-term targets for BSC measures or they just use short-term targets? ● Do organisations rely on BSC targets for developing their business initiatives and allocating their resources?
BSC organisational alignment processes	● Do the majority of top-level managers participate in developing BSC? ● Do organisations educate and communicate BSC to the lower organisational levels? If they do, to which level they have done so? ● Do organisations cascade their BSCs to lower organisational levels? If they do, to which level BSC is cascaded? ● Do organisations link their BSCs to the compensation system? If they do: - Who are rewarded based on BSC (top-level managers, lower-levels managers, employees)? - Which perspectives and measures, the compensation system is connected with? - Is the connection for the whole salary or just for bounds (extra payment)? - What is the periodic basis of the rewarding (monthly, quarterly, annually)?
BSC organisational learning process	● Do organisations implement BSC in the sense of double-loop learning or they just implement it as a system for single-loop learning?

6.3.1 Cross-case analysis in relation to BSC perspectives:

Table 6.3 contrasts the three case studies in relation to their adoption and implementation of BSC perspectives.

From the first row of Table 6.3, it can be seen that, there is no difference between the three case studies in relation to their adoption of BSC perspectives. Instead, they have adopted the initial four BSC perspectives apart from adopting additional perspective(s). Though ISC used to consider an additional performance perspective (environment perspective), this perspective was not adopted as a separate BSC perspective. Instead, it has been incorporated into BSC perspective of the internal business processes, since the internal business processes perspective is believed in ISC to reflect all the aspects of the internal processes and activities including their environmental impacts.

The above findings indicate the validity and sufficiency of the four BSC perspectives, and this is further confirmed by the respondents across the three case studies. That is, as shown previously, the respondents from the three case studies agreed on that the four BSC perspectives are valid and sufficient for representing the critical areas of business, therefore viewing and monitoring the critical success factors of an organisational performance.

Hence in contrary to the expectations of previous studies such as (Akkermans & Oorschot, 2005; Neely, 2002; Norreklit, 2000; Neely et al., 1995), the above findings lend credence to the findings of Boulianne (2006), and the view that the four BSC perspectives are robust across a wide variety of organisations, and they are broader enough to encompass the major critical factors of an organisation's business (Kaplan & Norton, 1996c).

Table 6.3: Contrast table relating to case studies' BSC perspectives

No	Items	Cases	BSC perspectives and measures				
			Financial	customer	Internal business processes	Learning & growth	others
1	Perspectives constitute BSC	CRM	Adopted	Adopted	Adopted	Adopted	NO
		NIF	Adopted	Adopted	Adopted	Adopted	NO
		ISC	Adopted	Adopted	Adopted	Adopted	NO
2	Perspectives relative importance	CRM	First ranking	Third ranking	Second ranking	Last ranking	
		NIF	Last ranking	First ranking	Second ranking		
		ISC	Third ranking	Last ranking	First ranking	Second ranking	

Respecting the use of BSC perspectives; as it can be seen from the second row of Table 6.3, there are several differences between the case studies in terms of the relative importance giving to each BSC perspective. The financial perspective was given a low level and the lowest level of relative importance in ISC and NIF respectively. Both companies perceived that the high emphasis on the financial perspective can confine their business initiatives to the short-term financial performance, while this can affect negatively their long-term success. On the contrary, the financial perspective in CRM was given the highest relative importance among its BSC perspectives; this in turn was attributed to the company main concern of improving its short-term financial performance.

The customer perspective in turn was given the highest relative importance among BSC perspectives in NIF. This was attributed mainly to the information provided by this perspective on customers' demands and their feedback; which NIF relies essentially on them

for designing and planning its products and overall performance. Otherwise, the customer perspective was given a low and the lowest relative importance in CRM and ISC respectively. These two companies have low reliance on their customers' perspective. Instead, ISC relies mainly on its industry standards for determining the features of its products, while CRM does so relying on both its industry standards and the external design experts.

Although the internal business processes perspective was considered to be highly important by the three case studies, it was given a different relative importance among them. In CRM, the internal business processes perspective was given the second relative importance after the financial perspective. And this represents CRM's planning and management of its internal operating processes to be dictated by and focused mainly on the improvement of its short-term financial performance. In NIF, the internal business processes perspective was given a second rank of relative importance after the customer perspective. And this represents NIF as a customer-oriented company, in which the planning and management of the internal operating processes are grounded essential on the demands and the feedback of its customers. In turn, the internal business processes perspective in ISC was appreciated as the most important perspective. ISC considered the improvement in its market share and long-term financial performance to be contingent mainly upon the effectiveness of its internal operating processes for meeting the industry standards and achieving cost-efficiency.

Concerning the learning and growth perspective; it was ranked as a second important perspective (as same as the internal business processes perspective) in NIF after the customer perspective. It was given also the second level of importance in ISC after the internal business processes perspective. However, the learning and growth perspective in CRM was given the lowest relative importance level among BSC perspectives. Both NIF and ISC utilised the learning and growth perspective for managing and enhancing the employees' capabilities in terms of meeting the industry standards and cost-efficiency as the case in ISC, and to deliver on the latent and apparent demands of customers as the case in NIF. On the contrary, the learning and growth perspective in CRM was not used in a consistent with its definition of learning and growth. Instead, CRM used this perspective for providing lagging information on the employees' commitment to the company's pre-identified job responsibilities.

The aforementioned findings while provide insights into the practical use of BSC perspectives, they provide evidence to the contrary to the balance concept of using BSC perspectives (Kaplan & Norton, 1992; Kald & Nilsson, 2000; Soderberg, et al., 2011; Niven,

2002). Instead, the findings in accord with some previous studies show that BSC perspectives in practice are not used in a balanced way, rather than organisations allocate different degrees of relative importance to BSC perspectives (Olson and Slater, 2002; Sohn et al., 2003; Jusoh et al., 2007). Furthermore, the findings extend the previous relevant studies by showing that based on the rank order of BSC perspectives' relevant importance; the management pattern of an organisation can be deduced.

6.3.2 Cross-case analysis in relation to BSC performance measures:

Table 6.4 contrasts the three case studies in relation to the number, types, and the relative importance of BSC performance measures.

Table 6.4: Contrast table relating to case studies' BSC measures

No	Items	Cases	BSC perspectives and measures				Totals
			Financial	customer	Internal business processes	Learning & growth	
1	Number of BSC measures	CRM	10	5	11	5	31 measures
		NIF	8	9	19	13	49 measures
		ISC	6	4	46	17	73 measures
2	Types of measures, and the number of each type.	CRM	Out: 10	Out: 5	Out: 6 Dr: 5	Out: 1 Dri: 4	Out: 22 Dri: 9
		NIF	Out: 8	Out: 7 Dri: 2	Out: 7 Dr: 12	Out: 4 Dri: 11	Out: 26 Dri: 24
		ISC	Out: 6	Out: 4	Out: 7 Dr: 39	Out: 4 Dri: 13	Out: 21 Dri: 52
3	Measures relative importance	CRM	Giving the outcome measures more relative importance than the driving measures, especially the outcome measures related to the profitability and liquidity.				
		NIF	Giving the driving measures more relative importance than the outcome measures, especially the driving measures related to the quality and innovation.				
		ISC	Giving the driving measures more relative importance than the outcome measures, especially the driving measures related to the quality, productivity and cost.				
4	The use of external measures	CRM	There is no use of external measures				
		NIF	Using customer satisfaction survey as one of the driving measures in the customer perspective				
		ISC	There is no use of external measures				

Out: BSC measures classified as outcome measures
Dri: BSC measures classified as driving measures

From the above table, it can be seen firstly that, the three case studies differ on the total number of BSC performance measures. That is, while CRM used 31 performance measures in BSC, NIF and ISC used 49 and 73 respectively. In spite of these differences, the three companies show relatively a higher number of BSC measures comparing with that suggested and observed by some studies - between 20-25 performance measures (e.g. Kaplan & Norton,

1993; Lawries & Cobbold, 2004; Kald & Nilsson, 2000). However, they provide an empirical support for studies such as Zuriekat (2005) and Leauby & Wentzel, (2002), which indicates that some organisations implement BSC with 40-80 performance measures. Moreover, in contrary to the expectations of some studies (e.g. Macnab, 2011; Braz et al., 2011; Ahn, 2001; Malina & Selto, 2001), the study has not detected any correlated confusion or distraction with the use of a high number of BSC measures. Instead, the three case studies appear to tackle this problem by adopting one or all of the following: (i) deriving and devoting BSC measures to represent one specified competitive strategy; (ii) developing and using BSC measures as a connected set of measures in the way that facilitates the outcomes of these measures to be interpreted in relation to each other, instead of dealing with each measure or set of measures in a separate manner; (iii) distributing the responsibility of dealing with and using BSC measures between several organisational members, instead of using BSC measures by one or other few organisational members.

Concerning the types of performance measures used in BSC; the second row of Table 6.4 shows that, besides using the outcome type of measures, the three companies have used the driving type of measures in their BSCs. However, respecting the use of these types of measures, the case studies showed differences. As it can be seen from the third row of the above table, CRM implemented BSC in the way that the outcome measures dominate the driving measures; especially the outcome measures relating to the short-term profitability and liquidity. In contrast, NIF and ISC gave the driving measures more relative importance than the outcome measures.

These differences give insights into how companies evaluate and manage their performance by using BSC measures. CRM gave the outcome measures the most relative importance for deciding on the effectiveness of its overall performance, while it attends the driving measures when there is problem revealed by the outcome measures. On the contrast, the driving measures in NIF and ISC are used and perceived to be the drivers of the outcome measures. Thus, the planning and the management of their performance are grounded mainly on the driving type of BSC measures instead of the outcome measures. Nevertheless, although NIF and ISC converge on the higher relative importance of the driving measures, they differ in relation to their driving measures focus. That is, while NIF gives more relative importance to its BSC driving measures relating to the innovation activities, ISC gives more relative importance to its driving measures related to the elements of cost and productivity.

The above findings provide an empirical support for the consistency between the practical implementation of BSC and its conceptual framework in terms of the use of both the outcome and the driving types of measures. However, the findings do not corroborate Kaplan and Norton (1996b) idea of the balance use of the two measures' types. Simultaneously, although the findings show difference between the use of the two types of measures, they tend to be in contrary to the experiments' findings of Lipe and Salterio (2000), and Kang and Fredin (2012), which suggest that organisations in their implementation of BSC tend to neglect or place little attention to the driving measures. Otherwise, the findings suggest further that in their use of the driving type of measures, different BSC organisations would use and place different weights on different driving measures.

In respect of the use of external type of measures, the case studies showed differences. As it can be seen from the forth row of the above table; while NIF used a customer survey as an external measure in its BSC customer perspective, the other two companies have not used such external measure. In NIF, the use of customer survey was perceived to be important for pursuing the changeable demands of its customers and getting timely feedback from them, so therefore acting upon this information for achieving a high level of customer satisfaction. Otherwise, the customer satisfaction in ISC was considered to be essentially contingent upon providing products meeting the industry standards at low prices. Thus, rather than using the customer survey, ISC relies mainly on the internal business processes perspective for managing and predicting the satisfaction level of its customer, while using sales growth rate for providing lagging measurement of that satisfaction level. On the other hand, the absence of using the customer survey in CRM can be attributed to the different views held by different company's members regarding the usefulness of such external measurement tool.

These findings; while show differences between the case studies in terms of using external measures in their BSC implementation, they have implication for understanding how companies implement BSC in accord to their interaction with the external environment. That is, a customer-driven company that has a high interaction with its external environment would implement BSC with using external type of measures for providing information that permits the company to act in consistent with its external environment, as the case in NIF. On the other hand, the internal-efficiency-driven company that has a low level of interaction with its external environment would implement BSC with focusing exclusively on the internal measures without using external measures, as the case in ISC.

6.3.3 Cross-case analysis in relation to the selection basis of BSC measures:

Table 6.5 contrasts the three case studies in relation to their basis of selecting BSC measures.

Table 6.5: Contrast table relating to case studies' the selection basis of BSC measures

Cases	Selection basis of BSC measures
CRM	BSC measures have not been selected based on formalised strategic objectives; instead they have been identified based on the regular activities and operations processes of the company.
NIF	Selecting BSC measures essentially based on formulated strategic objectives (adopting the strategic basis for selecting BSC measures).
ISC	Selecting BSC measures essentially based on formulated strategic objectives (adopting the strategic basis for selecting BSC measures).

From the above table it can be seen that, the three companies showed difference in terms of the selection basis of BSC measures. That is, while NIF and ISC have adopted the strategic basis for selecting their BSC measures, CRM did not. In CRM, the majority of BSC performance measures were used before adopting BSC. They were defined and selected based directly on the company existed operational processes and activities. After deciding adopting BSC, CRM's pre-used measures were grouped into the four perspectives of BSC, however, apart from refining them to reflect a specific strategy or a clear strategic orientation. Similarly, the performance measures in ISC were initially selected based on the operational processes and activities of the company. However, after adopting BSC, ISC had revamped those measures to be in alignment with its strategic objectives, which in turn were specified based on the formulated strategy of the company. Otherwise, the adoption of BSC prompted NIF to specify and clarify its strategic orientation and therefore rely on it for deriving clear strategic objectives which in turn were used as the basis for specifying NIF's BSC measures.

The above findings while show a difference between the three companies in relation to their adopted basis of selecting BSC measures, they provide insights into the intended initial purpose underlying the adoption of BSC. That is, in consistent with the evolution of BSC into a system for strategy implementation (Kaplan & Norton, 1996 a, b), BSC in both NIF and ISC was adopted from the beginning with the intention of clarifying and translating the corporate strategy into operational measures, which the company can deliver upon toward implementing the translated strategy. Otherwise, BSC in CRM was not adopted with a similar intention. Instead, CRM adopted BSC from the beginning with the intention of organising pre-used performance measures in accord to specific performance perspectives; therefore getting

organised evaluation-based information on the company performance. This reflects the original version of BSC concept that represents BSC as a multidimensional PMS.

6.3.4 Cross-case analysis in relation to BSC concept of cause and effect relationship:

Table 6.6 contrasts the three case studies in relation to their adoption and implementation of the concept of BSC cause and effect relationship. From the second column of Table 6.5, it can be seen that, not all the three case studies have adopted the concept of BSC cause and effect relationship. That is, while NIF and ISC have adopted the concept, CRM has not done so. In consistent with Malmi (2001), the absence of the cause and effect relationship in CRM appeared to be mainly because of the lack of the managers' awareness of the meaning of such concept. But, this is not the case in the other two case studies, which showed a systematic and essential reliance on the concept of cause and effect relationship for developing and implementing their BSC. Nevertheless, despite of the similarity between ISC and NIF in term of adopting the concept of cause and effect relationship, a major difference is existent between the two cases in terms of how they implement this concept. In ISC the concept of the cause and effect relationship was implemented objectively though using the strategy map, while NIF has not used such strategy map in its implementation of the cause and effect relationship. Instead, the causality among BSC components in NIF is analysed frequently on a mental basis and through debates conducted among the organisational members by the means of the subjective use of if-and-then statements.

Table 6.6: Contrast table relating to case studies' adoption and implementation of BSC cause and effect relationship concept.

Cases	BSC cause and effect relationship	
	Adoption	**Implementation**
CRM	Not-adopted	-
NIF	Adopted	● Implementing the concept of cause and effect relationship subjectively without using the strategic map. ● BSC perspectives, strategic objectives, outcome measures, and driving measures have been all involved into the company's implementation of the cause and effect relationship concept.
ISC	Adopted	● Implementing the concept of cause and effect relationship objectively through using the strategic map. ● BSC perspectives, strategic objectives, outcome measures, and driving measures have been all involved into the company's implementation of the cause and effect relationship concept.

In consistence with the idea of Kaplan and Norton (2001a), the strategy map in ISC is appreciated as a management documented reference for orienting and aligning the decisions-making with the company's strategic objectives. On the contrary, the strategy map in NIF was considered to be ineffective and can yield to a disruptive impact on the company performance. NIF conceived the strategy map can restrict the thinking about the causality to those causal relationships mapped into the strategy map, therefore affecting the ability of decision makers to respond rapidly to the change in the business environment. Otherwise, the use of the strategy map with updating its embedded relationships is considered by NIF to be impractical and time consuming. This is attributed to that such updating process would be frequent and continual because of the frequent change in the business environment.

The above findings have implications for understanding how the concept of the cause and effect relationships is addressed in practice. They show that organisations are different not just on the adoption of the cause and effect relationship concept, but also on the way in which this concept is implemented. However, this result has not previously been described. The majority of the concerned previous studies have focused solely on investigating the adoption of the cause and effect relationship concept, not with how this concept is implemented by organisations. Thus, based on the aforementioned findings further studies can investigate the concept of cause and effect relationships on the light of the probability that this concept can be implemented whether objectively or subjectively. Therefore, they can avoid the quick judgement on the absence of adopting such concept which evident easily by the non-articulation of the cause and effect relationships in the sense of using the strategy map.

6.3.5 Cross-case analysis in relation to BSC targets and their applications:

Table 6.7 contrasts the three case studies in terms of adopting and implementing the targets of BSC measures and their applications relating to the initiatives development and the resources allocation.

As it can be seen form the second column of the table, the three case studies differ in terms of their adoption of setting targets for BSC measures. That is, while NIF and ISC have implemented BSC with developing targets for BSC measures, CRM has not done so. In CRM, the absence of setting BSC targets was reasoned by the frequent change in the business environment, which is considered to affect negatively the company's ability to determine explicit values as targets for its BSC measures.

Table 6.7: Contrast table relating to case studies' BSC targets and their applications

Cases	BSC targets	
	Adoption	**Implementation**
CRM	Not-adopted	-
NIF	Adopted	● Setting incremental annual targets and shorter-term targets for all BSC measures. ● Relying essentially on BSC targets for developing the company's initiatives and allocating its resources.
ISC	Adopted	● Setting targets for all BSC measures, with considering targets types of stretch targets (3years-logn targets), milestones, and shorter-terms targets. ● Relying essentially on BSC targets for developing the company's initiatives and allocating its resources.

Turning to NIF and ISC; while both cases adopted the process of setting targets for BSC measures, they reveal similarities and differences in the implementation of this process. From the third column of the above table, it can be seen that, both cases have developed explicit values as targets for all their BSC measures in the four BSC perspectives. However, they differ in terms of the types of targets set for BSC measures. That is, ISC and in consistent with the suggestions of Kaplan and Norton (1996c) set both types of targets, stretch type of targets that represent ISC 3-years-long targets, and milestones that represent the annual targets derived from the stretch targets, besides setting shorter-term targets. On the other hand, NIF focuses mainly on setting incremental annual targets and shorter-term targets without setting stretch type of targets and their correlated milestones, which had been abandoned since NIF's first year implementation of BSC. In NIF, it was considered that if they continued to be used, the stretch targets would have a frustrated effect rather than encouraging effect on the employee's performance therefore the overall performance of the company. This consideration was led by the inability of NIF to specify realistic values for the stretch targets, because of the low ability to predict the future events, which in turn was attributed to the frequent change in the company's business environment. On the contrary to NIF situation, the business environment of ISC was perceived to be stable in the way that enables the company to set and benefit from using the stretch type of targets.

However, despite this difference between NIF and ISC, they both showed an essential reliance on BSC targets for setting their business initiatives and allocating their resources reflecting the means of using BSC for planning the company performance. Besides, they both appreciate the usefulness of BSC targets for permitting an objective clarification of the

company strategic goals; providing a systematic basis of getting feedback information that enhances better performance's evaluation and improvement; and for creating a competitiveness spirit among the company's members towards achieving its strategic goals.

By contrast; the absence of setting BSC targets in CRM appears to affect its ability to use BSC as a planning system for setting up its initiatives and allocating its resources. Instead, CRM still embarks fundamentally on the traditional budgetary system for accomplishing those planning tasks. Furthermore, the absence of BSC targets was further perceived to diminish the effectiveness of BSC in evaluating the company performance. That is, at this absence, CRM relies solely on the comparison between the current and past outcomes of its BSC measures in order to get feedback information from BSC. This way however was perceived by different CRM members to provide a misleading basis for evaluating their company's performance, as it neglects the particular circumstance of each year. Thus, the effective solution of this problem is to set *"yearly-based targets"* as expressed by a key member in CRM.

The above findings contribute to the understanding of the practical adoption and implementation of BSC setting targets process and the practical perceived usefulness of such process, while there is a lack of empirical evidence on this area of research. Furthermore, the above findings confirm that setting targets for BSC measures is a major element that permits an organisation to systematically use BSC for planning and managing its performance. Otherwise, without such targets, even the role of BSC in the performance evaluation can be negatively affected.

6.3.6 Cross-case analysis in relation to BSC organisational alignment processes:

Table 6.8 contrasts the three case studies in relation to the adoption and implementation of the four BSC processes of organisational alignment including: top-level managers' participation in developing BSC; BSC education and communication; BSC cascading, and linking the compensation system to BSC.

Table 6.8: Contrast table relating to case studies' BSC organisational alignment processes

BSC organisational alignment processes	The adoption and implementation		
	CRM	**NIF**	**ISC**
Top-level managers' participation	**Adopted** ●All top-level managers participated in developing BSC. ●This participation was focused mainly on classifying their pre-used performance measures into BSC measures, while those measures were originally identified by an external party rather than top-level managers ●All top-managers participate in using BSC.	**Adopted** ●All top-level managers participated in developing BSC. ●This participation involved building a consensus upon the company's strategy, therefore selecting BSC measures based on that strategic consensus. ●All top-managers participate in using BSC.	**Adopted** ●All top-level managers participated in developing BSC. ●This participation involved building a consensus upon the company's strategy, therefore selecting BSC measures based on that strategic consensus. ●All top-managers participate in using BSC.
BSC Education & Communication	**Adopted** ● Educating and communicating BSC exclusive among top-level mangers ● Non-education of BSC to the lower organisational levels ● Non-communication of BSC to the lower organisational levels	**Adopted** Educating and communicating BSC to all managers and key employees in all organisational levels.	**Adopted** Educating and communicating BSC mainly to the managers at top management, and middle-level managers, without involving the company members at the lower organisational levels.
BSC Cascading	**Not adopted**	**Adopted**	**Adopted**
Relating to BSC development	-	Middle-level managers, and lower-level managers, and key employees are all involved in developing BSC.	Involving the middle-level managers apart from involving the company members at the lower organisational levels in developing BSC.
Relating to BSC use	-	Middle-level managers, and lower-level managers, and key employees are all involved in using BSC.	Involving the middle-level managers apart from involving directly the company members at the lower organisational levels in using BSC.
Compensation linkage	**Not adopted**	**Adopted**	**Adopted**
Organisational members rewarded based on BSC	-	All members at all organisational levels	All members at all organisational levels
Perspectives/measures of BSC that the compensation system connected with.	-	All the performance measures in the four BSC perspectives, with giving the achievement of BSC targets related to the measures of innovation the highest rate of rewarding.	Exclusively to the productivity-based outcome measure in the internal business process perspective.
The concern of compensation connection.	-	BSC-based rewards represent bonus, without connecting the basic salaries to BSC	BSC-based rewards represent bonus, without connecting the basic salaries to BSC.
The periodic basis of rewarding	-	An annual basis.	A monthly basis.
Type of approach(s) used for the compensation-based connection.	-	Using the objective and subjective approaches for rewarding its members based on BSC.	Using the objective approach for rewarding its members based on BSC

In relation to the top-level managers' participation in BSC development: as it can be seen across the second row of Table 6.8, all the three case studies developed their BSCs through the participation of their all top-level managers. However, a major principal difference exists between the case studies in the focus of this process. That is, while both NIF and ISC utilised this participation process for ensuring the organisational alignment at the top management, CRM did not do so. In NIF and ISC, the top-level managers set off their BSC participation by clarifying and building a consensus upon a specific corporate strategy, which therefore they used to select and build a consensus upon BSC measures and their use. That is, in both NIF and ISC; the top-level managers' participation in developing BSC was devoted to build BSC that aligns the decisions and actions of top-level managers with the implementation of their consent corporate strategy. This however is not the case in CRM. The majority of CRM's BSC measures were originally identified by an external party, while the participation of top-level managers focused mainly on classifying these measures into BSC perspectives, and adding some other measures based on individual suggestions of some senior executives.

In relation to BSC education, communication, and cascading processes; as it can be seen from the third row of Table 6.8; although the three case studies have adopted these processes, they differ on their implementations. That is, whilst NIF implemented BSC education and communication including almost all of its members in all organisational levels, CRM and ISC have not done so. In CRM; BSC education and communication processes were applied exclusively considering the top-level managers without considering its members at the other organisational levels of departments, operational units, and employees. In turn, BSC education and communication process in ISC was implemented by involving essentially the members at top management and the middle organisational level apart from involving the company's members at the other organisational levels of departments, operational units, supervisors, and employees. This orientation of the three case studies came in line with their adoption and implementation of BSC cascading process. That is, as it can be seen from the forth row of the table, NIF adopted and implemented the process of BSC cascading by involving almost all its members at all organisational levels in developing and using BSC. However, BSC development and use were confined to the top-level managers in CRM, and to the top-level managers and middle-level managers in ISC without involving the lower-levels members.

The above comparison shows that, BSC in CRM and ISC was implemented in centralised way comparing with NIF, which disseminated the development and the use of BSC throughout its organisational levels. In NIF, the comprehensive decentralised manner of educating, communicating, and cascading BSC was attributed to the company initial intention of utilising the knowledge and skills disseminated throughout the company for developing and implementing BSC. This is beside the company pre-emptive intention of using directly and explicitly BSC for aligning the decision making authority distributed across the organisational levels with the achievement of the company's strategic goals. ISC on the other hand restricted its BSC development and use to the top-level managers and middle-level managers as they were considered to have the full picture and knowledge of the various processes and activities of the company. This is beside their centralised possession of the decisions making authority among the company. Moreover, In ISC the participation of lower-level members in developing and using BSC was considered to be useless. As they were considered to be under the educational level required for accommodating BSC concept and its usefulness. In turn, the restriction of BSC development and use in CRM to the top-level managers came mainly as a result of the high level of centralisation adopted by CRM top management.

The above findings have implications for understanding how the processes of BSC education, communication, and cascading are addressed in practice. They show that organisations are different not just on the adoption of these processes, but also on the extent to which organisational members are involved in the implementation of those processes. The findings suggest that the direct involvement of the lower organisational members in developing and using BSC can be depended on the extent to which the work knowledge and the authority of decision-making are disseminated across organisational levels.

Finally, concerning the process of linking the compensation system to BSC; as it can be seen from the forth part of Table 6.8; the case studies showed differences on their adoption and implementation of this BSC alignment process. That is, while CRM has not linked its compensation system to BSC, NIF and ISC have done. In CRM, the absence of linking the compensation system to BSC was attributed to its reliance on the break-even point for rewarding its employees. CRM considers this basis to be more useful and applicable when the company concentrates mainly on going out of the loss zone. The absence was further and explicitly attributed to the centralised use of BSC at the top organisational level, while there is no intention in CRM to use BSC as a system of aligning the performance at the lower

organisational levels. Instead, CRM relies mainly on its traditional budgetary system, the job policies, and the top-down flow of decisions for controlling the overall performance of the company and the performance of its members at lower organisational levels. On the other hand, while both NIF and ISC shared similarity in terms of adopting the process of BSC compensation linkage, they showed similarities on some aspects and differences on the other aspects of the implementation of this process, which discussed as follows.

(1) Respecting the focus of the compensation linkage in terms of BSC perspectives and measures; the two companies revealed a major difference in this respect. As it can be seen from the fifth row of the table, NIF connected it compensation system to all the performance measures in all the four perspectives of its BSC. On the other hand, ISC connected its compensation system exclusively to the productivity-based BSC measures involved in the internal business processes perspective apart from considering the other BSC performance measures. While there is no previous BSC studies have concerned with this issue, the aforementioned findings show difference between the practical implementation and the conceptual framework of BSC in terms of linking the compensation system to BSC. They indicate that not all BSC companies that linked its compensation system to BSC are doing so by considering all BSC measures. Instead, some organisations would consider some BSC measures apart from the others in their BSC-based compensation system. Furthermore, while NIF connected its compensation to all BSC measures, it considered the achievements of its BSC targets relating to the innovation-based measures for the highest rate of rewarding. This was attributed to the intention of the company to improve its performance relating to the products' innovation which is considered to be the most important competitive factor of the company. ISC in turn has concentrated exclusively on the productivity-based measures for its BSC compensation system. And this was attributed to the importance of the productivity factor by itself in increasing the company's ability of sales, and its importance for attaining the competitive factors of cost-efficiency. This indicates further that when linking the compensation system to BSC, companies would consider and concentrate on BSC measures that reflect the most competitive factors of their performance.

(2) Concerning the organisational members rewarded based on BSC; in this respect the two companies of NIF and ISC showed a similar orientation. As it can be seen from the fifth row of Table 6.8, each of the two companies has involved its members at the top organisational level and the lower organisational levels to be rewarded based on BSC.

(3) In respect of the type of BSC-based rewards; the two case studies also are similar in this respect. From the sixth row of Table 6.8, it can be seen that, BSC-based rewards in both NIF and ISC represent extra payment in a form of incentive bonus apart from linking the basic salary to BSC. The absence of this linkage was attributed in both case studies to the employees' believes. That is, employees consider the pre-specification of the basic salary as insurance for the stability of their salaries therefore the stability of their life. Thus, any potential threat to this stability such as linking the basic salary to BSC will be resisted by employees. This finding provides empirical evidence against the applicability of linking the basic salary to BSC, while indicates to the work culture to be the main obstacle to the application of such linkage.

(4) Concerning the periodic basis of BSC-based rewards; as it can be seen from the seventh row of Table 6.8, there is a difference between the two companies regarding this basis. That is, in NIF the BSC-based rewards were given on an annual basis, while they were given on a monthly basis in ISC. A possible explanation for this difference might be the time period required for realising the change/improvement in the outcome of BSC measures used for the compensation linkage. In NIF the compensation system is connected to all BSC measures, thus a long time period can be required to realise the change/improvement in all those measures and hence being considered for rewarding. However, in ISC the compensation system is connected exclusively to the productivity-based measures, whose outcomes can be determined easily on a monthly or even a daily basis.

(5) In terms of the approach used for calculating BSC-based rewards; it can be seen from the bottom of Table 6.8 that, NIF and ISC also showed a difference in this regard. That is, while ISC used mainly and exclusively the objective approach for calculating BSC-based rewards, NIF used both the objective and subjective approaches for doing so. NIF saw the use of the subjective approach to be important for reconsidering the objective-based-calculated rewards on the light of the changes in the external environment. Since, these changes can be the main reason for the bad achievement rather than the performance of the concerned-rewarded person. Otherwise, the sole reliance on the objective approach in ISC was attributed mainly to the company's stable environment that diminishes the intervention of the surprising events in the achievement of the identified targets.

Taking together the findings related to the adoption and the implementation of BSC organisational alignment processes, it can be inferred that, there are differences among

companies in terms of centralising and decentralizing the implementation of BSC. That is, some companies such as CRM implement BSC as a centralised system, while relying essentially on other traditional control system (such as the budgets) and the top-down flow of decisions for controlling the performance of lower organisational levels. Other companies such as ISC implement BSC also in centralised way, while use BSC indirectly for aligning the performance of the lower-levels members through (i) basing mainly the top-down flow of decisions on BSC, and (ii) rewarding lower-levels members based on BSC achievements. Others such as NIF implement BSC in decentralised way for an explicit alignment of the lower-levels members' performance. In such companies the majority of lower-levels members are involved directly and interactively in developing and implementing BSC, and they are rewarded based on their BSC achievements.

6.3.7 Cross-case analysis in relation to BSC organisational learning processes:

Table 6.9 contrasts the three case studies in relation to the adoption and implementation of BSC organisational learning processes (the single-loop learning; and the double-loop learning). As it can be seen from the table, all the three case studies have adopted BSC process of single-loop organisational learning; they all take corrective or improvement-based actions in interaction with BSC feedback. However, they differ on the way of implementing such process. That is, in NIF and ISC the feedback of BSC was obtained through comparing the actual outcomes of BSC measures with their pre-specified targets, while this is not the case in CRM. At the absence of BSC targets, CRM gets BSC feedback through comparing the actual outcomes of BSC measures with their past outcomes. This difference between companies has its indications that; (i) in both NIF and ISC, the implementation of the single-loop learning process represents the learning from the past performance to improve the company's performance towards achieving pre-specified planned targets. However, (ii) in CRM, the implementation of the single-loop organisational learning process represents the learning from the past performance towards enacting what can be conceptualised as the loose-improvement. This in which there is neither a clear specification of the range of the performance improvement, nor a clear determination of the time desired for attaining this improvement. Thus, the aforementioned findings indicate to the role of BSC targets in determining the way in which BSC single-loop learning is implemented, as well as in determining the purpose of this implementation.

Table 6.9: Contrast table relating to case studies' BSC organisational learning processes

	Cases	The adoption of the process	The implementation of the process
BSC single-loop learning process	CRM	Adopted	Gathering feedback from BSC through contrasting the actual outcomes of BSC measures with the past outcomes of those measures, therefore taking improvement-based actions.
	NIF	Adopted	Gathering feedback from BSC through contrasting the actual outcomes of BSC measures with their pre-specified targets, therefore taking the corrective actions required towards achieving the pre-specified targets.
	ISC	Adopted	Gathering feedback from BSC through contrasting the actual outcomes of BSC measures with their pre-specified targets, therefore taking the corrective actions required towards achieving the pre-specified targets.
BSC double-loop learning process	CRM	Adopted	-
	NIF	Not-adopted	Updating BSC in response to the change in the business environment considering BSC components of performance measures and the cause and effect relationship, and the targets of the performance measures.
	ISC	Not-adopted	-

Concerning BSC double-loop organisational learning process; as it can be seen from Table 6.9; while both ISC and CRM has confined their BSC implementation to the single-loop learning, just NIF has extended its BSC implementation to reflect the practical use of the double-loop organisational learning. In NIF, BSC is updated in response to the change in the external business environment. This updating was considered by NIF to be important for maintaining the consistency between its objectives and targets embedded in BSC and the new conditions forced by the change in the business environment. Otherwise, although ISC and CRM have conducted some updating to their BSCs, the underlying reasons have nothing to do with the business environment. Instead, these updates were undertaken completely by the means of the company internal interaction with its use of BSC. In ISC the absence of updating BSC in interaction with the business environment was attributed to the stability of ISC business environment, especially in term of the types of products and the operational processes required for producing these products. However, as CEO of ISC explained, the environment-based BSC updating would be conducted if the business environment of the company appears the necessity of such updating. As not the case with ISC; the reason for the non-adoption of BSC double-loop learning process in CRM has nothing to do with the stability of the business environment, since CRM business environment was perceived to be approximately as changeable as the business environment of NIF. Instead, the main reason for such absence appears to be due to the lack of the managers' awareness of the meaning and necessity of adapting BSC to the business environment and its changes.

The aforementioned findings while show difference between the companies in terms of their adoption of BSC double-loop learning process, they raise the possibility that BSC updating can be motivated by two different reasons. The first reason is to adapt BSC to the change in the business environment in the way that reflects the adoption of BSC double-loop learning process. The second reason is the internal interaction of the company with its use of BSC. Thus, studies are required to investigate the reason underlines BSC updating rather than easily judging the adoption of BSC double-loop learning because of some changes were occurred to BSC components. Furthermore, based on above the findings, it appears also that the lack of the relevant awareness and the stability in the business environment can be the main two elements that affect the non-adoption of BSC double-loop learning process.

6.3.8 Concluding remarks towards answering the first research question:

Before answering the first question of the study relating to the practical implementation of BSC, some concluding remarks are required. Closer inspection of the above cross-case findings, it can be seen that:

First: Respecting the adoption of BSC components; it can be seen that, there are differences between the case studies in terms of what components adopted into their BSC implementations. Considering these differences, two main types of BSC can be distinguished. The first type is implementing BSC partially as a multidimensional PMS. This type can be observed in CRM where BSC consists exclusively of financial and non-financial measures grouped into different perspectives. The second type of BSC implementation is implementing BSC fully as a strategic management system (BSC-SMS). This type can be observed in both NIF and ISC. It comprises of all BSC conceptual components, including: BSC perspectives, BSC strategic objectives and measures, BSC cause and effect relationship, BSC targets, BSC processes of organisational alignment and learning. These two main observed types of BSC in turn provide empirical evidence on the consistency between the practical implementation of BSC and its theoretical evolution from PMS to a strategy management system (SMS) (Kaplan & Norton, 1992; 1996a; 1996b; 1996c).

Second: Respecting the way in which BSC components are implemented, it can be seen that, although both NIF and ISC implemented BSC as SMS, they do not implement it in similar way. Instead, they hold various differences in terms of how each BSC component is implemented (developed or/and used). Table 6.10 summarises the similarities and differences between the two cases in relation to their implementation of BSC.

Table 6.10: Summary of the similarities and differences between NIF and ISC in relation to their implementation of BSC

BSC components	Shared similarities Between NIF and ISC	The differences	
		NIF	ISC
BSC perspectives	Adopting the four BSC initial perspectives.	Giving the customer perspective the highest relative importance level among BSC perspectives.	Giving the internal business processes perspective the highest relative importance level. Giving the customer perspective the lowest relative importance level.
BSC measures	Using both types of measures with giving the driving measures more relative importance than the outcome measures.	Using and giving more relative importance to BSC measures related to the innovation activities	Using and giving more relative importance to BSC measures related to the productivity and cost-efficiency.
The use of the external type of measures.	-	Using the external type of measures (customer survey) in BSC implementation.	The non-use of the external type of measures.
The selection basis of BSC measures	Selecting BSC measures essentially based on specified strategic objectives that derived from a formulated strategy.	-	-
BSC concept of cause and effect relationship	Adopting the concept of cause and effect relationship in developing and using BSC.	Implementing the concept of cause and effect relationship subjectively without using the strategy map	Implementing the concept of cause and effect relationship objectively through using the strategy map.
BSC targets	Setting targets for BSC measures	Setting incremental short-term targets across years	Setting stretch targets and milestone for BSC measures
BSC organisational alignment processes:			
Top managers participation in BSC development	Involving all top managers in developing BSC.	-	-
BSC processes of educating, communication, and cascading	Adopting the processes	Implementing them extensively through involving the managers and key employees in all organisational level	Implementing them with concentrating mainly on the managers at top and middle organisational levels.
BSC process of linking the compensation system to BSC.	Adopting the process, with considering all or almost all the organisational members to be rewarded based on BSC.	Using the subjective approach, beside the objective approach for calculating BSC-based rewards.	Using exclusively the objective approach for calculating BSC-based rewards.
BSC process of organisational learning.	Adopting the process	Implementing the process through using BSC in the sense of both single-loop learning and double-loop learning.	Implementing the process through concentrating exclusively on using BSC in the sense of single-loop learning, apart from double-loop learning.

From the above table it can be noted that: First, the predominant distinct features that really stand out in NIF's BSC implementation are that: (i) giving the priority and the most importance level to the externally-oriented BSC perspective (customer perspectives) for planning and managing the company performance; (ii) using the external type of measures (customer survey); (iii) using the subjective approach for calculating BSC rewards on the light of the external environment changes; (iv) the high interaction with the external business environment for updating BSC - by implementing BSC in the sense of double-loop learning; (iv) the decentralised implementation of BSC that represents the explicit involvement of a wide range of organisational members at the different organisational levels in the development and the use of BSC. Second, the predominant distinct features of ISC implementation of BSC are that: (i) placing the highest relative importance on the internal business process perspective, while giving the externally-oriented BSC perspective of customer the lowest level of relative importance; (ii) using exclusively internal types of measures apart from using external measures such as customer survey; (iii) relying solely on the objective approach for calculating BSC-based measures; (iv) the non-interaction with the external environment for updating BSC, which reflected in using BSC exclusively as a single-loop system; and (iv) the centralised implementation of BSC that represents the non-involvement of the low-levels members in developing and using BSC.

Considering the above distinct features of NIF and ISC implementations of BSC, the second main type of BSC (BSC as SMS) can be further classified into two sub-types labelled as follows:

- The first is implementing BSC as an externally-oriented and decentralised SMS. This refers to NIF's BSC implementation.

- The second is implementing BSC as an internally-oriented and centralised SMS. This refers to ISC's BSC implementation.

Thus, in relation to the first question of the study, the above findings indicate that:

BSC in practice is implemented in different ways respecting both the adoption and the implementation of its components, while certain types of BSC implementation can be identified. These include two main types representing implementing BSC partially as a multidimensional PMS, and implementing BSC fully as a strategic management system (BSC-SMS), and two sub-types which are implementing BSC as an externally-oriented and decentralised SMS, and implementing BSC as an internally-oriented and centralised SMS.

6.4 Cross-case analysis relating to the financial effect of BSC, towards answering the second research question:

Table 6.11 contrasts the effect of BSC implementation on an organisational financial performance among the three case studies. From the table; it can be seen that, while BSC implementation in CRM has no effect on the financial performance of the company, BSC implementation in NIF and ISC has been perceived to have a high positive effect on the organisational financial performance. Considering these findings on the light of the two main BSC types observed in the study, it can be stated that there is an association between the high positive financial effect of BSC and the implementation of BSC as SMS (the full developed concept of BSC). However, such findings need to be interpreted with caution. This is because of that the case studies that adopted BSC as SMS (NIF and ISC) have not implemented it in similar way; instead, in different ways concerning the implementation of different BSC components. Thus, in order to provide more details on when BSC implementation can yield a high financial performance, the study in the next chapter will seek farther investigation of BSC financial effect by examining the contingent fit between BSC implementation and the contingent variables of the environmental uncertainty and business strategy.

Table 6.11: Contrast table relating to case studies' BSC financial effect

Cases	BSC types	BSC financial effect
CRM	Multidimensional PMS	No financial effect
NIF	BSC as SMS (externally-oriented & decentralised SMS)	High positive financial effect
ISC	BSC as SMS (internally-oriented & centralised SMS)	High positive financial effect

Thus, in relation to the second question of the study, the above findings indicate that:

BSC implementation has different effects on an organisational financial performance - non-existent and a positively high - while the positively high financial effect is associated with implementing BSC as a fully developed concept (BSC as SMS).

With relation to how BSC affects positively the financial performance, the evidence from NIF and ISC (discussed in previous chapter) confirms that the financial effect of BSC is derived by the role of BSC in enhancing the effectiveness of several organisational functions including performance measurement, strategy clarification, strategic planning, strategy

implementation, organisational alignment, and organisational learning. Specifically, through BSC role in:

- Enhancing the company's ability to evaluate and manage its performance in a comprehensive way; by providing detailed and organised information on the critical aspects and factors of the company's performance.
- Enhancing the company's ability to affect the causes towards achieving the desired outcomes; by providing the company with a pattern of thinking about the causality between the driving activities and the lagging outcomes.
- Enhancing the company's ability to become a strategy-oriented company; by clarifying the corporate strategy and translating it into strategic objectives and performance measures, whereby the company can plan and manage its performance in consistent with its corporate strategy.
- Enhancing the concurrent monitoring over the company's performance in the way that avoids the company the negative effects of the sole reliance on the ex post control.
- Enhancing the company's ability to fulfil its customers' demands in a timely manner, therefore achieving a high level of customers' satisfaction. This by BSC role in enhancing the company's ability to capture the demands of its customers and getting their feedback on its performance via using the customer survey (as the case in NIF).
- Enhancing the company's ability to identify the gap between the work demands and its employees' competencies. Thus, employing the suitable training programs for mitigating this gap, therefore increasing the employees' ability to achieve the goals they are required to achieve.
- Avoiding the company the negative effect of the improvisation in managing the company performance, by taking the targets on BSC as bases of the decision making and the resource allocation.
- Enhancing the company's ability to achieve the organisational alignment between its goals and employees performance. This by communicating and cascading BSC down to lower organisational levels, or liking the compensation system to BSC achievements, or both.
- Enhancing the company's ability to identify the deviations in its performance in a systematic way towards analysing their causes and therefore taking timely corrective actions.

- Enhancing the company's ability to plan and manage its performance in interaction with its environment. Therefore, enhancing its ability to adapt its pattern of management with the change in the business environment (as the case in NIF).

In summary, the findings related to the first and the second questions of the study illustrate that; BSC in practice is implemented in different ways and have different effect on the financial performance of an organisation. However, the main question here is that why these differences. Though some insights are given into this question in the previous discussion of the study's findings, this question will be further and systematically scrutinised in the following section, which represents the explanatory part of the study where the study's propositions are tested.

Chapter Seven:

Testing the study propositions

7.1 Introduction:

This chapter is concerned essentially with accomplishing the sixth objective of the study aiming at ascertain the influence of the contingent variables of the environmental uncertainty and the business strategy on BSC implementation and it financial effect. This is towards answering the study third research question on the role of the contingent variables of the environmental uncertainty and the business strategy in shaping BSC implementation and it financial effect. In doing so, the study in this chapter tested its propositions using the two approaches of contingent fit; the selection fit approach and the interaction fit approach. Therefore, the chapter is structured to involve three main sections. Section 7.2 concerned with testing the study propositions based on the selection approach of fit through using pattern matching technique; Section 7.3 concerned with testing the study's propositions based on the interaction approach of fit through using the cross-case analysis; Section 7.4 provides concluding remarks towards answering the third research question of the study.

7.2 Testing the study propositions using the selection approach of fit:

As illustrated in Chapter Three; according to the selection fit, there is a contingent fit between the structural variables and contingent variables in an organisation as long as an organisation is surviving in the market regardless its performance effectiveness. Based on this assumption of the selection fit, all the company cases in this study (CRM, NIF, and ISC) representing a situation of fit between BSC implementation and contingent variables (environmental uncertainty and business strategy), as they are all surviving in their markets. Giving that, the study in this section tests its propositions on the relationships between the contingent variables and BSC implementation in each case without tailing the test to BSC financial effectiveness. In doing so, the study will use the pattern matching technique[46].

[46] As clarified in Chapter Four, Subsection 4.11.3, the pattern matching technique involves comparing the observed empirical pattern of BSC implementation of each case with the predicted pattern of BSC implementation embedded in the study propositions. Thus, when the empirical pattern matches the predicted pattern, the relevant proposition is confirmed and vice-versa.

7.2.1 Testing the study propositions in CRM:

As it has been revealed in Chapter Five; CRM is a company that operates in a high level of environmental uncertainty, and pursues the differentiation type of business strategy. Hence, for testing the study propositions in CRM - using the selection approach of fit – the study will match CRM's empirical pattern of BSC implementation with those patterns predicted by the study propositions under the conditions of the high level of environmental uncertainty and the differentiation type of business strategy.

7.2.1.1 Testing the study propositions on the relationship between environmental uncertainty and BSC implementation in CRM: Table 7.1 matches the empirical pattern of CRM's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the high level of environmental uncertainty. From Table 7.1, it can be seen that, there is no match between CRM empirical pattern of BSC implementation and that predicted by the study for almost all the study propositions on the relationships between the environmental uncertainty and the implementation of BSC. This is with the exception of P3 and P5. As predicted, CRM with its high level of environmental uncertainty did not rely on pre-specified strategic objectives for selecting its BSC measures (P3a), while it has not developed targets for its BSC measures (P5a).

Table 7.1: Pattern matching: CRM – Environmental uncertainty.

Proposition	Proposition statement (Predicted pattern)	Empirical findings (Empirical pattern)	Matching result
P1a	Giving the customer perspective and learning and growth perspective more relative importance than the other perspectives of BSC.	Giving the financial perspective the highest relative importance level; followed by the internal business processes perspective, while given the customer perspective a lower level of relative importance, and the learning and growth perspective the lowest relative importance level among BSC perspectives.	**No match**
P2a	Emphasising the importance of using the driving type of measures more than the outcome measures.	Giving the outcome measures more relative importance than the driving measures.	**No match**
P2c	Using and emphasising the importance of using external type of measure (customer satisfaction survey)	Not using external type of measure in its BSC implementation.	**No match**
P3a	Not relying on pre-specified strategic objectives for identifying its BSC measures; while relying on other basis(s) for accomplishing this task.	BSC measures have not been selected based on specified strategic objectives, instead they have identified based on the regular activities and operations processes of the company.	**Match**

Table 7.1 (continued)

P4a	Either not adopt the cause and effect relationship concept, or implement this concept in subjective way without using the strategic map.	Not adopting the cause and effect relationship. However, the main cause of this non-adoption is the lack of awareness regarding the concept of the cause and effect relationship, not because of the high level of environmental uncertainty.	**No match**
P5a	Either not set targets for its BSC measures; or set incremental short-term targets across years instead of setting milestones that derived from stretch or longer-term targets for BSC measures.	Not adopting BSC process of setting targets for BSC measures.	**Match**
P6a	-Involving all top-level managers in developing BSC. -Educating and communicating BSC to the lower organisational levels involving managers and employees. -Involving the organisational members at lower levels in developing and implementing BSC. -Linking the compensation system to BSC and involving all organisational levels to be rewarded based on this linkage.	-Involving all top-level managers in developing and implementing BSC. - Non-education and non-communication of BSC to lower organisational. -Not involving the lower organisational levels in developing and implementing BSC. - Not linking BSC to the compensation system.	**No match in respect of the majority of BSC alignment processes.**
P7a	Besides implementing BSC in the sense of the single-loop learning, an organisation would update its BSC in the sense of the double-loop learning process.	Implementing BSC in the sense of the single-loop learning without using it in the sense of double-loop learning.	**No match**

7.2.1.2 Testing the study propositions on the relationships between business strategy and BSC implementation in CRM: Table 7.2 matches the empirical pattern of CRM's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the differentiation strategy. From Table 7.2, it can be seen that, there is no match between CRM empirical pattern of BSC implementation and that predicted by the study for all the study propositions on the relationships between the business strategy and BSC implementation.

Table 7.2: Pattern matching: CRM – Business strategy

Proposition	Proposition statement (Predicted pattern)	Empirical findings (Empirical pattern)	Matching result
P8a	Giving the customer perspective and learning and growth perspective more relative importance than the other perspectives of BSC.	Giving the financial perspective the highest relative importance level, followed by the internal business processes perspective, while giving the customer perspective and the learning and growth perspective the lower and the lowest relative importance levels respectively.	**No match**
P9a	Giving more relative importance to the performance measures related to the innovation activities.	Giving BSC's measures related to the profitability and liquidity a greater relative importance among BSC's measures.	**No match**
P9c	Using and emphasising the importance of using the external types of measures (customer survey) in its BSC implementation.	Not using external measurement tool in its BSC implementation.	**No match**
P10a	- Involving all top-level managers in developing BSC. -Educating and communicating BSC to the lower organisational levels -Involving the organisational members at lower levels in developing and implementing BSC. -Linking the compensation system to BSC with considering organisational levels for this linkage.	-Involving all top-level managers in developing and implementing BSC. - Non-education and non-communication of BSC to lower organisational. -Not involving the lower organisational levels in developing and implementing BSC. - Not linking BSC to the compensation system.	**No match in respect of the majority of BSC alignment processes.**

7.2.2 Testing the study propositions in NIF:

As it has been revealed in Chapter Five; NIF is a company that operates in a high level of environmental uncertainty, and pursues the differentiation type of business strategy. Hence, for testing the study propositions in NIF - using the selection approach of fit – the study will match NIF's empirical pattern of BSC implementation with those patterns predicted by the study propositions under the conditions of the high level of environmental uncertainty and the differentiation type of business strategy.

7.2.2.1 Testing the study propositions on the relationships between environmental uncertainty and BSC implementation in NIF: Table 7.3 matches the empirical pattern of NIF's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the high level of environmental uncertainty. From Table7.3, we can see that; there is match between NIF empirical pattern of BSC and the predicted pattern of BSC for almost all the study propositions on the relationships between the environmental uncertainty and the implementation of BSC. This is with the exception of P1 and P3. NIF does not fully support P1 (P1a). That is, contrary to P1a, NIF with its high level of environmental uncertainty does not give a priority to the leaning and growth perspective over the internal business processes perspective. Otherwise, in accord with the expectation of P1a,

NIF with its high level of environmental uncertainty gives the customer perspective the highest relative importance among BSC perspectives. In relation to P3 (P3a), NIF provides evidence to the contrary. That is, contrary to P3a, NIF with its high level of environmental uncertainty did use specified strategic objectives for selecting its BSC measures.

Table 7.3: Pattern matching: NIF – Business strategy

Proposition	Proposition statement (Predicted pattern)	Empirical findings (Empirical pattern)	Matching results
P1a	Giving the customer perspective and learning and growth perspective more relative importance than the other perspectives of BSC.	Giving customer perspective the highest relative importance; followed by the internal business processes perspective and learning and growth perspective, which are given the same level of relative importance; while giving the financial perspective the lowest relative importance level.	**Partial Match**
P2a	Emphasising the importance of using the driving type of measures more than the outcome measures.	Giving the driving type of measures more relative importance than the outcome measures.	**Match**
P2c	Using and emphasising the importance of using external type of measure (customer satisfaction survey)	Using and emphasise the importance of using external type of measure (customer survey)	**Match**
P3a	Not relying on pre-specified strategic objectives for identifying its BSC measures; while relying on other basis(s) for accomplishing this task.	Selecting BSC measures essentially based on specified strategic objectives.	**No match**
P4a	Either not adopt the cause and effect relationship concept, or implement this concept in subjective way without using the strategic map.	Implementing the concept of cause and effect relationship subjectively without using the strategic map.	**Match**
P5a	Either not set targets for its BSC measures; or set incremental short-term targets across years instead of setting milestones that derived from stretch or longer-term targets for BSC measures.	Setting incremental annual targets and shorter-term targets for all BSC measures, without setting stretch or longer-term targets.	**Match**
P6a	-Involving all top-level managers in developing BSC. -Educating and communicating BSC to the lower organisational levels involving managers and employees. -Involving the organisational members at lower levels in developing and implementing BSC. -Linking the compensation system to BSC and involving all organisational levels to be rewarded based on this linkage.	- Involving all top-level managers in developing and implementing BSC. - Educating and communicating BSC to all managers and key employees, at all organisational levels. -involving all managers and key employees at lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all managers and key employees, at all organisational levels to be rewarded based on this linkage.	**Match**
P7a	Besides implementing BSC in the sense of the single-loop learning, an organisation would update its BSC in the sense of the double-loop learning process.	Implementing BSC in the sense of both the single-loop learning and the double loop learning.	**Match**

7.2.2.2 Testing the study propositions on the relationships between business strategy and BSC implementation in NIF: Table 7.4 matches the empirical pattern of NIF's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the differentiation strategy. From Table 7.4, we can see that; there is match between NIF empirical pattern of BSC and the predicted pattern of BSC for almost all the study propositions on the relationships between the business strategy and the implementation of BSC. This is with exception of P1 (P1a), which was not fully support. Instead, NIF supports this proposition partially by giving the customer perspective the highest relative importance among BSC perspectives.

Table 7.4: Pattern matching: NIF – Business strategy.

Proposition	Proposition statement (Predicted pattern)	Empirical findings (Empirical pattern)	Matching result
P8a	Giving the customer perspective and learning and growth perspective more relative importance than the other perspectives of BSC.	Giving the customer perspective the highest relative importance level among BSC perspectives, Followed by the internal business processes perspective, and learning and growth perspective, which are given the same level of relative importance; while giving the financial perspective the lowest relative importance level among BSC perspectives.	**Partial Match**
P9a	Giving more relative importance to the performance measures related to the innovation activities.	Giving BSC's measures related to the quality and innovation the greater relative importance among BSC's measures.	**Match**
P9c	Using and emphasising the importance of using the external types of measures (customer survey) in its BSC implementation.	Using and emphasizing the importance of using external measurement tools (customer satisfaction survey) in its BSC implementation.	**Match**
P10a	- Involving all top-level managers in developing BSC. -Educating and communicating BSC to the lower organisational levels involving managers and employees. -Involving the organisational members at lower levels in developing and implementing BSC. -Linking the compensation system to BSC and involving all organisational levels to be rewarded based on this linkage.	- Involving all the managers at top management in developing and implementing BSC. - Educating and communicating BSC to all managers and key employees, at all organisational levels. -involving all managers and key employees at lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all managers and key employees, at all organisational levels to be rewarded based on this linkage.	**Match**

7.2.3 Testing the study propositions in ISC:

As it has been revealed in Chapter Five; ISC is a company that operates in a low level of environmental uncertainty, and pursues the cost-leadership type of business strategy. Hence, for testing the study propositions in CRM - using the selection approach of fit – the study will match ISC's empirical pattern of BSC implementation with those patterns predicted by the study propositions under the conditions of the low level of environmental uncertainty and cost-leadership type of business strategy.

7.2.3.1 Testing the study propositions on the relationship between environmental uncertainty and BSC implementation in ISC: Table 7.5 matches the empirical pattern of ISC's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the low level of environmental uncertainty. As it can be seen from Table 7.5; there is match between ISC empirical pattern of BSC and the predicted pattern of BSC for the majority of study propositions on the relationships between the environmental uncertainty and the implementation of BSC. This is with exception of P1, P2 and P6. In relation to P1 (P1b), ISC does not fully support this proposition. That is, contrary to the expectation, ISC with its low level of environmental uncertainty gives the financial perspective a lower relative importance level while gives the learning and growth perspective a high relative importance level. However, in accord with the expectation of P1b, ISC gives the internal business processes perspective the highest relative importance among BSC perspectives. In relation to P2 (P2b), ISC provides evidence to the contrary. That is, contrary to P2b, ISC with its low level of environmental uncertainty gives the driving type of measures more relative importance than the outcome measures. In relation to P6 (P6b), ISC does not fully support this proposition. That is, contrary to the expectation, ISC has involved all the top-level managers in developing BSC, and linked its compensation system to BSC with considering all its members at the different organisational levels to be rewarded based on this linkage. However, as expected by P6b, ISC with its low level of environmental uncertainty has applied limited education, communication, and cascading of BSC in relation to the lower organisational levels.

Table 7.5: Pattern matching: ISC – Business strategy.

Proposition number	Proposition statement	Propositions' empirical findings	Matching result
P1b	Giving the financial perspective and internal business processes perspective more relative importance than the customer, and learning and growth perspectives.	Giving the internal business processes perspective the highest relative importance level, followed by the learning and growth perspective, while given the financial perspective a lower level of relative importance, and the customer perspective the lowest relative importance level among BSC perspectives.	**Partial Match**
P2b	Emphasising the importance of using the outcome type of measures more than the driving measures.	Giving the driving type of performance measures more relative importance than the outcome measures	**No match**
P2d	Place no or little emphasis on the importance of using external type of measures (customer survey) in its implementation of BSC.	Not using external type of measure in its BSC implementation	**Match**
P3b	Selecting BSC measures based on strategic objectives derived from formulated strategy.	Selecting BSC measures essentially based on specified strategic objectives.	**Match**
P4b	Adopting BSC concept of cause and effect relationship and implement it objectively by using the strategic map.	Implementing the concept of cause and effect relationship objectively through using the strategic map.	**Match**
P5b	Adopting the process of setting targets for BSC measures, and implementing it through establishing stretch and milestones for its BSC measures.	Setting targets for all BSC measures, with considering targets types of stretch targets (3years-logn targets), milestones, and shorter-terms targets.	**Match**
P6b	- Developing BSC relying on one or few organisational members - No educating and communicating of BSC to lower organisational levels, or educating and communicating BSC to lower levels in limited way. - Non-cascading of BSC to lower organisational levels, or cascading it in limited way. - Non-linkage between BSC and compensation system or implementing this linkage in limited way considering limited number of organisational members	- Involving all the managers at top management in developing and implementing BSC. - Limited education and communication of BSC in relation to lower organisational levels -limited participation of lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all organisational members to be rewarded based on this linkage.	**Partial Match**
P7b	Implementing BSC essentially in the sense of single-loop learning apart from implementing it in the sense of double loop-learning.	Implementing BSC on the sense of single-loop learning without using it in the sense of double-loop learning.	**Match**

7.2.3.2 Testing the study propositions on the relationships between business strategy and BSC implementation in ISC: Table 7.6 matches the empirical pattern of ISC's BSC implementation with the pattern of BSC implementation predicted by the study propositions under the condition of the cost-leadership strategy. As it can be seen from Table 7.6, ISC with its cost-leadership type of strategy provides fully support for P9, while it not fully supports P8 and P10. Instead, ISC supports P8 partially by giving the internal business processes perspective the highest relative importance among BSC perspectives, while it provides partial support to P10 by applying limited education, communication, and cascading of BSC in relation to the lower organisational levels.

Table 7.6: Pattern matching: ISC - cost-leadership strategy.

Proposition number	Proposition statement	Propositions' empirical findings	Matching result
P8b	Giving the financial perspective and internal business processes perspective more relative importance than the other perspectives of its BSC.	Giving the internal business processes perspective the highest relative importance level, followed by the learning and growth perspective, while given the financial perspective a lower level of relative importance, and the customer perspective the lowest relative importance level among BSC perspectives.	**Partial Match**
P9b	Giving more relative importance to the performance measures related to the cost and productivity activities.	Giving BSC's measures related to the quality, productivity and cost the greater relative importance among BSC's measures.	**Match**
P9d	Placing no or little emphasis on the importance of using external type of measures (customer survey) in its implementation of BSC.	Not using external type of measures in its BSC implementation	**Match**
P10b	- Developing BSC relying on one or few organisational members - No educating and communicating of BSC to lower organisational levels, or educating and communicating BSC to lower levels in limited way. -Non-cascading of BSC to lower organisational levels, or cascading it in limited way. - Non-linkage between BSC and compensation system or implementing this linkage in limited way considering limited number of organisational members	- Involving all the managers at top management in developing and implementing BSC. - Limited education and communication of BSC in relation to lower organisational levels -limited participation of lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all organisational members to be rewarded based on this linkage.	**Partial Match**

7.2.4 Concluding remarks of the propositions' findings obtained from the selection approach of fit:

Table 7.7 summarises the findings of testing the study propositions in the three case studies using the selection fit approach.

Table 7.7: Summary of the propositions' findings obtained from the selection approach of fit.

Contingent variables	Propositions		The propositions' findings obtained by using the selection fit approach		
			CRM	NIF	ISC
Environmental uncertainty	P1		No Match	Partial Match	Partially Match
	P2	a & b	No Match	Match	No Match
		c & d	No Match	Match	Match
	P3		Match	No Match	Match
	P4		No Match	Match	Match
	P5		Match	Match	Match
	P6		No Match	Match	Partial Match
	P7		No Match	Match	Match
Business strategy	P8		No Match	No Match	No Match
	P9	a & b	No Match	Match	Match
		c & d	No Match	Match	Match
	P10		No Match	Match	Partial Match

The above table shows that, apart from P5, no proposition has been supported simultaneously across the three case studies, while they are all in a fit zone according to the selection fit approach. This means that, testing the study propositions based on the selection approach of fit has not provided support to almost all the study propositions. Thus, it can be concluded that there is no certain pattern of influence of the environmental uncertainty and the business strategy on the implementation of BSC according to the selection fit approach.

7.3 Testing the study propositions using the interaction fit approach:

As it has been illustrated in chapter (3); the contingent fit according to the interaction fit approach is assessed based on the organisational performance effectiveness not just based on an organisation's survival in the market. That is, according to the interaction approach of fit, the contingent fit is the interaction between organisation's system(s) and contingent variable(s) that leads to organisational performance effectiveness. Otherwise, the low organisational performance effectiveness - according to the interaction fit approach - represents a situation of misfit in which the implementation way of organisation's system(s) does not represent that required by the contingent variable(s). In other words, according to the interaction fit approach, the contingent fit between structural and contingent variables is existent as long as an organisation experiences performance effectiveness. Drawing on this assumption of the interaction fit, it can be assured that: (1) NIF and ISC both implement their BSCs in fit to their contingencies including the level of environmental uncertainty and the type of the adopted strategy, since both companies experience a high level of BSC financial effectiveness. (2) CRM otherwise represents a misfit situation in which the implementation of BSC does not represent that required by the company's level of environmental uncertainty and the type of strategy, therefore leading to a low BSC financial effectiveness. Providing this; the study would apply the interaction fit approach to verify the study propositions and make the required amendments. The interaction fit approach is carried out next by conducting a cross-case analysis of the propositions' findings obtained by the selection approach of fit, with taking account of the effect of BSC implementation on the financial performance.

7.3.1 Verifying the study propositions on the relationship between environmental uncertainty and BSC implementation based on the interaction fit approach:

Table 7.8 contrasts the three case studies in relation to their level of environmental uncertainty, their BSC financial effectiveness, and their findings on the relationship between the environmental uncertainty and BSC implementation – obtained by the selection approach of fit.

Table 7.8: Cross-case analysis in relation to the environmental uncertainty-based propositions

	CRM	NIF	ISC
The level of environmental uncertainty	High	High	Low
BSC financial effectiveness	Non-existent	High	High
The situation of interaction fit	Misfit	fit	fit
Propositions' findings obtained from applying the selection fit approach			
Environmental uncertainty effect on BSC perspectives (P1a, P1b)	**No Match** Giving the financial perspective the highest relative importance level, followed by the internal business processes perspective, while given the customer perspective a lower level of relative importance, and the learning and growth perspective the lowest relative importance level among BSC perspectives.	**Partial Match** Giving the customer perspective the highest relative importance level among BSC perspectives, Followed by the internal business processes perspective, and learning and growth perspective, which are given the same level of relative importance; while giving the financial perspective the lowest relative importance level among BSC perspectives.	**Partial Match** Giving the internal business processes perspective the highest relative importance level, followed by the learning and growth perspective, while given the financial perspective a lower level of relative importance, and the customer perspective the lowest relative importance level among BSC perspectives.
Environmental uncertainty effect on the outcome and driving types of BSC measures (P2a, P2b)	**No Match** Giving the outcome type of measures more relative importance than the driving measures.	**Match** Giving the driving type of measures more relative importance than the outcome measures.	**No Match** . Giving the driving type of measures more relative importance than the outcome measures.
Environmental uncertainty effect on the use of external types of measures (P2c, P2d)	**No Match** Not using external type of measures in its BSC implementation.	**Match** Using and emphasising the importance of using the external type of measures (customer survey)	**Match** Not using external type of measures in its BSC implementation
Environmental uncertainty effect on selection basis of BSC measures (P3a, P3b)	**Supported** BSC measures have not been selected based on specified strategic objectives; instead they have been identified based on the regular activities and operations processes of the company.	**No Match** Selecting BSC measures essentially based on specified strategic objectives.	**Match** Selecting BSC measures essentially based on specified strategic objectives.

Table 7.8 (continued)

Environmental uncertainty effect on BSC concept of cause and effect relationship (P4a, P4b)	**No Match** Not adopting the cause and effect relationship, and the main cause of this non-adoption is the lack of awareness regarding the concept of the cause and effect relationship.	**Match** Adopting the cause and effect relationship, and implementing it subjectively without using the strategic map.	**Match** Adopting the cause and effect relationship, and implementing it objectively through using the strategic map.
Environmental uncertainty effect on BSC process of setting targets (P5a, P5b)	**Supported** Not adopting BSC process of setting targets for BSC measures.	**Match** Adopting BSC process of setting targets for BSC measures, and implementing it through setting incremental annual targets and shorter-term targets for all BSC measures, without setting stretch or longer-term targets.	**Match** Adopting BSC process of setting targets for BSC measures, and implementing it through setting targets for all BSC measures, with considering targets types of stretch targets (3years-logn targets), milestones, and shorter-terms targets.
Environmental uncertainty effect on BSC processes of organisational alignment (P6a, P6b)	**No Match** -Involving all top-level managers in developing and implementing BSC. -Non-education and non-communication of BSC to lower organisational -Not involving the lower organisational levels in developing and implementing BSC. - Not linking BSC to the compensation system.	**Match** - Involving all the managers at top management in developing and implementing BSC. - Educating and communicating BSC to all managers and key employees, at all organisational levels. -Involving all managers and key employees at lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all managers and key employees, at all organisational levels to be rewarded based on this linkage.	**Partial Match** - Involving all the managers at top management in developing and implementing BSC. - Limited education and communication of BSC in relation to lower organisational levels -Limited participation of lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all organisational members to be rewarded based on this linkage.
Environmental uncertainty effect on BSC processes of organisational learning (P7a, P7b)	**No Match** Implementing BSC on the sense of single-loop learning without using it in the sense of double-loop learning.	**Match** Implementing BSC in the sense of both the single-loop learning and the double loop learning.	**Match** Implementing BSC on the sense of single-loop learning without using it in the sense of double-loop learning.

In relation to proposition 1: proposition 1 (P1a, and P1b) addresses the relationship between the environmental uncertainty and the relative importance of BSC perspectives. P1a predicted that: an organisation that faces a high level of environmental uncertainty would implement BSC with giving the customer perspective and learning and growth perspective

more relative importance than the other BSC perspectives. Table 7.8 shows that; CRM against P1a gives the customer and the learning and growth perspectives the lower relative importance among its BSC perspectives. However, while this pattern does not match P1a, it is associated with no BSC financial effectiveness. This in turn indicts a misfit between CRM pattern of weighing BSC perspectives and its high level environmental uncertainty[47]. Based on the interaction fit approach, this misfit provides support for the interaction fit between the high level of environmental uncertainty and the higher relative importance given to the customer perspective and the learning and growth perspective than the other perspectives of BSC. In consistent, NIF – that represents a fit situation under the condition of the high level of environmental uncertainty - provides further support for the higher relative importance of customer perspective over the other BSC perspective under the high level of environmental uncertainty. However, NIF does not converge with CRM on the higher relative importance of the learning and growth perspective over the internal business processes perspective. Instead, the findings of NIF show that the two perspectives need to be treated with a same level of relative importance when planning and manging the company's performance[48]. This cross-analysis of CRM and NIF findings provides partial support for P1a in relation to the relationship between the high level of environmental uncertainty and the higher relative importance given to the customer perspective.

On the other hand, P1b states that: an organisation that faces a low level of environmental uncertainty would implement BSC with giving the financial perspective and the internal business processes perspective more relative importance than the customer, and the learning and growth perspectives. As can be seen from Table 7.8, ISC – that represents a fit situation under the condition of the low level of environmental uncertainty - does not provide a full support for P1b. Instead, it provides a partial support for the proposition in relation to the relationship between the low level of environmental uncertainty and the higher relative importance given to the internal business processes perspective.

[47] This misfit is expressed subjectively by different CRM members, for example the Administrative Affairs Senior Executive when he emphasised that giving the financial perspective the priority for planning and managing the company performance is one of the main shortcoming of CRM's implementation of BSC.

[48] NIF places a high relative importance on the learning and growth perspective in order to measure and manage the efficacy of its intangible assets for providing innovative solutions to the changeable demands of its customers. And simultaneously, it places a high level of relative importance on the internal business processes perspective since its enhancement of the company's ability to measure and manage the efficacy of both the tangible and intangible assets for transforming the innovative solutions into tangible products and services.

Comparing the two fit case companies (NIF and ISC), further evidence can be obtained on relationship between the environmental uncertainty and the relative importance of the two BSC perspectives of customer, and internal business processes. NIF that operates in a high level of environmental uncertainty gives the customer perspective the highest relative importance level among BSC perspectives. By contrast, ISC that operates in a low level of environmental uncertainty gives the internal business processes perspective the highest relative importance level among BSC perspectives, and gives the customer perspective the lowest relative importance level. The environmental uncertainty was considered by the two companies to have an essential role in shaping the priority of these two perspectives, particularly the change in the business environment relating to the customer demands. That is, the frequent change in the demands and preferences of customer prompted NIF to give the priority to the customer perspective. This is in order to provide timely information on the customer changeable demands, and therefore planning and managing the other perspectives of BSC based on this information towards meeting the customer demands. On the contrary, the stability of the customer preference towards ISC products, which are standardised by the industry standards, prompts the company to give the priority to the internal business processes perspective. This is in turn to plan and manage the overall performance of the company towards producing products that meet the industry standards.

The above findings while do not fully support P1a and P1b, they do not support the findings of the extant studies concerned with investigating the relationship between the environmental uncertainty and the relative importance of BSC perspectives (Hoque; 2005; Sonh et al., 2003). Thus, based on the obtained empirical findings, P1 is amended as follows:

The environmental uncertainty has an influence on the relative importance of BSC perspectives in the way that, (a) the high level of environmental uncertainty has an interaction fit with giving the customer perspective the highest relative importance level among BSC perspectives when planning, managing, and evaluating an organisational performance, (b) the low level of environmental uncertainty has an interaction fit with giving the internal business processes perspective the highest relative importance level among BSC perspectives when planning, managing, and evaluating an organisational performance.

In relation to proposition 2: proposition 2 addresses the relationship between the environmental uncertainty and the relative importance of the performance measures used within BSC implementation. The first two derived propositions (P2a, P2b) are concerned with the relationship between the environmental uncertainty and the relative importance of the

outcome type of measures and the driving type measures. P2a predicted that, an organisation that faces a high level of environment uncertainty would emphasise the importance of using the driving type of measures more than outcome measures. Table 7.8 shows that; CRM has not given the driving measures more relative importance than the outcome measures; instead, it is the other way around. However, while this pattern does not match P2a, it is associated with no BSC financial effectiveness. This in turn indicts a misfit between CRM pattern and the high level of environmental uncertainty[49]. Based on the interaction fit approach, this misfit provides a support for the interaction between the high level of environmental uncertainty and the higher relative importance of the driving type of measures over the outcome measures. NIF with its fit situation provides further support for this interaction fit. In NIF, the driving measures were perceived to be rather important for providing timely information on the strategic competitive factors of the company, and an early indication of the company's future performance. Otherwise, the outcome measures were considered in NIF to be historical and back-word measures therefore inadequate by themselves for the purposes of planning and management. Thus, the above findings come in support to P2a, indicating that there is an interaction fit between the high level of environmental uncertainty and the higher relative importance given to the driving type of measures over the outcome measures.

P2b on the other hand predicted that, an organisation that faces a low level of environment uncertainty would emphasise the importance of using outcome measures more than the driving measures. ISC with its fit situation under the condition of the low level of environmental uncertainty does not support P2b. On the contrary, ISC does give the driving type of measures more relative importance than the outcome measures. In ISC the driving measures were considered to be more important than the outcome measures for attaining the timely monitoring and evaluation of the strategic competitive factors of the company, and for providing predictable information on the company performance as well.

Comparing the two fit case companies (NIF and ISC), it can be seen that, the two companies and despite of their different levels of the environmental uncertainty, they both give the driving type of measures the priority over the outcome measures for planning, managing, and evaluating the company performance. These findings however do not support P2 relating to the relationship between the environmental uncertainty and the use of BSC outcome and driving measures in terms of their relative importance.

[49] Subjectively, this misfit is expressed particularly by the Quality Senior Executive when he stated that the high level of relative importance given to the outcome measures (such those related to the profitability and liquidity) restricted the company's improvement relating to the subjects of the driving measures (i.e. quality).

Turning to P2c and P2d; these two propositions concern with addressing the relationship between the environmental uncertainty and the use of the external type of measures (i.e. customer survey). P2c predicted that, an organisation that faces a high level of environment uncertainty would use and emphasise the importance of using the external type of measures in its BSC implementation. Relating to this proposition, it can be seen from Table 7.8 that, CRM that is in misfit zone does not match P2c, while NIF that is in a fit zone does fully provide support for the proposition (P2c). Under the condition of the high level of environmental uncertainty, the use of the external type of measures (customer survey) was considered by NIF to be highly important for identifying and tracking the changeable demands of its customers, and therefore enhancing the company ability to adapt these changes in a timely manner.

In respect of P2d; it predicted that, an organisation that faces a low level of environment uncertainty would place no or little emphasis on the importance of using the external type of measures in its implementation of BSC. ISC with its fit situation under the low level of environmental uncertainty does fully support P2d. CRM has not used an external type of measures (customer survey), and the use of such type of measures was considered to be not necessary. ISC - with the stability in its customer demands - sees the customer satisfaction to be an absolute result of providing products that meet the industry standards with competitive prices. Therefore, it sees its ability of providing such products to be effectively measured and managed by using the internal performance measures apart from using external type of measures.

Hence, it is noticeable that, the above findings came in support to P2 relating to the relationship between the environmental uncertainty and the use of the external type of measures. These findings therefore add to the robustness of the early research findings that the use of external type of measures is greatly required under the condition of the high level of environmental uncertainty than the low level of environmental uncertainty - in order for tracking the change in the business environment and enhancing the quality and the time of the response to these changes (Haedr, 2012; Abdel-Kader & Luther, 2008; Chenhall & Morris, 1986; Gordon & Narayanan, 1984). However, the findings do not support the previous research findings which have suggested that; the use and the relative importance of the ex-ant and the timely-based performance measures (driving type of measures) differ among organisations according to the level of environmental uncertainty (Gosselin, 2011; Chenhall, 2003; Haldma & Laats, 2002; Chenhall & Morris, 1986; Gordon & Narayanan, 1984; Govindarajan, 1984). On the contrary, the study's findings indicate that; the driving measures are important for providing timely information on the company's critical operating factors and

for providing predictable information on the company future performance irrespective of the level of the environmental uncertainty. Thus, based on these empirical findings, P2 can be amended in details as follows:

- There is no influence of the environmental uncertainty on the use of BSC outcome and driving measures in terms of their relative importance. Instead, it appears that giving the driving measures a higher relative importance than the outcome measures fits both values of the environmental uncertainty (high level – low level).
- The environmental uncertainty has an influence on the use of the external type of measures within BSC implementation; in the way that, (a) there is an interaction fit between the high level of environmental uncertainty and the use of the external type of measures, (b) there is no an interaction fit between the high level of environmental uncertainty and the use of the external type of measures

In relation to proposition 3: proposition 3 (P3a, and P3b), addresses the relationship between the environmental uncertainty and the selection basis of BSC measures. P3a predicted that, an organisation that faces a high level of environment uncertainty would not rely on pre-specified strategic objectives for selecting its BSC measures; while relying on other bases for accomplishing this task. From Table 7.8, it can be seen that, CRM - that operates in a high level of environmental uncertainty - had not selected its BSC measures based on specified strategic objectives. Instead, BSC measures in CRM were selected directly based on the regular operational processes and activities of the company. However, while this pattern of selecting BSC measures matches P3a, it is associated with no BSC financial effectiveness. This in turn indicts a misfit between CRM pattern of deriving BSC measures and the high level of environmental. Based on the interaction fit approach, this misfit does not support P3a. This contrary finding is also supported by NIF, since NIF with its fit situation – under the condition of the high level of environmental uncertainty - had selected its BSC measures based on specified strategic objectives that have been derived from the corporate strategy of the company. The findings of CRM and NIF while are contrary to P3a, they provide contrary evidence to the inapplicability and invalidity of deriving BSC measures from a specified (deliberate) strategy under the condition of the high level of environmental uncertainty (Bukh & Malmi 2005). The findings, however, can be interpreted based on the view of Mintzberg and Waters (1985) that; an organisation can effectively formulate its deliberate strategy based on an emergent strategy after agreed on the effectiveness of the emergent strategy for dealing with the changeable elements of the business environment.

In respect to P3b; it predicted that; an organisation that faces a low level of environmental uncertainty would select BSC measures based on strategic objectives derived from a formulated strategy. The empirical findings of ISC - that operates in a low level of environmental uncertainty and is in a fit zone - fully support P2d. ISC had defined its BSC measures based on specified strategic objectives derived from a formulated strategy. And this was considered by ISC to be rather important for using BSC for measuring and managing the company performance towards the implementation of its strategy.

Taking together the above findings; P3 can be amended as follows:

There is no influence of environmental uncertainty on the applicability of selecting BSC measures based on specified strategic objectives derived from a formulated strategy. Instead, it appears that selecting BSC measures based on specified strategic objectives fits the both values of environmental uncertainty (high level – low level).

In relation to proposition 4: proposition 4 (P4a, and P4b), addresses the relationship between the environmental uncertainty and the adoption and the implementation of BSC concept of cause and effect relationship. P4a predicted that; an organisation that faces a high level of environmental uncertainty would either not adopt the cause and effect relationship concept, or implement this concept subjectively without using the strategy map. Relating to this proposition, it can be seen from Table 7.8 that, CRM - that operates in a high level of environmental uncertainty - has not adopted BSC concept of the cause and effect relationship. However, while this absence matches P3a, it is associated with no BSC financial effectiveness. This in turn indicts a misfit between the non-adoption of BSC cause and effect relationship and the high level of environmental uncertainty. Based on the interaction fit approach, this misfit comes in contrary to P4a. This finding is supported further by NIF, since NIF with its fit situation –under the condition of the high level of environmental uncertainty – has adopted the cause and effect relationship in its BSC implementation. NIF consider this adoption to be rather importance for providing its decision makers with a pattern of thinking about the causality between the driving activities and the lagging outcomes; therefore enhancing their ability to affect the causes towards achieving the desired outcomes. However, while this represents a contrary finding to the expected effect of the high level of environmental uncertainty on the adoption of the cause and effect relationship, NIF provides a support for P4a in relation to the effect of such contingent variable on the implementation of the cause and effect relationship. That is, NIF implements the cause and effect relationship subjectively in the sense of using if-and-then statements without articulating the cause and effect

relationships into the strategy map, and this was attributed explicitly to NIF high level of environmental uncertainty. As it has been illustrated previously, under its condition of the high level of environmental uncertainty, NIF perceived the use of strategy map to be ineffective and can yield to a disruptive impact on the company performance. NIF considered that the strategy map can restrict the thinking about the causality to those causal relationships mapped into the strategy map, therefore affecting the ability of decision makers to respond rapidly to the change in the business environment. Otherwise, the use of the strategy map with updating its embedded relationships is considered by NIF to be impractical and time consuming. This is because of NIF consideration that such updating process would be frequent due to the frequent change in the business environment.

Concerning P4b; it indicated that; an organisation that faces a low level of environmental uncertainty would adopt BSC concept of cause and effect relationship and implement it objectively by using the strategy map. This proposition is supported fully by ISC. ISC with its low level of environmental uncertainty consider the adoption of the cause and effect relationship to be an important for planning and managing its performance in integration manner. Simultaneously, it considers the strategy map to be an important device for implementing the concept of the causality; as it provides the company (ISC) with a management documented reference for orienting and aligning the decisions-making with the company's strategic objectives.

Comparing the two fit case studies (NIF and ISC), it can be seen that, first, the two companies and despite their different levels of the environmental uncertainty, they both adopted BSC concept of the cause and effect relationship. Moreover, the two companies appreciated the usefulness of this concept for planning and managing their performance by using BSC. Second, the two companies have implemented the concept of the cause and effect relationship in different ways. That is, while CRM implements the cause and effect relationship objectively by using the strategy map, NIF implemented the cause and effect relationship subjectively without using the strategy map.

The above findings are not consistent with the suggestion of Bukh and Malmi (2005) that; building BSC on the basis of cause and effect relationship may not be proven as applicable therefore beneficial under the condition of the high level of environmental uncertainty. However, the findings provide support to this suggestion in terms of the effect of the environmental uncertainty on the applicability and the benefit of implementing the cause and effect relationship objectively through using the strategy map.

Based on the aforementioned empirical findings, P2 can be amended in details as follows:

- There is no influence of the environmental uncertainty on the adoption of BSC concept of cause and effect relationship. Instead, it appears that the adoption of this concept into BSC implementation fits both values of the environmental uncertainty (high level – low level).
- The environmental uncertainty has an influence on the implementation of the cause and effect relationship; in the way that, (a) the high level of environmental uncertainty has an interaction fit with implementing the cause and effect relationship subjectively without using the strategy map; (b) the low level of environmental uncertainty has an interaction fit with implementing the cause and effect relationship objectively through using the strategy map.

In relation to proposition 5: proposition 5 (P5a, and P5b), addresses the relationship between the environmental uncertainty and the adoption and implementation of BSC process of setting targets for BSC measures. P5a predicted that; an organisation that faces a high level of environment uncertainty would either not set targets for BSC measures; or set incremental short-term targets across years rather than setting milestones that derived from stretch or longer-term targets for BSC measures. As it can be seen for Table 7.8, CRM - that operates in a high level of environmental uncertainty - has not set targets for its BSC measures. However, while this absence matches P3a, it is associated with a situation of misfit with CRM's high level of environmental uncertainty[50]. This misfit therefore provides contrary evidence to P5a from the perspective of the interaction fit. This contrary finding is supported further by NIF, since NIF with its fit situation –under the high level of environmental uncertainty – has developed targets for all its BSC measures. NIF considered BSC targets to be rather important for clarifying the company's strategic goals, and for providing a systematic basis for initiatives development, resources allocation and performance evaluation and development. However, while this represents a contrary finding to the expected effect of the high level of environmental uncertainty on adoption of BSC targets, NIF provides support to P5a in relation to the effect of such contingent variable on the implementation of setting targets for BSC measures. That is, NIF sets incremental targets across years for BSC measures instead of setting stretch or longer-term targets, and this was attributed explicitly to the high level of

[50] As illustrated previously, the absence of setting BSC targets in CRM was considered to affect negatively the company ability to evaluate its performance considering the particular circumstance of each year. Moreover, this absence was considered to diminish the ability to use BSC systematically as a planning system for pre-specifying the company's business initiatives and pre-allocating its resources.

environmental. As it has been illustrated previously, NIF perceived the use of the stretch type of targets and their correlated milestones to be ineffective and can lead to a demotivating effect on the employee's performance therefore the overall performance of the company. This consideration was led by the inability of NIF to specify realistic values as stretch targets, because of the low ability to predict the future events, which in turn was attributed explicitly to the frequent change in the company's business environment. Moreover, the use of the incremental type of targets was perceived by NIF to be more meaningful and controllable than the stretch targets under the company's situation of the high level of environmental uncertainty.

Concerning P5b; it indicates that; an organisation that faces a low level of environmental uncertainty would adopt the process of setting targets for BSC measures, and implement it through establishing stretch and milestones for its BSC measures. This proposition is supported fully by ISC which adopted and implemented BSC process of setting targets through developing stretch targets and milestones for all its BSC measures. ISC appreciated BSC targets as same as the case in NIF, while it considers explicitly the stability of its business environment to be a facilitator for developing and benefiting from the stretch type of targets.

Comparing the two fit case companies (NIF and ISC), it can be seen that, first, the two companies and despite their different levels of environmental uncertainty, they both have developed targets for BSC measures. Moreover, the two companies appreciated the usefulness of BSC targets in the initiatives development; resources allocation, goals clarification, and achieving a systematic performance evaluations. Second, the two companies (NIF and ISC) are different in terms of implementing the process of setting BSC targets. That is, while ISC set stretch targets and milestones for its BSC measures, NIF focused mainly on setting incremental annual targets and shorter-term targets without setting stretch type of targets and their correlated milestones.

Taking together the above findings; P5 can be amended in details as follows:

- There is no influence of the environmental uncertainty contingent variable on the adoption of BSC process of setting targets. Instead, it appears that setting targets for BSC measures fits both values of the environmental uncertainty (high level – low level).
- The environmental uncertainty has an influence on the implementation of BSC process of setting targets; in the way that, (a) the high level of environmental

uncertainty has an interaction fit with setting incremental short-term targets across years rather than setting stretch or longer-term targets for BSC measures; (b) the low level of environmental uncertainty has an interaction fit with setting milestones and stretch or longer-term targets for BSC measures.

In relation to proposition 6: proposition 6 (P6a, and P6b), addresses the relationship between the environmental uncertainty and the adoption and implementation of BSC processes of organisational alignment. P6a states that; an organisation that faces a high level of environmental uncertainty would adopt and implement BSC alignment processes extensively through considering a wide range of its members at the different organisational levels to be involved in these processes. As we can see from Table 7.8; CRM - that operated in a high level of environmental uncertainty and is in a misfit zone - matches P6a in relation to the top-managers participation in developing BSC. However, it (CRM) does not match P6a in relation to the adoption and implementation of the other BSC processes of organisational alignment (including, BSC process of education and communication, BSC process of cascading, and BSC process of linking the compensation system to BSC). Otherwise, NIF - that operates in a high level of environmental uncertainty and is in a fit zone - does provide explicit support for P6a. In NIF, BSC was developed and implemented on an extensive decentralised basis for attaining the purpose of organisational alignment. That is, in NIF all top-level managers have participated in the development and the implementation of BSC; BSC has been educated and communicated to the managers and the key employees at all organisational levels, and all managers and key employees at lower organisational levels have participated in developing and using BSC, besides being rewarded based on BSC compensation linkage.

In respect of P6b; it illustrates that; an organisation that faces a low level of environmental uncertainty will not adopt BSC alignment processes, or implement them in limited way through considering few of its members to be involved in these processes. The empirical findings of ISC - that operates in a low level of environmental uncertainty and is in a fit zone - does not support the proposition in relation to the participation of top-managers in developing BSC, and liking the compensation system to BSC. Since, all ISC top-level managers had participated in developing and using BSC, and all the organisational members of ISC at all organisational levels are rewarded based on BSC. However, ISC findings do support P6b in relation to BSC processes of education and communication, and BSC cascading process, which ISC implemented them in centralised way involving just the top and middle levels managers apart from the members at the lower organisational levels.

Comparing the two fit case companies (NIT and ISC); it can be seen that:

First: the two companies and despite their different levels of the environmental uncertainty: (1) they both developed and used their BSCs through the participation of their top-level managers, (2) they both adopted BSC process of liking the compensation system to BSC considering the managers and employees at all organisational levels to be rewarded based on this linkage. Moreover, both companies appreciated the usefulness of these processes for aligning the top and the lower-level members with the companies goals embedded into BSC.

Second; there is a difference between the two companies in term of the extent to which organisational members are involved in BSC processes of education, communication, and cascading. That is, while ISC has implemented these processes in a centralised way, NIF has implemented them in an extensive decentralised way by involving the managers and key employees in all organisational levels in these three alignment processes of BSC. As illustrated previously, In NIF, the extensive decentralised manner of educating, communicating, and cascading BSC was attributed to the company initial intention of utilising the knowledge and skills disseminated throughout the company for developing and implementing BSC. This is in addition to NIF pre-emptive intention of using directly and explicitly BSC for aligning the decision making authority distributed across the organisational levels with the achievement of the company's goals. ISC on the other hand confined its BSC development and implementation to the top-level managers and middle-level managers as they were considered to have the full picture and the adequate knowledge of the various processes and activities of the company's. This is beside their centralised possession of the decisions making authority for controlling these activities and processes. These findings are in line with the findings of Burns and Stalker (1961), which indicate the fit situation between the high level of environmental uncertainty and the decentralised organisational structure, and the fit situation between the low level of environmental uncertainty and the centralised organisational structure.

Third, the other finding that can be noted from the comparison between the two fit companies (NIF and ISC) is that the relationship between the level of environmental uncertainty and the approaches used for calculated BSC-based rewards. That is, as it can be seen from Table 7.8, while NIF used the subjective approach besides the objectives approach for calculating its BSC-based rewards; ISC used exclusively the objective approach for that purpose. This difference was attributed mostly to the level of environmental uncertainty. As

illustrated previously, NIF saw the use of the subjective approach to be important for reconsidering the objective-based-calculated rewards on the light of the change in the external environment, since these changes can be the main reason for the bad achievements rather than the performance of the concerned-rewarded person. Otherwise, the sole reliance on the objective approach in ISC was attributed mainly to the company's stable environment, which diminishes the intervention of the surprising events in the achievement of the identified targets. This later findings came in line with the findings of Hoppe & Moers, (2011), which indicate to the important of relying on the subjectivity under the condition of the high level of environmental uncertainty for compensation purposes.

Taking together the above findings, P6 can be amended in details as follows:

- There is no influence of the environmental uncertainty on the adoption of BSC processes of organisational alignment. Instead, it appears that the adoption of these processes fits both values of the environmental uncertainty (high level – low level).
- There is no influence of the environmental uncertainty on the extent to which top-level managers are involved in developing and using BSC. Instead, the participation of all top-level managers in developing and using BSC fits both values of environmental uncertainty (high level – low level).
- There is no influence of the environmental uncertainty on the extent to which organisational members are rewarded based on BSC. Instead, rewarding a wide range of organisational members based on BSC fits both values of the environmental uncertainty (high level – low level).
- The environmental uncertainty has an influence on the implementation of BSC education and communication processes, BSC cascading process, and the process of linking BSC to compensation system; in the way that, (a) the high level of environmental uncertainty has an interaction fit with the decentralised implementation of BSC processes of education, communication and cascading, while it has an interaction fit with the use of the subjective approach of calculating BSC rewards; (b) the low level of environmental uncertainty has an interaction fit with the centralised implementation of BSC process of education, communication and cascading, while it has an interaction fit with the use of the objective approach of calculating BSC rewards.

In relation to proposition 7; proposition 7 (P7a, and P7b) addresses the relationship between the environmental uncertainty and BSC process of organisational learning. P7a

predicted that: besides implementing BSC in the sense of single-loop learning, an organisation that faces a high level of environmental uncertainty would update its BSC in the sense of the double-loop learning process. As it can be seen from Table 7.8, CRM - that in a misfit zone - does not match P7a, while NIF - that represents a fit situation under the condition of the high level of environmental uncertainty - does provide fully support for the proposition (P7a). In NIF, the update of BSC in response to the change in the business environment was consider to be rather important for maintaining the consistent between the company objectives and targets embedded in BSC and the new conditions forced by the change in the business environment.

Respecting P7b; it expected that; an organisation that faces a low level of environmental uncertainty would implement BSC essentially in the sense of the single-loop learning apart from implementing it in the sense of the double loop-learning. In relation to this proposition, ISC - that represents a fit situation under the condition of the low level of environmental uncertainty – does provide a fully support for the proposition. ISC has not updated its BSC components in interaction with the external business environment, and this is attributed mainly to the stability of ISC business environment.

The above findings are in consistent with P7, but under the condition of interaction fit. Hence, based on the aforementioned findings, P7 can be amended in details as follows:

- There is not influence of the environmental uncertainty on the adoption of BSC process of organisational learning. Instead, the adoption of this process fits both level of environmental uncertainty.
- The environmental uncertainty contingent variable has an influence on the implementation of BSC process of organisational learning; in the way that, (a) the high level of environmental uncertainty has an interaction fit with implementing BSC in the sense of both the single-loop and the double-loop organisational learning; (b) the low level of environmental uncertainty has an interaction fit with implementing BSC exclusively in the sense of the single-loop learning.

7.3.2 Verifying the study propositions on the relationship between business strategy and BSC implementation based on the interaction approach of fit:

Table 7.9 contrasts the three case studies in relation to their business strategy, BSC financial effectiveness, and the propositions finding obtained from the selection fit approach relating to the relationship between business strategy and BSC implementation.

Table 7.9: Cross-case analysis in relation to the business strategy-based propositions

Cases	CRM	NIF	ISC
Type of pursued strategy	Differentiation strategy	Differentiation strategy	Cost-leadership strategy
BSC financial effectiveness	not-existence	High	High
The situation of interaction fit	Misfit	fit	fit
Propositions' findings obtained from applying the selection fit approach			
Environmental uncertainty effect on BSC perspectives (P8a, P8b)	**No Match** Giving the financial perspective the highest relative importance level, followed by the internal business processes perspective, while given the customer perspective a lower level of relative importance, and the learning and growth perspective the lowest relative importance level among BSC perspectives.	**Partial Match** Giving the customer perspective the highest relative importance level among BSC perspectives, Followed by the internal business processes perspective, and learning and growth perspective, which are given the same level of relative importance; while giving the financial perspective the lowest relative importance level among BSC perspectives.	**Partial Match** Giving the internal business processes perspective the highest relative importance level, followed by the learning and growth perspective, while given the financial perspective a lower level of relative importance, and the customer perspective the lowest relative importance level among BSC perspectives.
Environmental uncertainty effect on BSC measures (P9a, P9b)	**No Match** Giving BSC's measures related to the profitability and liquidity the greater relative importance among BSC's measures.	**Match** Giving BSC's measures related to the quality and innovation the greater relative importance among BSC's measures.	**Match** . Giving BSC's measures related to the quality, productivity and cost the greater relative importance among BSC's measures.
Environmental uncertainty effect on the use of external types of measures (P9c, P9d)	**No Match** Not using external type of measures in its BSC implementation.	**Match** Using and emphasising the importance of using the external type of measures (customer survey)	**Match** Not using external type of measures in its BSC implementation
Environmental uncertainty effect on BSC processes of organisational alignment (P10a, P10b)	**No Match** -Involving all top-level managers in developing and implementing BSC. -Non-education and non-communication of BSC to lower organisational -Not involving the lower organisational levels in developing and implementing BSC. - Not linking BSC to the compensation system.	**Match** - Involving all the managers at top management in developing and implementing BSC. - Educating and communicating BSC to all managers and key employees, at all organisational levels. -Involving all managers and key employees at lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all managers and key employees, at all organisational levels to be rewarded based on this linkage.	**Partial Match** - Involving all the managers at top management in developing and implementing BSC. - Limited education and communication of BSC in relation to lower organisational levels -Limited participation of lower organisational levels in developing and implementing BSC. - Linking BSC to the compensation system, and considering all organisational members to be rewarded based on this linkage.

In relation to proposition 8: proposition 8 (P8a, and P8b) addresses the relationship between the business strategy and the relative importance of BSC perspectives. P8a predicted that: an organisation that pursues a differentiation strategy would implement BSC with giving the customer perspective and learning and growth perspectives more relative importance than the other BSC perspectives. As it can be seen from Table 7.9, CRM with its misfit situation does not match P8a. On the other hand, NIF with its fit situation does provide an explicit support for the relationship between the differentiation type of strategy and the higher relative importance placed on the customer perspective, but not for the learning and growth perspective.

On the other hand, P8b states that: an organisation that pursues a cost-leadership strategy would implement BSC with giving the financial perspective and internal business processes perspective more relative importance than the other perspectives of its BSC. ISC - that pursues a cost-leadership type of strategy and is in a fit zone – does not fully support this proposition. Instead, it provides a partial support to the proposition in relation to the relationship between the cost-leadership type of strategy and the higher relative importance given to the internal business processes perspective.

Comparing the fit case companies (NIF and ISC), it can be seen that, the business strategy does associate with the relative importance of the two BSC perspectives of customer, and internal business processes. That is, NIF - that pursues the differentiation type of strategy - gives the customer perspective the most relative importance level among BSC perspectives, while CRM - that pursues the cost-leadership strategy - gives the internal business processes perspective the highest relative importance level among BSC perspective.

The above findings are in consistent with the study expectation, indicating that: (1) an organisation that pursues differentiation type of strategy would give the customer perspective the highest level of relative importance among BSC perspective. This is in order for identify continuously the demands of its customers, and therefore measuring and managing its ability to meet its strategic goal of building customer brand loyalty. (2) An organisation that pursues cost-leadership type of strategy would give the internal business processes perspective the highest level of relative importance among BSC perspectives. This is in order to measure and manage its ability of meeting its strategic goal of cost-efficiency. The aforementioned findings however do not fully support both P8a and P8b. Therefore, they do not support the

relationship between the business strategy and the relative importance of BSC perspectives in the way that suggested by the findings of the previous study (Sonh et al., 2003).

Based on the above findings, P8 can be amended as follows:

There is an interaction fit between the business strategy and the relative importance of BSC perspectives in the way that, (a) the differentiation type of business strategy has an interaction fit with giving the customer perspective the highest relative importance level among BSC perspectives when planning, managing, and evaluating an organisational performance, (b) the cost-leadership type of strategy has an interaction fit with giving the internal business processes perspective the highest relative importance level among BSC perspectives when planning, managing, and evaluating an organisational performance.

In relation to proposition 9: proposition 9 addresses the relationship between the business strategy and the relative importance of the performance measures used within BSC implementation. The first two derived propositions (P9a, P9b) are concerned with the relationship between the environmental uncertainty and the relative importance of BSC performance measures related to innovation, productivity and cost. P9a predicted that, an organisation that pursues a differentiation strategy would implement BSC with giving more relative importance to the performance measures related to the innovation activities. Table 7.9 shows that; CRM does not match P9a; instead, it gives BSC's measures related to the profitability and liquidity the greater relative importance among BSC's measures. However, while this pattern of CRM does not match P9a, it is associated with no BSC financial effectiveness. This in turn indicts a misfit between that pattern and the differentiation type of strategy pursued by CRM. Based on the interaction fit approach, this misfit provides support to the interaction between the differentiation type of strategy and the higher relative importance of the innovative-based BSC measures. Moreover, NIF considers the innovation factor as one of the most important competitive factor of its performance. Therefore, it gives the innovation-based BSC measures a higher relative importance when planning, managing, and evaluating its performance. Besides, it (NIF) considers the achievement of BSC targets related to those innovation-based measures for the highest rate of rewarding.

P9b on the other hand predicted that, an organisation that pursues a cost-leadership strategy would implement BSC with giving more relative importance to the performance measures related to the productivity and cost. As it can be seen from Table 7.9, ISC - that pursues the cost-leadership type of strategy and experiences a situation of fit - provides fully

support for P9b. ISC considers the cost-reduction and productivity as the most important competitive factors of its performance. Thus, it gives BSC measures related to those competitive factors the highest relative importance among BSC measures when planning, managing, and evaluating its performance. Besides, it (ISC) concentrates exclusively on the productivity-based measures for its BSC compensation system. This is attributing especially to the importance of the productivity factor by itself in increasing ISC's ability of sales, and its importance for attaining the competitive factor of cost-reduction.

Turning to P9c and P9d; these two propositions concern with the relationship between the business strategy and the use of the external type of measures (i.e. customer survey). P9c predicted that, an organisation that pursues a differentiation strategy would use and emphasise the importance of using the external type of measures in its BSC implementation. Relating to this proposition, it can be seen from Table 7.9 that, CRM - that in a misfit zone - does not match P9c, while NIF - that in a fit zone - does fully provide support for the proposition (P9c). In respect of P9d; it predicted that, an organisation that pursues a cost-leadership strategy would place no or a little emphasis on the importance of using the external type of measures (customer survey) in its implementation of BSC. The empirical findings of ISC – that pursues a cost-leadership strategy and is in a fit zone- do fully support P9d.

In summary, the above findings provide a support for the association between the business strategy and the relative importance of BSC performance measures. They indicate that, in their implementation of BSC, organisations would place more relative importance on BSC measures that reflect the most strategically competitive factors of their performance. Moreover, the above findings also provide support to the association between the business strategy and the use of the external type of measures. They are in line with the suggestion of Porter (1980) in relation to the difference between the differentiation type of strategy and the cost-leadership type of strategy in terms of their orientation towards the external business environment. The findings indicate that the use of external type of measures is greatly associated with the differentiation type of strategy more than the cost-leadership type of strategy, in order for providing frequent information on the customer demands and therefore enhancing the ability to exploit the new opportunities for innovation.

The above findings are in consistent with P9, but under the condition of the interaction fit. Hence, P9 can be amended based on the aforementioned findings as follows:

There is an interaction fit between the business strategy and the use of BSC measures, in the way that, (a) the differentiation type of business strategy has an interaction fit with the higher relative importance given to the innovation-based BSC measures, and the use of the external type of measures, (b) the cost-leadership type of strategy has an interaction fit with the higher relative importance given to BSC measures related to the productivity and cost-reduction.

In relation to proposition 10: proposition 10 (P10a, and P10b), addresses the relationship between the strategy and the adoption and implementation of BSC processes of organisational alignment. P10a states that; an organisation that pursues a differentiation strategy will adopt and implement BSC alignment processes extensively through considering a wide range of its members in the different organisational levels to be involved in these processes. As it can be seen from Table 7.9; CRM - that pursues a differentiation type of strategy and is in a misfit zone - does not match P10a, except in relation to the participation of top-level managers in developing BSC. Otherwise, NIF - that pursues a differentiation type of strategy and is in a fit zone - provides fully support for P10a.

In respect of P10b; it illustrates that; an organisation that pursues a cost-leadership strategy will not adopt BSC alignment processes, or implement them in a limited way through considering a few of its members to be involved in these processes. ISC - that pursues a cost-leadership strategy and is in a fit zone - does not support the proposition in relation to the participation of top-level managers in developing BSC, and liking the compensation system to BSC. However, the findings of ISC do support P10b in relation to BSC processes of education and communication, and BSC cascading process. That is, ISC has implemented these processes in a limited way in terms of the involvement of the organisational members at lower organisational levels.

Comparing the two fit case companies (NIF and ISC); it can be seen that:

First; both NIF and ISC involved all their top-level managers in developing and using BSC measures. Similarly, they both appreciated the important of this involvement for assuring the alignment between the decisions and actions of top-level managers with the implementation of the company strategy. Considering this agreement on the light of the difference between the two fit company relating to their type of business strategy, it can be inferred that: irrespective of its type of business strategy; BSC organisation would be better off by involving all top-level managers in developing and using BSC.

Second; they both adopted BSC processes of liking the compensation system to BSC considering the managers and employees at all organisational levels to be rewarded based on this linkage. Regardless their types of business strategy, both NIF and ISC appreciated this linkage for encouraging employees and tying their performance with the attainment of the targets set for BSC measures therefore the implementation of the company strategy. Given this, it can be inferred that, irrespective of its type of business strategy, BSC organisation would be better off by linking its BSC to the compensation system.

Third; there is difference between the two companies in term of the extent to which organisational members are involved in BSC processes of education and communication, and BSC process of cascading. That is, while ISC has implemented these processes in centralised way, NIF has implemented them in an extensive decentralised way by involving the managers and key employees in all organisational levels in these three BSC alignment processes. These later findings provide support to P10 in terms of the relationship between the business strategy and the extent of the lower organisational levels' involvement in developing and using BSC. While such relationship has not been explicitly investigated by the relevant previous studies, they support the suggestions of Porter (1980) in relation to the difference between the differentiation type of strategy and the cost-leadership type of strategy in terms of the centralisation and employees empowerment. The findings indicate that, the extent to which BSC is educated, communicated, and cascaded to lower organisational levels is greater in the differentiator organisations than in cost-leader organisations, in order to stimulate the lower organisational members' knowledge, skills, and talent for attaining its main concern of innovation.

Thus, based on the above findings, P10 can be amended in details as follows:

- There is no influence of the business strategy on the adoption of BSC processes of organisational alignment. Instead, it appears that the adoption of these processes fits both values of business strategy (differentiation – cost-leadership).
- There is no influence of the business strategy on the extent to which top-level managers are involved in developing and using BSC. Instead, the participation of all top-level managers in developing and using BSC fits both values of business strategy (differentiation – cost-leadership).
- There is no influence of the business strategy on the extent to which organisational members are rewarded based on BSC. Instead, rewarding a wide range of

organisational members based on BSC fits both values of business strategy (differentiation – cost-leadership).

- There is an interaction fit between the business strategy contingent variable and the implementation of BSC processes of education, communication, and cascading; in the way that, (a) the differentiation type of business strategy has an interaction fit with the decentralised implementation of BSC processes of education, communication and cascading, (b) the cost-leadership type of business strategy has an interaction fit with the centralised implementation of BSC process of education, communication and cascading.

7.3.3 Other findings based on the interaction fit approach:

Considering the interaction fit experienced by NIF and ISC, insights can be gained into other relationships between the business strategy and BSC implementation which were not considered by the study propositions. These are discussed as follows.

- Business strategy and the strategic basis of selecting BSC measures: the strategic basis of selecting BSC was adopted by the two fit companies (NIF and ISC), irrespective of the difference in their types of business strategy. Both companies have selected their BSC measures based on strategic objectives derived from a specified corporate strategy. Moreover, both companies – as shown in Chapter Five – perceived this step to be an important step for clarifying and translating their corporate strategy into performance measures, and hence managing their performance based on those measures towards attaining the strategy implementation. Given this; it can be inferred that: irrespective of its type of business strategy, BSC organisation would be better off by adopting the strategic basis for selecting its BSC measures.

- Business strategy and the relative importance placed on driving and outcome types of BSC measures: Irrespective of their types of business strategy, both NIF and ISC – those are in a fit zone - have appreciated the importance of the driving measures for providing timely information on their strategic competitive factors, therefore, they both placed more relative importance on the driving measures than the outcome measures. This in turn indicates that: irrespective of its type of business strategy, BSC organisation would be better off by placing more relative importance on the driving type of measures than the outcome measures.

- Business strategy and BSC concept of cause and effect relationship: BSC concept of cause and effect relationship was also adopted by the two fit companies (NIF and ISC), irrespective of the difference between them in the business strategy. In NIF the cause and effect relationship is considered to be an important part of BSC that enabled the company to plan and manage its performance in integrated manner towards implementing its strategy. In turn, the concept of the cause and effect relationship with its strategy map was considered in ISC to be particularly important for tying up the decisions and actions of decision makers at the different parts of the company with the implementation of the corporate strategy. Given this, it can be inferred that: irrespective of its type of business strategy, BSC organisation would be better off by adopting the concept of the cause and effect relationship for developing and using its BSC.

- Business strategy and BSC targets: both NIF and ISC – that are in a fit zone – set targets for their BSC measures. In the two companies, BSC targets were appreciated – among other things –for enhancing the understanding of the corporate strategy on an objective basis and hence for being a basis of planning and managing the company resources and overall performance towards implementing the corporate strategy. Considering this agreement between the two companies on the importance of BSC targets despite their different types of business strategy, it can be inferred that: irrespective of its type of business strategy, BSC organisation would be better off by setting targets for its BSC measures.

- Business strategy and BSC process of organisational learning: irrespective of their different types of business strategy, the two fit companies (NIF and ISC) have adopted BSC organisational learning process. Simultaneously, they both appreciated this process for learning from their past performance and therefore seeking improvement steps towards achieving their based-strategic targets. Although a difference is existent between the two companies in their adoption of BSC double-loop learning process, this difference – as clarified by the respondents from the both companies – is because of the environmental uncertainty and is not associated with the business strategy. Providing this, it can be therefore inferred that: irrespective of its type of business strategy, BSC organisation would be better off by utilising BSC for attaining an organisational learning.

7.5 Concluding remarks towards answering the third research question:

The above analysis showed that (1) there is no certain pattern of influence of the environmental uncertainty and the business strategy on the implementation of BSC according to the selection fit approach; (2) there is a certain pattern of influence of the two contingent variables on the implementation of BSC and therefore its financial effect according to the interaction fit approach. Specifically, the findings revealed by the interaction fit approach showed that:

First: the different values of the environmental uncertainty (high level – low level) have no influence of shaping the differences – between BSC companies – in terms of what components are adopted into BSC implementation. Similarly, there is no influence of the different values of the business strategy (differentiation – cost-leadership) on the adoption of BSC components. Instead, the implementation of BSC that involves all the conceptual components of BSC appears to fit the different values of environmental uncertainty and the different values of the business strategy. Considering these findings on the light of the two main types of BSC observed in this study (BSC as multi-dimensional PMS, and BSC as SMS), it can be concluded that: there is no role of the environmental uncertainty and business strategy contingent variables in shaping the differences between the implementation of BSC as a multidimensional PMS and the implementation of BSC as SMS; instead the implementation of BSC as SMS seems to fit the different values of the two contingent variables.

Second: in terms of the implementation of BSC components (the development and the use of BSC components): the findings showed that:

1- the different values of the environmental uncertainty (high level – low level) and the different values of business strategy (differentiation – cost-leadership) have no influence of shaping the differences – between BSC companies – in terms of (i) the relative importance placed on the driving and the outcome types of BSC measures; (ii) the strategic basis of selecting BSC measures; (iii) the extent to which top-level managers involved in BSC development and implementation; and (iv) the extent to which organisational members are rewarded based on BSC. Instead, the two different values of environmental uncertainty and the two different value of the business strategy seem to have a same interaction fit with (i) giving the driving type of measures more relative importance than the outcome measures; (ii) selecting BSC measures essentially based on specified strategic objectives derived from the

corporate strategy; (iii) involving all top-level managers in developing and using BSC; and (iv) rewarding a wide range of organisational members based on BSC.

2- Each value of the environmental uncertainty (high level – low level) does have its distinct role in shaping the development and use of certain BSC components. This is in the way that:

- The high level of environmental uncertainty has a particular interaction fit with: giving the externally-oriented BSC perspective (customer perspective) the highest relative importance level among BSC perspectives; using the external type of measures; implementing the cause and effect relationship subjectively without using the strategy map; setting incremental short-term targets across years for BSC measures; decentralising the implementation of BSC processes of education, communication, and cascading; using both the objective and the subjective approaches for calculating BSC-based rewards; implementing BSC process of organisational learning through its two loops of learning (single-loop learning and double-loop learning).
- The low level of environmental uncertainty has a particular interaction fit with: giving the internal business processes perspective the highest relative importance level among BSC perspectives; non-use of the external type of measures; implementing the cause and effect relationship objectively with using the strategy map; setting stretch type of targets and milestones for BSC measures; centralising the implementation of BSC processes of education, communication, and cascading; using exclusively the objective approach for calculating BSC-based rewards; implementing BSC process of organisational learning exclusively through its single-loop learning.

3- Each value of the business strategy (differentiation – cost-leadership) does have its distinct role in shaping the development and use of certain BSC components. This is in the way that:

- The differentiation type of strategy has a particular interaction fit with: giving the externally-oriented BSC perspective (customer perspective) the highest relative importance level among BSC perspectives; giving BSC measures relating to the innovation activities a higher relative importance level; using the external type of measures; decentralising the implementation of BSC processes of education, communication, and cascading.
- The cost-leadership type of strategy has a particular interaction fit with: giving the internal business processes perspective the highest relative importance level among BSC perspectives; giving BSC measures relating to the productivity and

cost-reduction a higher relative importance level; non-use of the external type of measures; centralising the implementation of BSC processes of education, communication, and cascading.

Considering the aforementioned findings on the light of the two BSC sub-types identified in the previous chapter (the implementation of BSC as an externally-oriented and decentralised SMS, and the implementation of BSC as an internally-oriented and centralised SMS), it can be deduced that,

- There is an interaction fit between the high level of environmental uncertainty, the differentiation type of business strategy, and implementing BSC as an externally-oriented and decentralised SMS. This in turn means that under the conditions of the high level of environmental uncertainty and the differentiation type of business strategy, BSC needs to be implemented as an externally-oriented and decentralised SMS in order to yield high financial performance effectiveness.
- There is an interaction fit between the low-level of environmental uncertainty, the cost-leadership type of business strategy, and implementing BSC as an internally-oriented and centralised SMS. This in turn means that under the conditions of the high level of environmental uncertainty and the cost-leadership type of business strategy, BSC needs to be implemented as an internally-oriented and centralised SMS in order to yield high financial performance effectiveness.

Drawing on the above findings, the study answers its third research question as follows:

The environmental uncertainty and business strategy have an important role in determining the ways BSC components are developed and used, and hence, shaping the entire implementation of BSC therefore its financial effect.

Chapter Eight:

Conclusion

8.1 Introduction:

This chapter aims to provide a summary of the study procedures, findings, contributions and implications, limitations and potential directions for further studies. It begins with an overview of the study. This is followed by presenting the study main findings related to BSC implementation, BSC financial effect, and the findings related to the contingency-based investigation. Having that, the chapter explains the main contributions and implications of the study, and then defines the study limitations, and suggests potential avenues for further studies.

8.2 Overview of the study:

This study is conducted in the field of BSC. Specifically, the study attempts to answer three main questions, (1) How BSC is implemented in practice? (2) How does BSC implementation affect an organisational financial performance? (3) How important are the contingent variables (namely, the business environment and the business strategy) in shaping the implementation of BSC and its financial effect?

In its theoretical part, the study has firstly: conducted a depth review of BSC literature aiming at giving a clear picture of the types and the components that constitute the fully developed concept of BSC (see Subsection 2.2.2). From the review, it is shown that BSC was originally introduced as a multidimensional PMS that consist of a set of financial and nonfinancial performance measures grouped into four main perspectives. Afterwards, BSC has been cumulatively developed by the various text books and articles published by its inventors throughout the period from 1992 to 2008. This has resulted in upgrading BSC to a more sophisticated strategic management system. Considering this evolution of BSC and viewing its concept as a fully developed concept, the study defined BSC as a system that consists of various components including: BSC perspectives; BSC strategic objectives and performance measures; cause and effect relationship; BSC targets and their applications (initiatives development and resource allocation); BSC aligning processes including: top-level managers' participation in BSC development, educating and communicating BSC, cascading BSC, and linking the compensation system to BSC; and finally BSC processes of organisational learning.

Secondly, the study conducted a review of the empirical studies of BSC towards identifying the gap in BSC empirical work concerning the practical implementation of BSC and its benefits (see Section 2.4). The review reveals that (1) the empirical previous studies have interpreted BSC concept in various ways, ranging from interpreting BSC as a multidimensional PMS towards the interpretations that additionally comprise some other BSC components. However, as it has been revealed by the discussion, almost all these interpretations did not capture the fully developed concept of BSC, in the way that prompts many researchers to question the validity of such interpretations for capturing the practical implementation of BSC (e.g. Dechow, 2012; Zuriekat, 2005; Chenhall 2003). (2) The majority of BSC empirical studies have measured the empirical use of BSC through using a survey questionnaire while few studies has investigated the practical implementation of BSC through using more interactive research approaches such as a case study approach. This is in the way prompts many researchers to emphasise the need for investigating BSC implementation through using such research approach therefor providing in-depth insights into how BSC is implemented in the real-world context (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Said, 2013). (3) The majority of BSC previous empirical studies have concerned with investigating the adoption rate of BSC among organisations not with investigating the implementation of BSC (how BSC is developed and used by the organisations that adopted BSC). This is in turn resulted in a lack of knowledge about the practical implementation of BSC, and therefore prompting many researchers to call for conducting further studies in this regard (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Albertsen & Lueg, 2014; Kaplan, 2012). (4) The majority of BSC studies have concerned essentially with investigating the non-financial benefits of BSC. Otherwise, although the ultimate goal of BSC is to enhance the financial performance of an organisation (Kaplan & Norton, 1992; 1993; 1996a; 1996b; 1996c; 2000; 2001a), a small number of the previous studies have examined the ability of BSC implementation to achieve this goal. The findings of these studies differ and conflict. On the other hand, little studies have investigated BSC benefits on the light of different BSC implementations, while their findings also differ and conflict. (5) The majority of BSC previous studies have been conducted in developed countries, while there is a limited knowledge regarding how BSC is implemented in less developed countries especially Arab countries such as Libya.

Thirdly, the study discussed its adopted theory for investigating its third question on the role of the contingent variables in shaping BSC implementation and its financial effect. The

contingency theory is adopted in this study since its agreed usefulness for providing a helpful explanation of the adoption and the implementation of various management accounting practices on the light of an organisational context (e.g. Liu, et al., 2014; Dropulić, 2012; Gosseline, 2011; Soobaroyen, 2007; Zuriekat, 2005; Hoque, 2004; Hoque & James 2000; Dent, 1990; Chenhall & Morris, 1986; Otley, 1980). Therefore, the assumption of the contingency theory, the different approaches of the contingent fit, the different definitions of organisational effectiveness, and the concepts of the environmental uncertainty and business strategy were discussed (see Section 2.3). Furthermore, the study conducted a review of the contingency theory based BSC studies (see Section 3.3); this review revealed that: (1) the contingency theory based BSC studies have applied the contingency theory for examining the adoption of BSC, while few studies have employed the theory for investigating the implementation of BSC. These later studies however have limited their investigating to the effect of contingent variable(s) on the relative importance of BSC perspectives without considering the implementation of BSC in relation to the other BSC components (Jusoh et al., 2007; Hoque, 2005; Sohn et al., 2003; Olson and Slater, 2002). (2) The majority of the contingency theory based BSC studies have applied the selection fit approach that excludes a critical variable of the contingency theory (the organisational effectiveness). On the other hand, little studies considered the organisational effectiveness through applying the interaction fit approach. (3) The organisational effectiveness in the majority of the related contingency based studies has been measures relying solely on the respondent self-evaluation, while this measurement approach is viewed to weak the reliability of findings (e.g., Ittner et al., 2003). By contrast, little studies have relied on the actual organisation's reports (financial reports) for measuring and assessing the organisational effectiveness. (4) The majority of the contingency theory based studies have applied the quantitative approach through using a questionnaire. By contrast, there are little explicit efforts for investigating the interplay between the contingent variables and BSC implementation using a case study research approach, which believed to be more useful for providing a depth investigation of the contextual relationships among an organisation (e.g. Liu et al., 2014; Yin, 2013; Hoque, 2004; Chanhall, 2003; Miles & Huberman, 1994; Otley, 1980; Gordon & Miller, 1976); (5) the majority of contingency theory based BSC studies have conducted in the developed countries leaving limited knowledge on the less developed countries in terms of this research area.

Fourthly, drawing on the contingency theory; the study built its theoretical framework that consists of two models (see Subsection 3.4.1). The first model is build based on the selection

fit approach. It focuses on investigating the potential influence of the contingent variables of the environmental uncertainty and the business strategy on the implementation of BSC considering all the conceptual components that constitute the fully developed concept of BSC. The second model was built based on the interaction fit approach. It in turn aims at investigating the contingent relationships between the studied contingent variables and BSC implementation on the light of the organisational effectiveness. Otherwise, the operational of each variable involved into the study theoretical framework were defined (see Subsection 3.4.3). Among the definitions of the other variables, uniquely the study operationalised the environmental uncertainty by adopting the two ways used by the literature for defining this contingent variable (defining the environmental uncertainty as the change in the business environment; and as the perceived environmental uncertainty - PEU). This is in order to identify any difference between the two ways in measuring the level of environmental uncertainty. And if so, then ascertaining how this difference can affect the relationship between the environmental uncertainty and BSC implementation. Furthermore, the study operationalised BSC variable mainly based on the study determination of the conceptual components that constitute the fully developed concept of BSC.

Fifthly, relying on the extant relevant studies, the study developed its propositions on the influence of the environmental uncertainty and business strategy on the adoption and the implementation of each BSC conceptual component (see Subsection 3.4.4). In consistent with the study theoretical framework, these propositions are tested through two analytical loops. The first loop involves testing the study proposition by applying the selection fit approach. The second loop is in which the findings obtained by the selection fit approach are verified through applying the interaction fit approach. By doing so, the study would have the opportunity to contribute to the theoretical debate regarding the appropriateness of the two approaches of the contingency theory (; Haeder, 2012; Abugalia, 2011; Gerdin & Greve, 2004; Drazin &d Van de Ven, 1985).

Sixth, the study discussed its methodological part (See Chapter 4). In which: (1) the study adopted a case study research approach (particularly multiple-case study) for accomplishing its descriptive and explanatory parts. (2) The study specified the definition of the case to be involved in its empirical investigation; this definition which specified as: Libyan for-profit manufacturing companies that are implementing BSC; furthermore, the justifications of this definition were determined (see Section 4.4). (3) The study selected the semi-structured type of interviews to be the main method of data collection, besides the use of the documentary

review and observation methods. (4) The study developed its instrument for guiding the data collection; (5) the measurement ways adopted for measuring the study variables is determined as well. Additionally, among other things, (6) the study identified its adopted processes for data analysis, which represent (i) using the descriptive statistic (means) for analysing the data collected in relation to the study's contingent variables (the environmental uncertainty and business strategy); (ii) using the three qualitative analysis processes of Miles and Huberman (1994) of data reduction; data display, and conclusion drawing and verification. These processes are used for carrying out the main analysis of the qualitative data related to BSC implementation; the interviewees' perceptions on the financial and non-financial benefits of BSC implementation; and the interviewees' direct comments on the relationships between the contingent variables and BSC implementation.

Conducting the preliminary fieldwork investigation, the study identified three case studies named as CRM, NIF, and ISC, which are Libyan for-profit manufacturing companies that are implementing BSC (see Subsection 4.9.1). Having that, the study carried out its main fieldwork investigation through conducting a total of 51 interviews, and reviewing several documents related to the companies' adoption and implementation of BSC, organisational structure and background, and the financial performance (see Subsection 4.9.2). What is following, the summary of the study findings.

8.3 The main findings of the study:

Having collected the fieldwork data, the study carried out the data analysis towards obtaining its findings that are summarised in the following subsections.

8.3.1 Findings relating to the practical implementation of BSC:

This subsection presented the main findings relating to the first research question of the study - How BSC is implemented in practice? To answer this question the study investigated the implementation of BSC in the three case studies. Doing so, the study obtained detailed findings on the adoption and the implementation of each component of BSC towards gaining a complete picture on how BSC is implemented as an entire system in each case study, therefore gaining insights on how BSC is implemented in practice. The findings of the three case studies indicate that:

"BSC in practice is implemented in different ways respecting both the adoption and the implementation of its components, while certain types of BSC implementation can be identified. These include two main types representing implementing BSC partially as a multidimensional PMS, and implementing BSC fully as a strategic management system (BSC-SMS), and two sub-types which are implementing BSC as an externally-oriented and decentralised SMS, and implementing BSC as an internally-oriented and centralised SMS". But this could be explained more as follows:

First: based on the investigation of the components adopted into BSC implementation; the study found that not all the case studies have implemented BSC through adopting all the conceptual components of BSC. Instead, some of them (CRM) has implemented BSC partially by adopting certain BSC components into its BSC implementation, while the others (NIF and ISC) have implemented BSC fully by adopting all the components that constitute the fully developed concept of BSC. Hence, considering these differences between the cases, the study distinguished two main types of BSC as follows:

1- The first type is implementing BSC partially as a multidimensional PMS. This type was observed in CRM where BSC consists exclusively of financial and non-financial measures grouped into different perspectives without considering the other BSC components.

2- The second type is implementing BSC fully as a strategic management system (BSC-SMS). This type was observed in both NIF and ISC. It comprises all BSC conceptual components, including: BSC perspectives, BSC strategic objectives and measures, BSC cause and effect relationship, BSC targets and their applications (initiative development and resources allocation), BSC processes of organisational alignment and learning.

These two main observed types of BSC provide empirical evidence on the consistency between the practical implementation of BSC and its theoretical evolution from PMS to a strategy management system (SMS) (Kaplan & Norton, 1992; 1996a; 1996b; 1996c).

Second: based on the investigation of how each adopted BSC component has been implemented (developed and used); the study found that the case studies have different ways of developing and using each BSC component. Some of these ways are consistent with the theoretical concept of BSC, while the majority represents a significant difference (for the detained findings see Subsection 6.3). Hence, based on these differences between the cases, the study uniquely distinguished two sub-types of BSC-SMS as follows:

1- The first type was observed in NIF. It represents implementing BSC-SMS in the way that involves: (1) giving the customer perspective the priority and the highest relative importance level among BSC perspectives - when planning, managing, and evaluating an organisational performance; (2) selecting BSC measures essentially based on specified strategic objectives that derived from a formulated strategy; (3) using the outcome and driving types of measures, with giving the driving type of measures a higher relative importance level than the outcome measures; (4) giving a higher relative importance to BSC measures related to the innovation activities; (5) using the external type of measures (customer survey); (6) implementing the concept of the cause and effect relationships subjectively without using the strategy map; (7) considering primarily setting explicit incremental annual targets for BSC measures; (8) involving all top-level managers in developing and implementing BSC; (9) implementing BSC processes of education, communication, and cascading in an extensive decentralised manner through involving the managers and key employees in all organisational level; (10) liking the compensation system to BSC considering all or almost organisational members to be rewarded based on BSC, (11) using both the objective and subjective approaches in a complementary manner for calculating BSC-based rewards; (12) implementing BSC in the sense of the two loops of organisational learning - the single-loop organisational learning and double-loop organisational learning.

The study named this sub-type as, "implementing BSC as an externally-oriented and decentralised SMS". This label is derived from the main predominant features of this sub-type of BSC-SMS which are: (i) giving the priority and the most importance level to the externally-oriented BSC perspective (customer perspectives) for planning and managing the company performance; (ii) using external types of measures including customer survey; (iii) using the subjective approach for calculating BSC rewards on the light of the external environment changes; (iv) the high interaction with the external environment for updating BSC by implementing BSC in the sense of double-loop learning; (iv) the decentralised implementation of BSC that represents the explicit involvement of a wide range of organisational members at the different organisational levels in the development and the use of BSC.

2- The second type was observed in ISC. It represents implementing BSC-SMS in the way that involves: (1) giving the internal business processes perspective the priority and the highest relative importance level among BSC perspectives when planning, managing, and evaluating an organisational performance, while giving the customer perspective the lowest

importance level; (2) selecting BSC measures essentially based on specified strategic objectives that derived from a formulated strategy; (3) using the outcome and driving types of measures, with giving the driving type of measures a higher relative importance level than the outcome measures; (4) giving BSC measures relating to the productivity and cost-reduction a higher relative importance level; (5) non-use of the external type of measures; (6) implementing the cause and effect relationship objectively with using the strategy map; (7) setting stretch type of targets and milestones for BSC measures; (8) involving all top-level managers in developing and implementing BSC; (9) centralising the implementation of BSC processes of education, communication, and cascading; (10) liking the compensation system to BSC considering all or almost all organisational members to be rewarded based on BSC, (11) using exclusively the objective approach for calculating BSC-based reward; (12) using BSC exclusively in the sense of the single-loop organisational learning apart from using BSC for double-loop organisational learning.

The study named this sub-type as, "implementing BSC as an internally-oriented and centralised SMS". This label is derived from the main predominant features of this sub-type of BSC-SMS which are: (i) placing the highest relative importance on the internal business process perspective, while giving the externally-oriented BSC perspective of customer the lowest level of relative importance; (ii) using exclusively internal types of measures apart from using external measures such as customer survey; (iii) relying solely on the objective approach for calculating BSC-based measures; (iv) the non-interaction with the external environment for updating BSC, which reflected in using BSC exclusively as a single-loop system; and (iv) the centralised implementation of BSC that representing the non-involvement of the low-levels members in developing and using BSC.

8.3.2 Findings relating to the financial effect of BSC implementation:

This subsection summarises the findings presented in Subsection 6.4 that aim to answer the second question of the study - How does BSC implementation affect an organisational financial performance? Regarding this question, the study shows:

"BSC implementation has different effects on an organisational financial performance - non-existent and a positively high - while the positively high financial effect is associated with implementing BSC as a fully developed concept (BSC as SMS)".

With relation to how BSC affects positively the financial performance of the company, the study findings obtained from the two case studies of NIF and ISC (that experience a high positive financial outcome from their BSC implementation) showed that; the financial effect of BSC is derived by the role of BSC in:

- Enhancing the company's ability to evaluate and manage its performance in a comprehensive way; by providing detailed and organised information on the critical aspects and factors of the company's performance.
- Enhancing the company's ability to affect the causes towards achieving the desired outcomes; by providing the company with a pattern of thinking about the causality between the driving activities and the lagging outcomes.
- Enhancing the company's ability to become a strategy-oriented company; by clarifying the corporate strategy and translating it into strategic objectives and performance measures, whereby the company can plan and manage its performance in consistent with its corporate strategy.
- Enhancing the concurrent monitoring over the company's performance in the way that avoids the company the negative effects of the sole reliance on the ex post control.
- Enhancing the company's ability to fulfil its customers' demands in a timely manner, therefore achieving a high level of customers' satisfaction. This by BSC role in enhancing the company's ability to capture the demands of its customers and getting their feedback on its performance via using the customer survey (as the case in NIF).
- Enhancing the company's ability to identify the gap between the work demands and its employees' competencies. Thus, employing the suitable training programs for mitigating this gap, therefore increasing the employees' ability to achieve the goals they are required to achieve.
- Avoiding the company the negative effect of the improvisation in managing the company performance, by taking the targets on BSC as bases of the decision making and the resource allocation.
- Enhancing the company's ability to achieve the organisational alignment between its goals and employees performance. This by communicating and cascading BSC down to lower organisational levels, or liking the compensation system to BSC achievements, or both.

- Enhancing the company's ability to identify the deviations in its performance in a systematic way towards analysing their causes and therefore taking timely corrective actions.
- Enhancing the company's ability to plan and manage its performance in interaction with its environment. Therefore, enhancing its ability to adapt its pattern of management with the change in the business environment (as the case in NIF).

8.3.3 Findings relating to the role of the contingent variables in shaping BSC implementation and its financial effect:

This subsection summarises the findings that aim to answer the third question of the study - How important are organisational characteristics (contingent variables), such as the business environment and the business strategy, in shaping the implementation of BSC and its financial effect? Regarding this question, the tests of the study's propositions and the other relevant findings presented in Chapter Seven show that:

First: there is no a certain pattern of influence of the environmental uncertainty and the business strategy on the implementation of BSC according to the selection fit approach.

Second: there is a certain pattern of influence of the two contingent variables on the implementation of BSC and therefore its financial effect according to the interaction fit approach. Specifically, the findings revealed by the interaction fit approach showed that:

1- There is no role of the environmental uncertainty and business strategy contingent variables in shaping the differences in BSC implementation in terms of what components are adopted into the implementation of BSC. Instead, the implementation of BSC that involves all the conceptual components of BSC (BSC as SMS) seems to fit the different values of each of the two contingent variables.

2- There is an important role of the environmental uncertainty and business strategy contingent variables in determining the way BSC components are developed and used, and hence, shaping BSC implementation therefore its financial effectiveness. This is in the way that:

- There is an interaction fit between the high level of environmental uncertainty, the differentiation type of business strategy, and the implementation of BSC as an externally-oriented and decentralised SMS. That is, under the conditions of the high

level of environmental uncertainty and the differentiation type of business strategy, BSC needs to be implemented as an externally-oriented and decentralised SMS in order to yield high financial performance effectiveness.

- There is an interaction fit between the low-level of environmental uncertainty, the cost-leadership type of business strategy, and the implementation of BSC as an internally-oriented and centralised SMS. That is, under the conditions of the high level of environmental uncertainty and the cost-leadership type of business strategy, BSC needs to be implemented as an internally-oriented and centralised SMS in order to yield high financial performance effectiveness.

8.4 The study contributions and implications:

Having summarised the study and presented its main findings, this section demonstrates the contribution and the implications of the study as follows.

8.4.1 Theoretical contributions and implications in relation to BSC implementation:

This study contributes to BSC literature on the implementation of BSC in number of ways:

- Subsection 2.4 of this study presents a review of the existing literature in BSC implementation. Uniquely, this review was conducted considering five dimensions (previous studies' interpretations of BSC concept; previous studies' measurement of BSC; previous studies' findings on BSC practical implementation; previous studies' findings on the benefits of BSC; and previous studies' geographic locations). This in turn contributes to the knowledge about the empirical work of BSC and therefore providing insights for understanding the future direction of the stream of this research area.
- The majority of BSC empirical studies have interpreted and defined BSC in the ways that do not capture the fully developed BSC concept (see Subsection 2.4). Thus, the current study responds to the call of several researchers (e.g. Dechow, 2012; Zuriekat, 2005; Chenhall 2003) therefore contributes to BSC literature by providing a holistic definition of BSC that captures all the conceptual components that constitute the fully

developed concept of BSC. This in turn provides a basis for a comprehensive and more accurate investigation of the practical implementation of BSC.

- The review of the literature indicates that there is a lack of knowledge regarding the practical implementation of BSC, since the majority of BSC studies concerned essentially with investigating the adoption rate of BSC not with how BSC is implemented in the real-world context (e.g. Islam & Tadros, 2012; Hendricks et al., 2012; Yongvanich & Guthrie; 2009; Ismail, 2007). Thus, the current study responds to the call of several researchers (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Albertsen & Lueg, 2014; Said, 2013; Kaplan, 2012); and therefor contributes to the knowledge of BSC implementation by providing a holistic and an in-depth understanding of the practical implementation of BSC considering the adoption and the implementation of each BSC conceptual component. The study in general show that BSC in practice is implemented in different ways not just in relation to the adoption of BSC components, but also in relation to the way by which each adopted BSC component is implemented (developed, used). These findings implies that in order to provide a depth understanding of BSC practical implementation, the future studies should not confine their investigation of BSC implementation to the investigation of BSC structure (BSC components adopted/involved in BSC implementation), but should go deeper to investigate the way by which each BSC component is implemented.
- This study contributes to the knowledge regarding BSC implementation in less developed countries in general and in Libya in particular. By doing so, the study responds to the call of several researchers for providing evidence and insights into the applicability of BSC from a different context from that in which BSC has been implemented and tested for long time-the developed countries context (e.g. Hoque, 2014; Liu et al., 2014; Said, 2013; Haedr, 2012; Sawalqa et al., 2011; Yongvanich & Guthrie, 2009; Leftesi, 2008; Ismail, 2007; Khan et al., 2011; Alkezza, 2006).

8.4.2 Theoretical contributions and implications in relation to BSC effectiveness:

This study contributes to BSC literature on the practical effectiveness of BSC in number of ways:

- The review of the literature showed that; the majority of the previous studies have focused essentially on examining the subjective (non-financial) benefits of BSC implementation (e.g. Janota & Major, 2012; Soderberg et al., 2011; Sawalqa et al., 2011; Yongvanich & Guthrie, 2009; Speckbacker et al., 2003), while enhancing an organisational financial performance is the ultimate goal of BSC (Kaplan & Norton, 1992; 1993; 1996a; 1996b; 1996c; 2000; 2001a). Thus, the study contributes to filling this gap in the literature by examining the financial effect of BSC implementation and providing the relevant empirical evidence. The study findings in general show that: BSC implementation has different effects on the financial performance effectiveness ranging from non-existent to a highly positive effect. These finding; while show differences in the financial effect of BSC implementation, (i) they show that in practice BSC implementation can have a positive effect on the financial performance of some organisations; (ii) they also show that it is important to investigate the financial effect of BSC through investigating the way and the organisational context in which BSC is implemented; specially when the findings of the current study show that BSC in practice is implemented in different ways.
- Uniquely; the current study investigated simultaneously BSC effectiveness, BSC implementation and the organisational circumstances in which BSC is implemented. This is in the way that allowed the study to establish linkage between them; therefore, identifying different BSC implementations that can lead to financial performance effectiveness under different organisational circumstances.
- While the previous BSC empirical studies have either investigated the subjective benefits of BSC or the financial benefits of BSC, the current study contributes to BSC literature by bridging the two types of benefits through clarifying the subjective benefits of BSC that underlie its financial benefits.

8.4.3 Theoretical contributions and implications in relation to the contingency theory:

This study contributes to the contingency based BSC literature, and contingency based studies in general in number of ways:

- Chapter three, Subsection 3.3, presents a review of the extant literature of BSC based contingency theory. The literature reviewed and discussed from different aspects. This review contributes to the body of knowledge by identifying the gap in such filed of research. This in turn would provide researchers with an insight for the future direction of this stream of research.
- According to the review of BSC-based contingency theory literature, the majority of the contingency theory based BSC studies have applied the contingency theory for examining the adoption of BSC, while few studies have employed the theory for investigating the implementation of BSC. However, these later studies have limited their investigation to the effect of contingent variable(s) on the relative importance of BSC perspectives without considering the implementation of BSC in relation to the other BSC components. Therefore, the study contributes to the contingency theory by extending the application of this theory from focusing on investigating the adoption of BSC to investigating the implementation of BSC considering the adoption and implementation of all BSC conceptual components. Hence, determining the features of the contingent fit between BSC implementation and certain contingent variables (the environmental uncertainty and the business strategy) that can yields to financial performance effectiveness. This is while there is no previous effort for determining such contingent fit by taking into account BSC as an entire system that consists of various complementary components.
- Dul and Hak (2008) define the theory as a set of propositions about an object of study, each proposition in the theory consists of concepts and specifications of relations between these concepts (Dul & Hak, 2008, p. 34). On the light of this definition of theory, the current study can be considered as a pioneer effort for developing a full contingency-based theory about BSC. Whereas, the study combined the contingency theory-based knowledge regarding different managerial domains (organisational structure, management control system, management accounting system, and performance measures system) to develop a set of propositions (build theory) about the relationships between the full developed concept of BSC and the contingent

variable of the environmental uncertainty and the business strategy, and therefore tested their validity in practice.

- The review of the literature shows that contingency-based BSC studies have either used the selection approach or the interaction approach of the contingent fit. Thus, the current study responds to the call of several researches to apply both approaches therefore contributing to the theoretical debate on their appropriateness (Haedr, 2012; Abugalia, 2011; Gerdin & Greve, 2004; Drazin &d Van de Ven, 1985). The study findings show that; there is a major difference between the use of the selection fit approach and the use of the interaction fit approach in verifying the role of the contingent variables in shaping the implementation of management accounting systems in a broad. This is in the way that gives the preference to the interaction fit approach over the selection fit approach. That is, an organisation's survival in its market is not sufficient evidence or indication to the existence of fit between the contingent variables and MASs. Instead, for investigating and verifying such contingent fit, the effect of the interaction between those variables on organisational performance effectiveness has to be sought in the sense of applying the interaction fit approach of the contingency theory.
- This study provides additional evidence from Libyan context that supports the earlier evidence on the effectiveness of the contingency theory for gaining a useful understanding and logical explanation of the different implementations of MASs (e.g. Abugalia, 2011; Donaldson, 2001; Drazin & Van de ven 1985; Otley, 1980; Waterhouse & Tiessen; 1978).

8.4.4 Methodological contribution:

This study contributes to the methodology of research on BSC and the contingency theory in a numbers of ways:

- Unlike other instruments used in the previous BSC studies, the instrument in this study was designed in the way that enables: (i) investigating the practical implementation of BSC through examining the adoption and implementation of each conceptual component from that constitute the fully developed concept of BSC; and simultaneously (ii) capturing the participants' point of view on the influence of the contingent variables on the adoption as well as the implementation of each BSC component. Using this instrument; the study arrived at useful findings that could not

have been reached by using the measurement instruments applied in the previous BSC empirical studies.

- This study responds to the call of researchers to investigating the practical implementation of BSC by using a case study approach as this is believed to provide in-depth insights into how BSC is implemented in the real-world context (e.g. Hoque, 2014; Simpson & Aboagye-Otchere, 2014; Said, 2013)
- This study represents one of the pioneer studies to seek the analytic generalisation of the contingency theory – in BSC domain - by using the case study approach. Therefore, responding to the call of several researchers for providing a depth investigation of the contextual relationships among an organisation by using such research approach (e.g. Liu et al., 2014; Yin, 2013; Haedr, 2012; Hoque, 2004; Chanhall, 2003; Miles & Huberman, 1994; Otley, 1980; Gordon & Miller, 1976).
- Distinct from the contingency-based studies that adopted the case study approach (e.g. Agostino & Arnaboldi, 2012; Ditillo, 2004; Dill, 1958); the current study used the theory-based pattern matching technique as a basis for testing the contingent relationships between the contingent variables and BSC implementation rather than the traditional methods of analysis (narrative analysis, thematic analysis, or grounded theory analysis). This approach of analysis is believed to be rather effective by the researcher; especially when noting (from the discussions with the senior executives of certain studied company) that asking respondents direct questions on the effect of contingent variables on BSC implementation can be an ineffective and lead up to mistaking results. This is because of (i) the probable lack of some respondents' knowledge of the meaning of some contingent variables (such us the environmental uncertainty); (ii) or/and their lack of knowledge of how BSC is implemented in other companies that differ from their companies in terms of the level of environmental or/and the type of business strategy. This is in the way that can inhibit gaining answers from respondents, or/and gaining answers that are highly personal (reflecting the respondents' background academic knowledge, rather than reflecting the real situation of an organisation). Thus, by using the theory-based pattern matching technique, the study is believed to mitigate such negative influences, therefore lighting up a technique of analysis that can strengthen the validity and reliability of the contingency based research's findings.
- This study contributes to the construct validity of measuring the contingent variable of environmental uncertainty, by showing that there is no difference between measuring

the environmental uncertainty as the change in the business environment or as PEU. Instead, the two ways are corresponding and leading to similar findings. This finding can be taken as an enhancement for the validity of corroborating the findings of contingency based studies that applied the two different ways for measuring the environmental uncertainty.

- Unlike other previous studies that measured the financial effect of BSC (and MAS in general), this study has used two sequential and complementary stages for this purpose. The first stage in which the study used the actual financial reports for determining the change in the financial performance after the implementation of BSC (using ROA). The second stage in which the study sought the participants' perceptions on the extent to which BSC implementation has contributed in creating that financial change. These two stages are adopted to avoid mistaking findings that can be resulted from considering only the change in the financial performance when judging the financial effect of BSC. Since, this financial change can be a result of the implementation of other systems while implementing BSC, or because of the change in the business environment as it becomes more munificent during BSC implementation, rather than being due to the implementation of BSC. Thus, by doing so, the study contributes to the construct validity of measuring the financial effectiveness of BSC and MASs in general.

8.4.5 Practical contributions and implications:

This study has useful practical contributions and implications for practitioners that their organisations whether implementing currently BSC, or planning to implement this system, or even have not been in contact with it. These are summarised as follows:

- The study contributes to the knowledge of practitioners about BSC implementation. It shows them that BSC is not standardised system; instead it is a malleable system. It can be implemented in different ways, not just in terms of its structure (the components adopted in BSC implementation) but also in terms of the ways in which each structured component is implemented.
- The study contributes to the knowledge of practitioners about the financial effect of BSC. It shows them that BSC implementation can affect positively an organisational financial performance through enhancing the effectiveness of several managerial functions, including; performance measurement, strategy clarification, strategic

planning, the resource allocation, the organisational alignment and learning. However, this can be gained only if BSC is implemented in the appropriate way. The study shows that implementing BSC to be in fit with organisation's level of environmental uncertainty and type of business strategy can lead to financial performance effectiveness. Thus, practitioners should consider paying attention to analyse and link the implementation of BSC to those contingent variables.

- The study provides practitioners with guides that can assist them with implementing BSC in the way that fits their organisation's level of environmental uncertainty and type of business strategy. Following these guides, practitioners can reach a financially successful BSC implementation. Thus, in general, it can be said that, practically, the current study contributes to the financial effectiveness of organisations through assisting them with implementing BSC in the way that appropriately fits their organisational context in terms of business environment and business strategy.

8.5 The study's limitations:

Like the other management accounting research, this study is subject to a number of limitations. These can be discussed as follows: (1) the first limitation relating to the number of contingent variables involved explicitly in this study. The initial plan of the study was to consider explicitly different contingent variables in its BSC-based contingency investigation, including additionally the organisational size, technology, and organisational structure. However, due to the time constraint and the limitation of words number in PhD thesis, these contingent variables were not addressed explicitly in the study. Instead, they were addressed implicitly through leaving them to be emerged from the context as rival variables - through posing the question why in response to respondents' answers when clarifying their company choice about the adoption and implementation of a certain BSC component. Nevertheless, the non-explicit consideration of such contingent variables can still be considered as one limitation of this study. (2) The second limitation is in relation to the number of case studies involved in the study. The intuition of the researcher was to involve more than one case from that hold the same values of environmental uncertainty and business strategy in order to apply the literal replication approach of the case study research. However, while the study has succeeded to do so in relation to CRM and NIF, it failed to do so in relation to ISC. This was because of the appeared limited number of companies that implement BSC in Libyan context,

and the refuse of several companies to participate in this study. As a result, this inhibited the study from carrying out the literal replication in relation to the effect of the low level of environmental uncertainty and cost-leadership type of strategy on BSC implementation, which is believed to add more accurateness and robustness to the study findings in terms of those relationships. (3) The third limitation represents the main reliance on the financial measure of ROA for measuring the change in the financial performance of a company after implementing BSC. Although ROA is considered to be a prime measure for measuring the financial performance effectiveness (Atrill & Mclaney, 2015; Selling & Stickney, 1989); the findings of this study can be strengthened more by using additionally other financial measures. However, the failure of getting permission from some of the case companies to use the information required to calculate additional financial measures, makes the use of such additional measures useless, since the comparison of these measures cannot be carried out across the cases. (4) The fourth limitation can be related to the use of the direct observation method for getting additional data on BSC implementation in the sense of applying the triangulation relating to this inquiry of the study. Although the direct observation method was used in this study for gathering additional confirmatory evidence on the companies' contextual factors, the intuition of the researcher to attend meetings in relation to BSC could not be achieved. This is because of the failure of getting the necessary permission from the three companies.

8.6 Future research directions:

This study represents an effort to contribute to the limited knowledge about BSC implementation, financial effectiveness, and contingent relationships; while many other efforts are required to add to our knowledge regarding this field of research. This can be through: (1) Investigate the practical implementation of BSC whether comprehensively by using the definition of BSC and the measurement instrument developed by the current study; or through focusing on certain points raised by the current study in relation to the different implementations of BSC concept of the cause and effect relationship, the different implementations of BSC process of setting targets, the different implementations of BSC processes of organisational alignment, and the different implementations of BSC processes of organisational learning. (2) Investigating the financial effectiveness of BSC as it represents the ultimate goal of BSC. In this regard the further concerned study can use different financial

measures simultaneously, and use the relevant two stages used in this study, therefore providing more strength to their findings. (3) Investigating BSC through applying a case study approach to add to the limited use of such approach in the field of BSC, therefore providing more insights into BSC practical implementation and implications. (4) Investigating BSC in less developed countries as this context is still not well covered in relation to this field of research. (5) Replicating the current study in respect of its contingency-based findings whether by using a survey or a case study research approach, therefore examining the robustness those findings and hence their generalisability. In doing so, the future contingency-based BSC studies - that follow a case study research approach - are motivated to cover a number of cases in the way that allows the application of the theoretical replication or the literal replication or both. Therefore, they can add strength to their findings. In addition, these studies are also motivated to use the theory-based pattern matching technique for conducting their contingency-based investigation; thus strengthen the validity and reliability of the findings. Moreover, (6) further studies are also called to investigate the contingent relationships between BSC implementation and other contingent variables that have not been addressed explicitly in this study. This in turn would increase the understanding of BSC implementation from the perspective of the contingency theory. (7) While the current study is conducted with its main focus on the for-profit manufacturing companies, the further relevant studies are motivated to focus on the non-for-profit companies, and the companies in other industrial domain (e.g. service domain).

Appendix (A): Study instrument:

Start time:…….; Date:…….; Place:……;

Company name:……; Participant name:……...

Section One: [General information about the participant]:

1.1 What is your job title and position?

1.2 How long is your work experience (in general; in this company; in the current position)?

1.3 What are your academic/professional qualifications?

1.4 Other personal information (Age:.....; Gender:.....).

Section two: [General information about the company]:

2.1 What type of organisations is your company (e.g. for-profit/non-for-profit; private/ government-owned)?

2.2 When your company has been established? What is its capital investment?

2.3 What is the approximate number of full-time employees in your company?

2.4 How many levels do constitute your company's organisational hierarchy? Could you provide me with the organisational framework of the company?

2.5 In what type of industry your company is engaged?

2.6 What products does your company produce? And what is its production capacity?

2.7 What market(s) does your company supply?

2.8 How do you believe your company market position?

(Could you give me a report on your company background?)

Section three: [Contingent Variables]

3.1: Environmental uncertainty:

How do you believe the external environment of your organisations had changed over the past three years for each following item? And, how would you perceive past/future changes in each following item in terms of predictable or unpredictable?

Environmental elements	Level of change							Predictability of change						
Change in competitors' number.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Change in competitors' actions with respect to introducing new products, price and quality.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Customer demands, testes and preferences in regard to price, quality and delivery.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Suppliers' actions in respect to raw material price, quality, delivery and availability.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Manufacturing technology	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Government regulation/policies	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Economic environment (inflation, growth rate, labour rate).	1	2	3	4	5	6	7	1	2	3	4	5	6	7
International factors such as the word economy, imports and foreign exchange.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Development of new products or services in the industry.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

3.2 Business strategy:

3.2.1 Does your company have a written formal corporate strategy? If (yes): what the statement of this strategy? And, when and how this strategy has been developed? (Could you provide me with any relevant documents?)

3.2.2 How do you describe your company's strategic orientation in relation to each item in the following two groups?

Providing lower price product than competitors	1	2	3	4	5	6	7
Maximising product volume.	1	2	3	4	5	6	7
Improving cost-efficiency of production system.	1	2	3	4	5	6	7
Reduce the activities' cost that is not pertained to production process such as costs of advertisement and after-sale services.	1	2	3	4	5	6	7

Introducing innovative products	1	2	3	4	5	6	7
Improving product's features/design in timely manner.	1	2	3	4	5	6	7
Customising products and service as response to customers' needs.	1	2	3	4	5	6	7
Providing high quality products than competitors	1	2	3	4	5	6	7
Making dependable delivery.	1	2	3	4	5	6	7
Providing effective after-sale services and support.	1	2	3	4	5	6	7

Section four: [BSC implementation]:

4.1 General information about BSC:

4.1.1 When has BSC been introduced and adopted in your company?

4.1.2 What is the main motivation for BSC adoption in your company?

4.2 BSC perspectives:

4.2.1 How many and what BSC perspectives are used in your company's BSC? How these perspectives have been determined to be adopted in your company (on what basis)?

4.2.2 How valid and sufficient these BSC perspectives are in evaluating and managing the performance of your company? Why?

4.2.3 How does your company consider the relative importance of each BSC perspective when evaluating and managing the company performance? Could you order them according to their relative importance? Why?

4.3 BSC performance measures:

4.3.1 How many, and what performance measures are used in each perspective of your company's BSC? (Could you provide me with your companies' report of BSC?).

4.3.2 Does your company use the driving types of measures; besides the outcome type of measures, in its implementation of BSC? If (NO): why?

If (Yes):

4.3.3 How does your company consider the importance of using the driving type of measures comparing to the outcome measures for evaluating and managing its performance? Why? And

what are the specific performance measures that your company considers as the most important measures among its BSC measures?

4.3.4 Does your company use the external type of measures, specifically, the customer survey, in its implementation of BSC? If (NO): why? And how do you evaluate customers' perspective on your products/services, if you consider this is necessary?

If (Yes):

4.3.5 How does your company consider the importance of using the external type of measures for evaluating and managing its performance?

4.4 Selecting basis of BSC measures:

4.4.1 Does your company have specified strategic objectives? If (NO): Why?

If (YES):

4.4.2 How these strategic objectives have been identified? (Could you provide me with a relevant document(s)?).

4.4.3 How BSC performance measures have been identified? Have they been identified based on the company's specified strategic objectives? If (NO); why? And what is the other basis used for identifying BSC measures in your company? How? If (YES), how this process has been done? (Could you provide me with a relevant document(s)?).

4.5 Cause and effect relationship:

4.5.1 Has your company applied the concept of the cause and effect relationship for developing its BSC? If (NO): Why?

If (YES):

4.5.2 How this process has been done? Which BSC components have been considered in this process? (Could you provide me with a relevant document(s)?).

4.5.3 Does your company use the logic of the cause and effect relationship in the daily use of BSC? If (NO): why? If (Yes): for what purpose(s)?

4.5.4 Has your company articulated BSC cause and effect relationships in a form of the strategy map?

If (NO): why; is there any certain reason for not doing so? And how this concept is used in the company?

If (YES): Could you provide me with your company strategy map?

4.5.5 Do you (as a company) rely on the strategy map for applying the cause and effect relationship concept when using BSC? If (NO): why? And how this concept is used in your company?

4.5.6 How do you evaluate the usefulness of applying the cause and effect relationship in your company (whether through using the strategy map or without)?

4.6 Setting targets for BSC measures:

4.6.1 Has your company set targets for its BSC performance measures?

If (NO): why; is there any certain reason for not doing so? Does your company use BSC as a basis for undertaking its strategic initiatives and allocating its resources? If (yes): how! If (NO): why? And what is the basis used in your company for accomplishing these purposes of planning?

If (YES):

4.6.2 Are the targets set for all BSC measures or just for certain measures? If certain measures, what is the nature of these measures (outcome, driving measures)? And to which BSC perspectives these measures belong to? Is there any certain reason for considering just those measures apart from the other measures on your company's BSC? (Could you provide me with a relevant document(s) on BSC targets?)

4.6.3 What type of targets does your company set for its BSC measures (stretch targets, milestones, incremental annual targets, etc.? Is there any certain reason for considering this type(s) of target(s) apart from other types?

4.6.4 How have these targets been developed?

4.6.5 Does your company rely on BSC targets as a basis for undertaking its strategic initiatives and allocating its resources? If (NO): Why? And what is the basis used in your company for accomplishing these purposes of planning?

4.6.6 How do you evaluate in general the usefulness of BSC targets for your company?

BSC organisational alignment processes

4.7 Top-level managers' participation in BSC adoption and development:

4.7.1 Have top-level managers participated in the adoption of BSC? If (NO): why, and by whom the decision of BSC adoption has been taken? If (Yes): Who are they? Why and how?

4.7.2 Have top-level managers participated in developing BSC? If (NO): why? And by whom BSC was developed?

If (Yes):

4.7.3 Who are they? Why not the others? (Could you provide me with a relevant document(s)?).

4.7.4 What was the role(s) of those top-level managers in developing BSC? What components of BSC have they participated in their development? How?

4.7.5 How do you evaluate the usefulness of top-level managers' participation in BSC development in your company?

4.8 Cascading BSC development:

4.8.1 Have lower-levels members participated in developing BSC? If (NO): Why?

If (YES):

4.8.2 Who are they (managers, employees, and to which organisational levels they are belong)? Why not the others? (Could you provide me with a relevant document(s)?).

4.8.3 What was the role(s) of those lower-level members in developing BSC? What components of BSC have they participated in their development? How?

4.8.4 How do you evaluate the usefulness of lower-level members' participation in BSC development in your company?

4.9 BSC communication and education:

4.9.1 Has your company educated and communicated BSC throughout its top management level? If (NO): why? If (Yes): how?

4.9.2 Has the company educated and communicated BSC to lower organisational levels? If (NO): Why?

If (YES):

4.9.3 How and to which organisational level (business units, department, employees and alike) has the corporate BSC been communicated? Why those not the others? (Could you provide me with a relevant document(s)?).

4.9.4 How do you evaluate the usefulness of this BSC communication process in your company?

4.10 Cascading the use of BSC:

4.10.1 By whom BSC is used in your company? Have lower organisational levels been involved directly in the use of BSC? (Could you provide me with a relevant document(s)?).

If (NO): Why? And how BSC is used in the company in terms of the roles of BSC users?

If (Yes): why? And;

4.10.2 At which organisational levels is BSC used? Why not the others?

4.7.4.3 What is the role(s) of lower-level members in using BSC? And what is the role(s) of other BSC users?

4.10.4 How do you evaluate the usefulness of the lower-level members' participation in using BSC in your company?

4.11 Linking BSC to compensation system

4.11.1 Has your company linked its compensation system to BSC implementation?

If (NO), why?

If (YES): (Could you provide me with a relevant document(s) on this compensation linkage?).

4.11.2 When has the company started to do so?

4.11.3 Who have been rewarded based on BSC (managers, employees/ top, middle, low level)? Why not the others? What BSC perspectives and types of measures are considered essentially for rewarding? Why?

4.11.4 Do the rewards represent the whole salary or just bonus? Why?

4.11.5 What is the periodic basis of rewarding (monthly, quarterly, or annually)? Why?

4.11.6 Are the rewards calculated objectively, or subjectively, or both? How and why? Could you provide me with a document(s) on the rules of BSC based rewarding?

4.11.7 How do you evaluate the usefulness of linking the rewards to BSC in your company?

4.12 BSC feedback and learning processes:

4.12.1 How do you consider your company's BSC in terms of BSC assumed role of organisational leaning?

4.12.2 Does your company get performance feedback from its BSC? If (NO) Why?

If (YES):

4.12.3 How this process is conducted and on which periodic basis? (Could you provide me with a relevant document(s)?).

4.12.4 Do BSC users/decision makers in your company rely on BSC feedback for taking corrective actions regarding the company's performance? If (NO): why? If (Yes): how this process is conducted and on which periodic basis? (Could you provide me with a relevant document(s)?).

4.12.5 Has BSC in your company been updated during its implementation period? If (NO): why?

If (Yes)

4.12.6 What was the reason(s) for this updating? Was it to adapt BSC to the change in the business environment? If (NO): why? And what was the other reason(s)? (Could you provide me with a relevant document(s) on BSC updating process?).

4.12.7 How and what BSC components were involved in this updating process, concerning: strategic objectives, performance measures and the cause and effect relationship, BSC targets, etc.?

4.13 BSC financial effect:

4.13.1 Could you provide me with the financial reports of the company for a year before implementing BSC and for the years of BSC implementation in order to calculate the change rate in ROA measure?

4.13.2 Having identified the change rate in ROA; how do you perceive the extent to which BSC implementation in your company has contributed in the change in its financial performance measured as ROA (use the 6-point scale bellow)?

No contribution	Very low contribution	Low contribution	Moderating contribution	High contribution	Very high contribution
0	1	2	3	4	5

4.13.3 Why do you perceive BSC implementation in you company to have this rank of financial contribution?

.....THE END.....

Appendix (B): Ethical Approval

University of Salford MANCHESTER

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26 October 2015

Mohamed Hassan Albergley
University of Salford

Dear Mohamed

Re: Ethical Approval Application – The implementation of Balanced Scorecard (BSC) – A contingency approach – A comparative case study in less developed coutnries (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

Appendix (C): CRM Company's interviews

Informal interviews			
No	**Job title**	**Date**	**Duration**
1	General Manager (GM)	28/10/2015	00:59:28
2	Monitoring and Information Manager (M&I M)	29/10/2015	01:31:05
3	Financial Senior Executive (FSE)	01/11/2015	00:59:48
4	Production Senior Executive (PSE)	01/11/2015	00:49:53
Formal interviews			
No	**Job title**	**Date**	**Duration**
1	Financial Senior Executive (FSE)	12/11/2015	00:56:51
2	Administrative affairs Senior Executive (AASE)	12/11/2015	01:23:10
3	Internal Audit Manager (IAM)	14/11/2015	00:52:16
4	Marketing Senior executive (MSE).	14/11/2015	01:57:35
5	Quality Senior Executive (QSE)	15/11/2015	01:33:07
6	Production Senior Executive (PSE).	17/11/2015	00:50:44
7	Monitoring and information manager (M&I M)	18/11/2015	00:54:52
8	General Manager (GM)	19/11/2015	00:53:23
9	Cost Department Director (CD)	21/01/2016	00:15:22
10	Financial accountant (FA).	21/01/2016	00:17:01
11	Human resources Department Director (HRD)	21/01/2016	00:23:05
12	Production stores Director (PSD)	21/01/2016	00:19:13
13	Marketing Department Director (MD)	21/01/2016	00:17:04
14	Manager of Research and Development unit (R&D D).	21/01/2016	00:25:36
15	Technical Department Director (TD)	21/01/2016	00:15:37

Appendix (D): NIF Company's interviews

Informal interviews			
No	**Job title**	**Date**	**Duration**
1	General Manager (GM)	03/11/2015	01:12:16
2	Deputy of General manager & Financial Senior executive (DGM&FSE)	04/11/2015	00:53:28
3	Human resources & IT Senior executive (HR&IT SE)	04/11/2015	01:16:19
4	Sales and Marketing Senior executive (S&M SE).	05/11/2015	00:51:58
Formal interviews			
No	**Job title**	**Date**	**Duration**
1	General Manager (GM)	23/11/2015	02:15:02
2	Deputy of General manager & Financial Senior executive (DGM&FSE)	24/11/2015	01:42:2015
3	Operations Senior executive (OSE).	25/11/2015	01:36:33
4	Human resources & IT Senior executive (HR&IT SE)	26/11/2015	01:32:41
5	Sales and Marketing Senior executive (S&M SE).	29/11/2015	01:39:06
6	Marketing Director (MD)	30/11/2015	01:04:28
7	Production Director (PD)	22/01/2016	00:14:43
8	Production accounts Supervisor (PAS)	22/01/2016	00:15:19
9	Production quality department director (PQCD)	22/01/2016	00:16:09
10	Analysis and testing department director (A&T D).	22/01/2016	00:20:32
11	Production unit manager (PUM)	22/01/2016	00:17:17
12	Quality supervisor (QS)	26/08/2016	00:21:03
13	Laboratory Technician (LT)	26/08/2016	00:15:01
14	Operational Technician (OT)	28/08/2016	00:14:53

Appendix (E): ISC Company's interviews

Informal interviews			
No	**Job title**	**Date**	**Duration**
1	Production planning and control manager (PP&CM)	05/11/2015	01:48:11
2	Chief executive officer (CEO)	08/11/2015	00:59:02
3	BSC team leader (BTL)	08/11/2015	01:14:37
4	Deputy of chief executive officer (DCEO)	09/11/2015	00:41:07
Formal interviews			
No	**Job title**	**Date**	**Duration**
1	BSC team leader (BTL)	08/12/2015	01:07:12
2	Technical affairs senior executive (TASE)	09/12/2015	00:44:45
3	Quality control manager (QCM)	15/12/2015	01:26:12
4	International marketing manager (IMM)	15/12/2015	01:30:01
5	Internal audit manager (IAM)	16/12/2015	01:37:41
6	Cost control manager (CCM)	16/12/2015	00:39:37
7	Engineering affair and projects senior executive (E&PSE)	17/12/2015	00:31:54
8	BSC team member (BTM)	17/12/2015	00:21:21
9	Training administration manager (TM)	29/12/2015	00:47:14
10	Local marketing manager (LMM)	29/12/2015	01:10:55
11	Production planning and control manager (PP&CM)	01/01/2016	00:15:43
12	Commercial and financial affairs senior executive (C&FSE)	06/01/2016	00:45:13
13	Personnel department manager (PM)	06/01/2016	00:15:00
14	Chief executive officer (CEO)	10/01/2016	00:25:47
15	Production planning and control manager (PP&CM)	11/01/2016	01:57:15
16	Deputy of chief executive officer (DCEO)	12/01/2016	00:52:21
17	Deputy of chief executive officer (DCEO)	12/01/2016	01:37:18
18	Chief executive officer (CEO)	13/01/2016	00:16:37
19	Chief executive officer (CEO)	13/01/2016	01:09:03
20	R&D Manager (R&DM)	13/01/2016	00:47:56
21	industrial safety senior executive (ISE)	14/01/2016	00:26:38
22	Operational Technician (OT)	16/01/2016	00:10:57

Appendix (F): Validation of the translated materials

Nidal Nuri Alhassan

Certified Translator for Misrata
Court of Appeal

نضال نوري الحسان

مترجمة قانوني مقيد بمحكمة استئناف مصراتة

To Whom It May Concern,

As a certified translator authorized by the Appeal Court of Misrata - Libya, I hereby confirm the following:

- Having listened to the verbal records of the fifty-one interviews conducted by **Mohamed Hassan Albergley** during the period of Nonmember 12, 2015 to August 28, 2016. The companies anonymized as CRM (15 recorded interviews); NIF (14 recorded interviews); and ISC (22 recorded interviews) in relation to his research study entitled (Balanced Scorecard implementation and financial effect from the perspective of the contingency theory: Multiple-case study in Libya).

- We reviewed the original Arabic-based writing documents and research notes collected and taken by the researcher (**Mohamed Hassan Albergley**) from the three above-mentioned companies and for the same above-mentioned purpose.

- We hereby certify that, as a certified translator, the translated-based English quotations are valid, reliable, and representative of the meanings of the words recorded in the recordings, embedded into the collected documents, and taken research notes.

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مصراتة – ليبيا
Misurata - Libya

Appendix (G): CRM BSC's performance measures

Financial perspective's performance measures

- Return on assets.
- Cash flow rate.
- Accounts receivable turnover.
- Revenue to the revenue of the previous year.
- Total cost to the total cost of the previous year.
- Total profit.
- Operating profit margin.
- Gross profit margin.
- Variable cost to total cost.
- Fixed cost to total cost.

Customer perspective's performance measures

- Sales per customer.
- New customers.
- Sales from new customers to total sales.
- Sales from certain type of product to total sales.
- Sales growth rate.

Internal business processes perspective's performance measures:

Outcome measures:

- Sales from new products to total sales (quantities).
- Sales to production (quantities).
- The number of new products comparing with the previous year.
- Production from a certain product to total production (quantities).
- Total cost to production quantity.
- Actual production to the available capacity (quantities).

Driving measures:

- The rate of daily production.
- Stoppage rate.
- Production quality rate.
- Defect rate.
- The number of new products' designs to the executed designs.

Learning and growth perspective' measures:

Outcome measure:

- Revenue per employee.

Driving measures:

- The expenses of training to the revenue.
- Employees' absenteeism rate.
- The rate of employees' undertaken training.
- Employees' turnover rate.

Appendix (H): NIF BSC's performance measures

Financial perspective's performance measures

- Economic value added.
- Cash per share.
- Return on assets.
- Net income to operating income.
- Operating cash flow rate.
- Gross profit margin.
- Fixed cost to total cost.
- Variable cost to total cost.

Customer perspective's performance measures:

Outcome measures:

- Market share.
- Sales growth rate.
- Sales from a certain type of product to total sales (quantities).
- Consumption per capita.
- Customer retention rate.
- Intermediate customer acquisition rate
- Sales growth rate of an intermediate customer.

Driving measures:

- Customer satisfaction rate.
- Solved customers' complaints to total customers' complains.

Internal business processes perspective's measures

Outcome measures:

- Actual production to plan (quantities).
- The actual cost of the unit of product to the plan.
- Inventory turnover rate.
- Actual sales to the plan (quantities).
- New products' introduction versus the plan.
- New products' introductions versus competitors.
- Sales from new products to total sales.

Driving measures:

- Production quality rates.
- Defect rate of the completed production.
- Productivity rate per hour.
- Raw material utilisation rate.
- Production cost per individual activity.
- Raw material defect rate.
- Time for introducing new product rate.
- The number and cost of post sales services.
- R&D expenses to total revenue.
- The number of tests undertaken for introducing new products.
- Delivery time.
- The executed advertisements comparing with plan.

Learning and growth perspective's performance measures:

Outcome measures:

- The revenue per employee
- Productivity per employee.
- Annual employees' satisfaction rate.

Driving measures:

- Number of employees' suggestions.
- Number of training programs undertaken.
- The expenses of training to profit.
- Overtime expenses rate.
- Employees' turnover rate.
- Employees' absenteeism rate.
- Number of solved employees' complaints to total number of employees' complaints.
- Stoppage time caused by work accidents.
- Injury frequency rate.
- Number of national expertise occupied leading technical positions to the number of leading technical positions in the company.

Appendix (I): ISC's BSC's performance measures

Financial perspective's performance measures:

Outcome measures:

- Return on capital employed.
- Cash inflow rate.
- Total cost: actual to targeted.
- Revenue: achieved to the targeted.
- Fixed cost to total cost.
- Variable cost to total cost.

Customer perspective's performance measures:

Outcome measures:

- Sales growth rate.
- New sales' contracts.
- Customer retention rate.
- Customer complaints rate.

Internal business processes perspective's performance measures:

Outcome measures:

- Sales volumes to production volumes.
- Selling price to market price rate.
- Production quality rate.
- Customer requirements response rate.
- Actual production to design capacity.
- Deviations in the cost of product unite.
- Deviation from general environment safety standards.

Driving measures:

- Finished products inventory turnover rate
- Actual production to design capacity (productivity)
- The availability of raw material inventory rate
- Raw material inventory turnover rate
- Loss rate in raw material
- Machines utilisation rate
- Cycle time rate
- Raw material yield rate (raw materials utilisation rate)
- The execution rate of the required developments in the fixed assets
- Stoppage time rate
- Stoppage frequency rate
- Maintenance time rate
- Planned maintenance rate
- Machines availability rate
- The time delivery from the plants to storages of finished products
- The availability of finished products
- Percentage of certain type of products to total products
- The cost of raw materials lost to the total cost of raw materials
- Cost of defective products to total production cost
- Deviation rate in energy cost

- The portion of product units from raw material cost
- The portion of product unit from the cost of production requirements
- The portion of product unit form the cost of maintenance
- The portion of product unit from the fixed cost
- Raw materials quality rate
- Percentage of defective product units to total production
- Percentage of rejected production to total production
- Execution rate of the analyses and tests of raw materials quality
- Execution rate of the mechanical analyses and tests of the finished production
- Execution rate of the chemical analyses and tests of the finished production
- Execution rate of environment-safety developments
- Air pollution rate
- Rate of toxic emission (air)
- Rate of metallic dust (air)
- Rate of toxic emission (water)
- Noise and vibration rate
- Temperature deviation rate
- Deviation rate of Light intensity
- Waste recycling rate

Learning and growth perspective's performance measures:

Outcome measures:

- Productivity per employee
- Revenue per employee.
- Subjective evaluation rate of employees' efficacy.
- Employees' injury rate.

Driving measures:

- The frequency rate of work injury
- The number of certain type of injury to total injury number
- Medical rest to work hours
- Injury integrity rate
- Efficacy of internal clinics rate
- Injuries occurred in certain work site to the total injury number
- Employee's turnover rate
- Employee's absenteeism rate
- The number and types of the training programs
- Employees training rate
- Training investment rate
- The cost of training programs to the revenue
- Employees housing rate.

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