

ANGLIA RUSKIN UNIVERSITY  
FACULTY OF BUSINESS AND LAW

**THE INFLUENCE OF INDIVIDUAL BEHAVIOURAL FACTORS ON DECISION-  
MAKING PROCESS OF MANAGEMENT ACCOUNTING BASED ON INTERACTIVE  
BEHAVIOUR CHAIN MODEL (IBC)**

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A thesis in partial fulfilment of the requirements of Anglia Ruskin University for the degree of  
Doctor of Philosophy (PhD) in Accounting, Finance and Operations Management

Submitted: September 2021

## ACKNOWLEDGMENT

I would like to take this opportunity to express my gratitude to all those who have supported me during my PhD journey, and to express my profound gratitude and indebtedness to my family for the overwhelming support which I received. Their usual love and prayers have been very instrumental in pushing me on during the challenging years of my PhD, and without their encouragement, this thesis would not have been possible to complete. Special thanks to my father and mother for their continued emotional support. Also, my gratitude goes to my wife, brothers and sisters who offered invaluable support over the years.

My research could not have been accomplished without the help and support of my supervisors. In this context, I would like to thank Professor Magdy Abdel-Kader who I started my PhD research with, and who provided valuable support and guidance to me at my early PhD stages. Also, my sincere gratitude to Dr Teng Guan and Nanthi Pichamuthu who supported my work with appreciated encouragements, time and patience to reach the final stage of my PhD research with helpful and cooperative interaction during my course.

My deep gratitude goes to Anglia Ruskin University and the Doctoral school which has supported me in many different stages and provided me valuable training, workshops, and the opportunity to participate in different local and international conferences. I appreciate the help and support of Dr. Alison Hirst, the director of research students who helped us to be engaged in an inspirational learning environment in the Doctoral school. This PhD thesis would not have been possible without the corporation and assistance provided by the university and Faculty of Business and Law. I would also like to thank the Libyan Embassy for the scholarship and funding my tuition fees of my PhD course.

I would like to extend my heartfelt thanks to Dr. Bahlul Shalabi who provided a considerable support during my PhD journey. I also would like to thank my friends all those who have encouraged me in all the stages of my PhD journey. In addition, I am sincerely grateful to the respondents who had participated in my questionnaire and I deeply appreciate their patience and participations which have a significant positive impact of my research.

Finally, I would like to express my gratitude to all who have contributed with different ways to the completion of this research, thank you very much.

ANGLIA RUSKIN UNIVERSITY

ABSTRACT  
FACULTY OF BUSINESS AND LAW  
DOCTOR OF PHILOSOPHY

THE INFLUENCE OF INDIVIDUAL BEHAVIOURAL FACTORS ON DECISION-MAKING  
PROCESS OF MANAGEMENT ACCOUNTING BASED ON INTERACTIVE BEHAVIOUR  
CHAIN MODEL (IBC)

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NOVEMBER 2020

Based on the literature of Individual Behaviour Factors IBFs, business studies, and interdisciplinary academic contributions related to accounting, managerial, psychological and behavioural fields, this research investigates the impact and the association of IBFs on decision-making process focusing on Strategic Investment Decisions SIDs. The IBFs chosen in this study are personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership. The essence of this association has critically investigated in a coherent theoretical framework that establishes the Interactive behaviour Chain model (IBC) which is a multidisciplinary model.

In the methodological part, the research adopts a quantitative method through using the questionnaire instrument for gathering the data. The research questionnaire was carefully designed and formulated in accordance with the research objectives and hypotheses. In addition, pilot study was distributed before the final distribution taking into consideration the clearness, simplicity and usefulness. In this research, 220 respondents from 11 Libyan service companies were participated and provided their attitudes in this contextual interactive relationship.

The findings showed significant support of the association between IBFs and SIDs as the hypotheses proposed, while other results presented less support. The administrative leadership factor was the highest factor supported by 81% which is considered as in the very high impact level. Similarly, personality, ability and skills, and motivation fall into the 70s % as they recorded 74%, 75% and 77% respectively.

The research can build a philosophical basis that can be further discussed in the future studies due to the significance of the IBFs chosen in this research. The continuing gap of the literature is considered in the current research that provides a distinctive combination designed and represented in the IBC model. This combination is based on the gap found in the previous studies. Applying this model contributes scientifically in reducing the existing research gaps by examining the association of the IBFs with the SIDs in a significant practical environment.

**Key words:** individual Behaviour Factors (IBFs), Strategic Investment Decisions (SIDs), Interactive Behaviour Chain model (IBC), personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership.

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## **CHAPTER 1: INTRODUCTION**

This introductory chapter provides an overview of the study which includes the main elements that represent the essence of this research. It introduces a background of the research that presents the main research relationships and the increasing prominence of the behavioural issues in management accounting. The research framework and design will be highlighted in this chapter. The contribution and distinctiveness of the research will be then presented in details. To provide a coherent and solid framework, the chapter will introduce the research objectives, research problem and questions and research hypotheses that will be tested and discussed in the next chapters (chapters 5 and 6). The chapter will briefly provide an overview of the methodology used in designing and conducting this research. For a general overview, the structure of this thesis will show the outlines of the seven chapters included in this research.

### **1.1 Background of the Research**

The interaction between Individual Behavioural Factors (IBFs) and decision-making process has been briefly discussed in management accounting literature and organisational behaviour areas. This mainstream literature has not combined the multiple IBFs studied in this research. The integrated behavioural factors as a complex research area need to be deeply explained to address the challenges that face both individuals and firms. In management accounting context, the IBFs are considered as multiple influential factors in determining the efficiency of decision-making (Metawa et al., 2019). These contextual factors should be taken into account within the organisations which seek to exploit the behavioural factors related to management accounting roles and decision-making processes including psychological aspects (Valaskova et al., 2019; Kengatharan and Kengatharan, 2014). The efficient decisions vary depending on the main systems applied within organisations and the responsibilities given to decision-makers. In fact, many studies confirmed that there are a number of behavioural determinants affect this process in positive and negative implications (Kubec et al., 2019; Nayel, 2019a; Kyguoliene and Bakanauskiene, 2016).

In the behavioural aspect, there is a variety of individual factors which determine the quality of decisions (Icelliglu and Ozden, 2012; Pohankova, 2010). In this context, the research provides a model which is Interactive Behaviour Chain (IBC). This model focuses on eight main IBFs



which are personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership. The essence of this model is to present a comprehensive coverage of the real and possible impacts of the IBFs on this process by clarifying the various behavioural effects and providing an analytical framework of the positive and negative implications of these eight factors. The model measures the influence level of the IBFs on the individual performance regarding decision-making processes, and it can be applied in wide areas in the financial, managerial and economic areas. This research applies the model specifically on Investment Strategic Decisions (SIDs) as they have a high relative weight of the process. Libyan service companies are chosen to conduct this study and apply the IBC model in order to measure the influence level of the IBFs on decision-making process, and how to exploit and improve the positive behavioural impact and minimise the negative implications.

Understanding the behavioural impact has often been a challenging issue in business environment (Bryman and Bell, 2018; Agle et al., 2014; Tulgan, 2014; Dunning, 2010), and in accounting research (Ashton, 2013; Schmitt, 2013). This thesis is conducted to fill the continuing gap in the association between the integrated IBFs and the strategic investment decisions, and to provide a more comprehensive framework of the integrated psychological and behavioural determinants measured by the IBC model established in this study. Promoting a holistic view of this study through the research outcomes, formulated by the IBC model and investigated by the theoretical and statistical analyses can provide valuable contributions in this significant area.

This study contends that the IBFs' implications could be more obvious if the scientific research contributions build their assumptions and analyses on an organised and rational scientific basis. From this conceptualization, the thesis aims to identify the underlying assumptions of the IBFs to be in a logical scientific framework supported by the IBC model that transforms individuals' behavioural impact into the performance level outcomes that result in the quality of strategic investment decisions. The model is an additional contribution to the mainstream literature and related to behavioural accounting research that has been introduced in critical insights. Developing this area makes the behavioural implications more transparent to researchers, individuals and firms. As a result of the complex behavioural issues, the research aims to transform these characteristics of individuals' performance into a clearer framework.

Linking this area with strategic investment decisions is fundamental in this research due to the significant impact of such financial decisions on the firms' investments and financial plans. The SIDs studied in this research are represented in capital investment decisions, expansion, replacement and renewal investment decisions, and also mergers and acquisitions decisions. The interactive association between the independent (IBFs) and dependent (SIDs) variables has a strategic beneficial framework that could help a number of institutions in Libya and all over the world in building an understandable framework of dealing with one of the most challenging issues in management accounting (Nahum and Carmeli, 2020; Mendes et al., 2019; Broome, and Marshall, 2016). Based on the IBC model assumptions, the provided contribution would build clear mechanisms of how would firms and managers deal with their individuals and organise their human resources regarding the behavioural activities. These strategic actions can be applied by adopting and enhancing the desirable behaviours and working on reducing the undesirable patterns as the model interprets and recommends.

This research rationally focuses only on 8 IBFs to be more accurate represented in; personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership. This selection is based on the significance of these IBFs derived from the literature, and the critical view of the researcher. The essence of this selection stems from the interactive relationships between these IBFs and the stages of SIDs which critically has different interactions on the different stages such as identifying the problems, gathering the required data and information, generating the possible alternatives, selecting and implementing the most appropriate alternative and following-up the decisions taken. In addition, the selection is made based on the lack of studies that combine these IBFs in one essence, especially in their relationships with SIDs. As a result, filling this significant gap is an essential part of the research rationale.

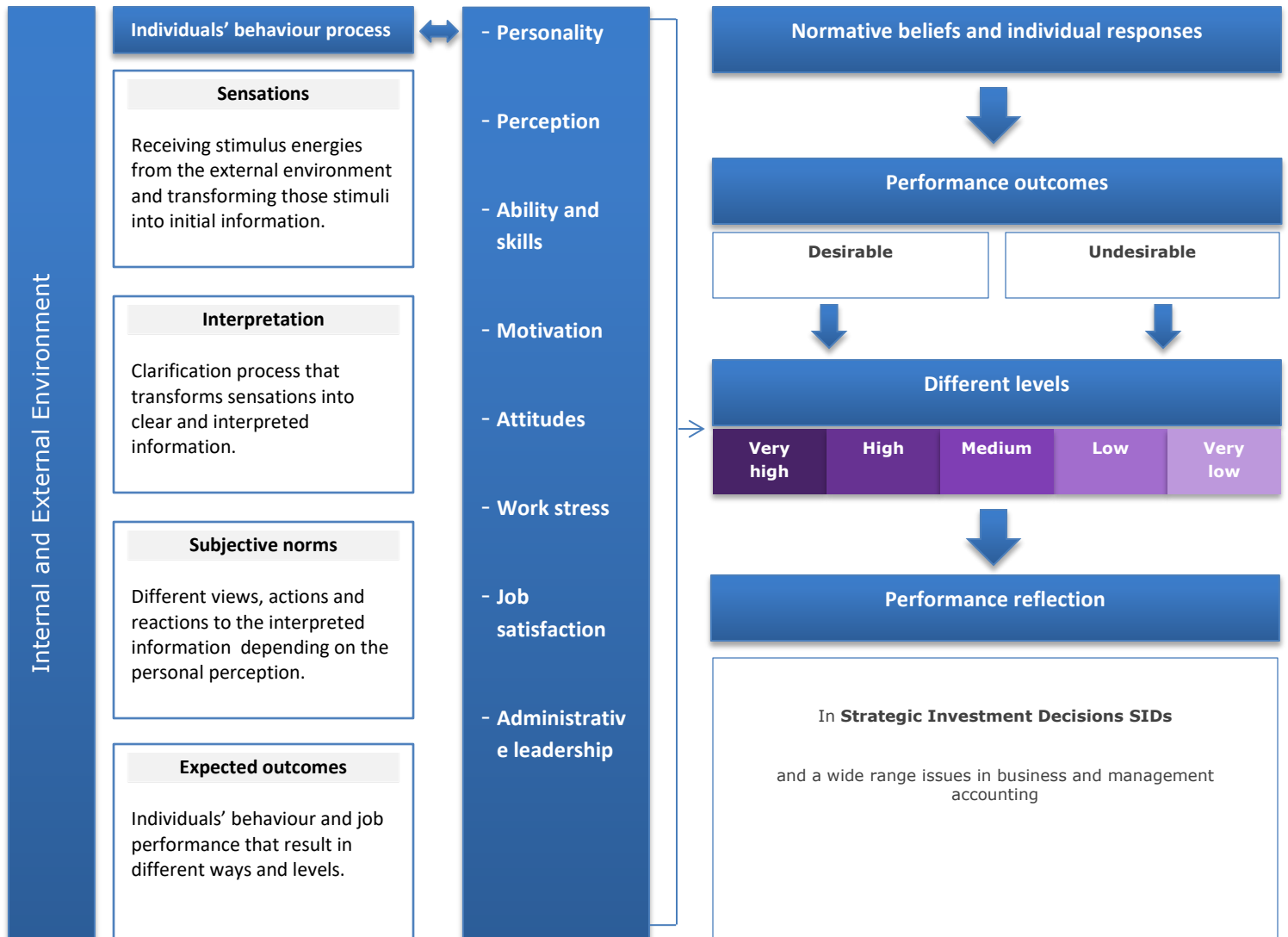
Understanding the psychological impact enables top managers feel more confident in dealing with individuals when they realise the essential IBFs. In addition, behavioural accounting researchers can deal with reliable conducted studies that test the hypotheses formulated and reflect them into analytical forms. Based upon theoretical and empirical studies, the thesis continues in a scientific pathway that shows unique and effective academic contribution in the relationship between the study's variables. In this context, the thesis is built on an investigative

design that focuses on identifying the nature of problem, and formulating associated hypotheses of the research. Exploring the relationship of the research's variables paves the way for the future studies building their insights in a reliable and valid basis with regard to this relationship. As it is introduced in the chapter 4 (Research Design: Methodology and Research Structure), the behavioural transformation challenge needs to be interpreted in a logical and persuasive manner. This necessity encourages the researcher to provide comprehensive assumptions framework of the main eight IBFs formulated in the IBC model. They include multiple positive and negative assumed sub-factors introduced in 48 determinants as they interpreted in the Theoretical and Conceptual Framework: Modelling Interactive Behaviour Chain (IBC) chapter. Critical insights of the provided IBFs' assumptions raise different related questions regarding the impact extent of each determinant on individuals' performance, thus making effective strategic investment decisions. The results of the impact between two variables can be accurately produced through the IBC model. This relationship is carefully formulated and examined by the IBC model and its assessment process.

## **1.2 Individual Behavioural Factors Overview**

Behavioural and psychological factors play a significant role in individuals' behaviour and their interaction within firms where they work and perform their assigned tasks. A significant issue that has to be carefully considered is evaluating and tracking individuals' performance delivered as a result of their behavioural responses. From this perspective, successful managements seek to report and analyse the past behavioural change, tracking the current behaviour and predicting the future behaviour in order to obtain a consistent and desirable behaviour. This study focuses on main 8 behavioural factors mentioned above that will be studied in terms of their impact on SIDs. The Figure 1.1 introduces the general interactive process of the behavioural factors and their reflection in the performance domains. Essentially, the research is built on a number of assumptions including the IBFs shown in the Figure 1.1 and the SIDs.

**Figure 1.1: The behavioural interactive process and performance outcomes**



**(Researcher's figure)**

The process illustrated in this figure shows that the behavioural process of individuals is determined by a number of internal and external environments and it is normally represented in several steps. To make the research very specific and accurate in choosing the behavioural determinants, I would argue that the 8 IBFs are the most influential factors in terms of their influence on SIDs. The behavioural synchronisation (interactive relationship that occurs at the same time) of the basic individuals' behaviour process and IBFs is shown in the left side on the Figure 1.1. These two columns have an interactive relationship, so each IBF interacts with the

behavioural process in a similar way with regard to receiving and interpreting the stimuli from internal and external sources and transforming them into meaningful behavioural outcomes. The deep concepts of the behavioural synchronisation and behaviour process analysis have been historically introduced in several studies that generally link the behaviour factors with the ability of individuals in interpreting and reflecting these stimuli into different behaviours (Leslie and O'Reilly, 2016; Fisher, Piazza and Roane, 2011; Kouimtsidis et al., 2007; Palmer, 1991).

In the Individuals' behaviour process, there are 4 main basic stages starting with sensations which is defined as a general feeling occurred by some variables the individuals receive, especially events or determinants that cannot be expressed precisely (Cambridge Dictionary, 2017). Receiving stimuli from the external and internal environments is occurred within firms by several variables such as individual relationships, firms' legislations and regulations, and instructions that can be received in different ways. These stimuli entail initial information that normally can be processed in the next stage which is interpreting the information and producing it into a clear and understandable framework. Individual differences play an essential role in forming their behaviours depending on how they behave and react based on the subjective norms they have. The final stage of this process is the expected outcomes that individuals predict. At this stage, individuals' responses and their future behaviours are predicted. Their predictive accuracy depends on their prediction ability (Nikulin et al., 2006). All of these stages interact with the 8 IBFs as a basis of human behaviour process. Although understanding the core concepts of human behaviour responses is a significant issue, the research essentially and only focuses on the IBFs as independent variables.

Individuals naturally have different behavioural backgrounds that determine their responses and actions toward variables that they face. The normative beliefs and subjective norms of individuals are typically reflected in the performance outcome which can be in the desirable or undesirable outcomes domain. The research aims to create a performance measurement represents in the IBC model which reflects the transformation of the IBFs based on the normative beliefs and subjective norms into different performance levels. This transformation is generated to show the performance reflection on SIDs as the dependent variables in this study. The Figure 1.1 then shows the basic form of the behavioural domain of this thesis and how the

IBFs can be reflected into different performance levels depending on individual differences and environmental variables.

Considering the most common IBFs that have been investigated in the previous studies, the argument of choosing the 8 main IBFs stems from the necessity and relative weight of these factors in their relationships with decision-making processes. Several studies contend that various personality characteristics have a significant impact on executive managers' decisions made (Filiz and Battaglio, 2017). In addition, decision-makers and the participants of this process have different abilities in recognising their tasks due to their individual differences that include many IBFs (Carnevale et al., 2011). Although the impact of numerous personality patterns on decision-making process has been reflected in some accounting studies, they need more additional concentration due to the significant relationship (Basel, 2012; Jeffrey, 2011). The systematic approach of individual differences is implicitly represented in the IBFs as the individuality is a distinctive character of the participants of decision-making processes (Little, 2017; Appelt et al., 2011; Franken and Muris, 2005). Further explanations of the significant implications of the IBFs and why they were selected can be seen in theoretical framework of this study that presents full IBF assumptions.

Building on a number of studies mentioned in the second chapter in the “Interpretations of the IBFs and Hypotheses Development” part, I argue that the behavioural factors studied can represent a significant contribution in the complex relationship between the research's variables. The main assumptions of the theoretical and critical framework are consistent with the interpretation of the 8 IBFs. This consistency is formulated to be in line with the structural design of the research including research questions, hypotheses, objectives and methodology.

### **1.3 Strategic Investment Decisions**

The reason behind choosing SIDs as a main domain of this study stems from the considerable role played by this type of decisions in forming the future's positions of firms. The dependent variable of this research is represented in this type of decisions that requires a balanced process to study and analyse the projects' cost and benefits (Volden, 2019). SIDs can be defined as the process that aims to transforming the capital expenditure into planned projects that generate future cash inflows (Pogue, 2010). The SIDs are typically decisions concerning long-term investment represented in expansion, replacement and renewal investment decisions, and the

decisions of mergers and acquisitions. This domain is arguably considered as the most significant type of decisions due to the considerable money invested and time consumed over making and implementing these decisions (Harris et al., 2009).

SIDs are essentially made by many individuals including leaders, managers, financial directors, accountants, internal auditors, employees, experts, financial analysts and financial consultants. Decision-makers authority differs depending on several determinants such as systems applied and participation flexibility. Also, managerial planning, directing, and controlling activities play a significant role in organising the processes of SIDs (principles of accounting, 2017). This study provides insights concerning several SIDs that can be affected by the IBFs in the several stages of the decision process. Although these stages differ in the detailed form, stages and mechanisms, they have common and essential steps that should be taken into consideration. They normally start with identifying problems, and scanning for proposed and possible investment projects. Then, generating the possible alternatives and investment projects, and gathering the relevant information of each alternative. After that, making initial assumptions and determining the project outline. The next step is represented in making an initial evaluation of the accepted alternative. Applying investment appraisal techniques is the next stage that supports decision-makers choosing the best alternative. The final stage are normally represented in the authorisation of the decision-makers' board by supporting the decision and control it.

As argued earlier, the most influential IBFs will be investigated in terms of their effects on SIDs through the research instrument that will reflect the participants' attitudes toward this association. I argue that investigating the main 8 IBFs and their 48 sub-factors would be positively reflected in a number of decision-making benefits represented in:

- 1- Utilisation of resources can be effective when decision-makers understand the underlying effects of the IBFs and enhancing individuals' ability in dealing with different behavioural characteristics.
- 2- Helping businesses in having a powerful economic and market growth through planning and allocating their resources into appropriate investment decisions.
- 3- Motivating and engaging individuals in SIDs' processes would be reflected in many positive results such as increasing their performance level, loyalty and commitment to their assigned tasks.

- 4- Exploiting abilities of individuals who have innovative, creative and exceptional skills in transforming available financial sources into beneficial investments.

#### **1.4 Accounting Elements in SID Process**

This research involves considerable measurement challenges of the IBFs in relation with the basis of management accounting and other derived accounting disciplines. The relationship between IBFs and SIDs consists of a set of accounting determinants that interact with the SID process in each stage. The quantitative nature of financial accounting and accounting information system supplies relevant information to decision-makers regarding financial information such as the financial positions of the firms and profitability which enhance SIDs in several stages. Horngren et al. (2002) emphasised that understanding accounting information contributes in making better decisions. They indicated that the successful implementations of accounting information can be reflected in reporting, collecting accounting information as well as controlling the decisions made, and therefore that would be positively linked to the overall firms' objectives. Emmanuel et al. (2013) pointed out that accounting information and management accounting play significant roles in providing valuable strategic and operational support to decision-makers. In addition, planning and control are not divided issues as they are included in the decision-making process.

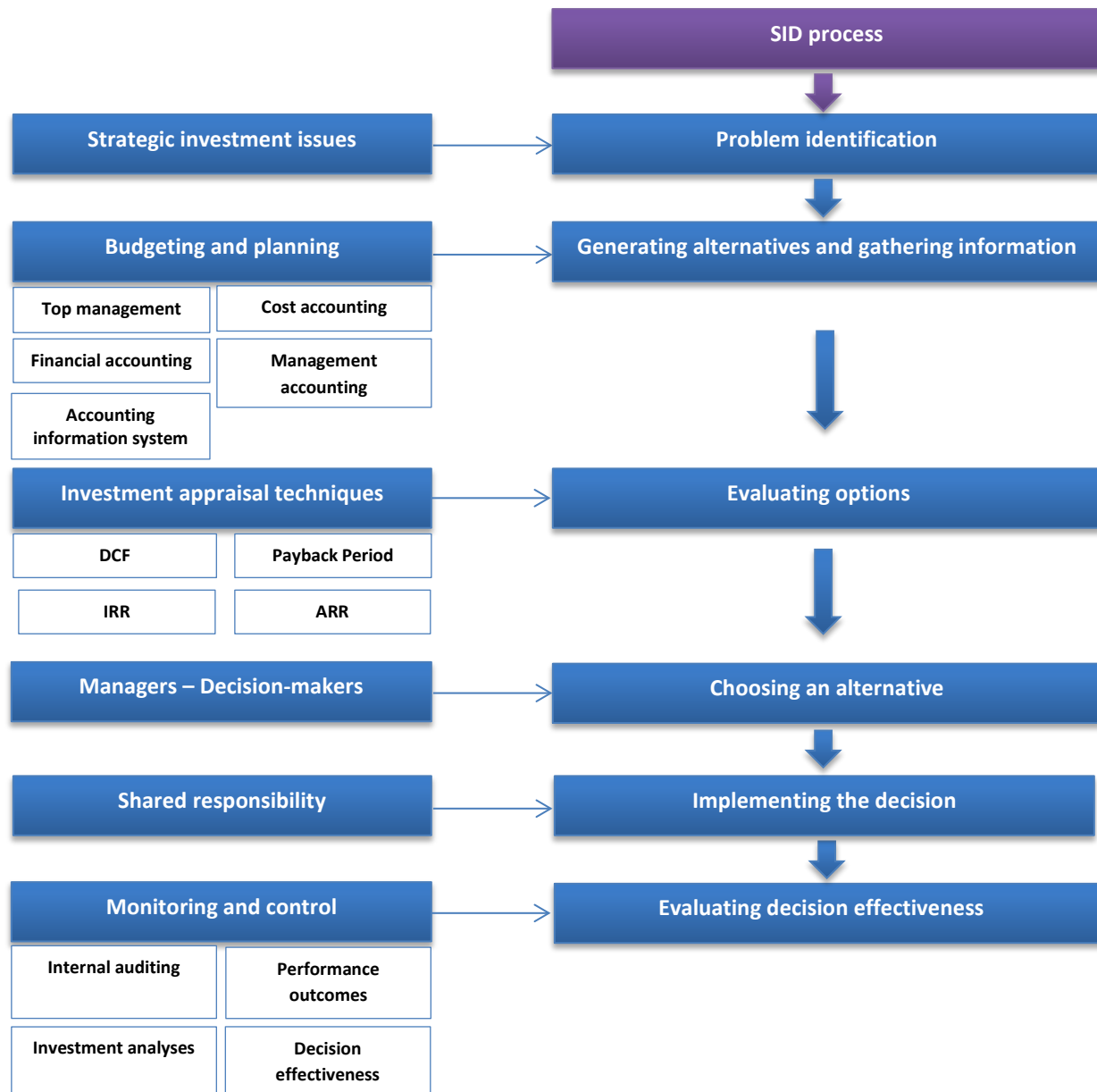
SIDs are made according to several purposes. Profitability is a significant and essential objective of the major firms. From this perspective, management accounting, cost accounting and financial accounting focus on supporting decision-makers by all the information that guarantees future financial return (Scott, 2016; Drury, 2013). Firms usually analyse investment projects according to their future expected profitability, and they check the budgeting analyses of each proposed projects to choose the best alternative available and drop unprofitable projects. Therefore, firms perform an investigation focusing on multidimensional analysis concerning the predicted revenues, cost and net profit of the proposed investment projects. These dimensions involve exploiting data richness that should be derived from accounting information support in the second stage of SID.

Investment decisions can generally support firms' financial position in the long-term if the whole SID processes are carefully made along with the successful implementation of these decisions. These decisions determine the amount of the additional capital that can be added to the current



firms' capital. To reflect the wide relationship between accounting elements and SIDs, the next figure will show how these elements are integrated with this significant process at the main stages.

**Figure 1.2: Interactive relationship between accounting elements and SID process**



(Researcher's figure)

This Figure illustrates how accounting profession can play a significant role in SIDs. This figure shows the basic steps of decision-making process that can be further expanded depending on the systems applied and the organisational structure. The reason behind showing this interactive relationship is to pave the way to the further discussion of the relationship between the IBFs and SIDs as the accountants are most individuals involved in this study. Each stage in this process has direct determinants shown on the left side of the figure. For example, generating alternatives and gathering information stage is conducted by several managements such as top management, management accounting, cost accounting, financial accounting and accounting information system. In the evaluation step, several investment appraisal methods can be used to help firms evaluate which investment alternative should be chosen. Then selection stage is normally conducted by managers and the participants in this process, while implementing these decisions is a responsibility of many individuals and managements within firms. Monitoring and controlling the SID chosen can be followed up by and through internal auditing, performance outcomes, investment analyses and decision effectiveness.

This thesis aims to contribute to linking the IBFs and SIDs under the strategic management accounting framework using the IBC model. Strategic management accounting can be defined as the core of management accounting systems that supports strategic decision-making (Tillmann and Goddard, 2008). In this context, management accounting can help decision-makers not only in providing appraisal investment techniques' results, but also in further issues such as producing new products and opening or closing down an department or new product lines (Atrill and McLaney, 2009). Management accounting systems support and provide information to strategic decision-makers in many stages of SIDs (Atrill et al., 2014). According to Atrill and McLaney (2009), there are four wide areas, where management accounting supports the implementation of decision-makers; long-term strategy development, evaluating individuals' performance, resources allocation, and cost and benefit determination.

The research attempts to elicit information of the association between IBFs and SIDs by providing insights from the Libyan service companies through the research instrument. This contribution would provide additional techniques represented in modelling the IBC model and an analytical framework of this sensitive relationship. It can help the Libyan service companies and other firms in how they can enhance the positive behavioural factors and avoid the undesirable

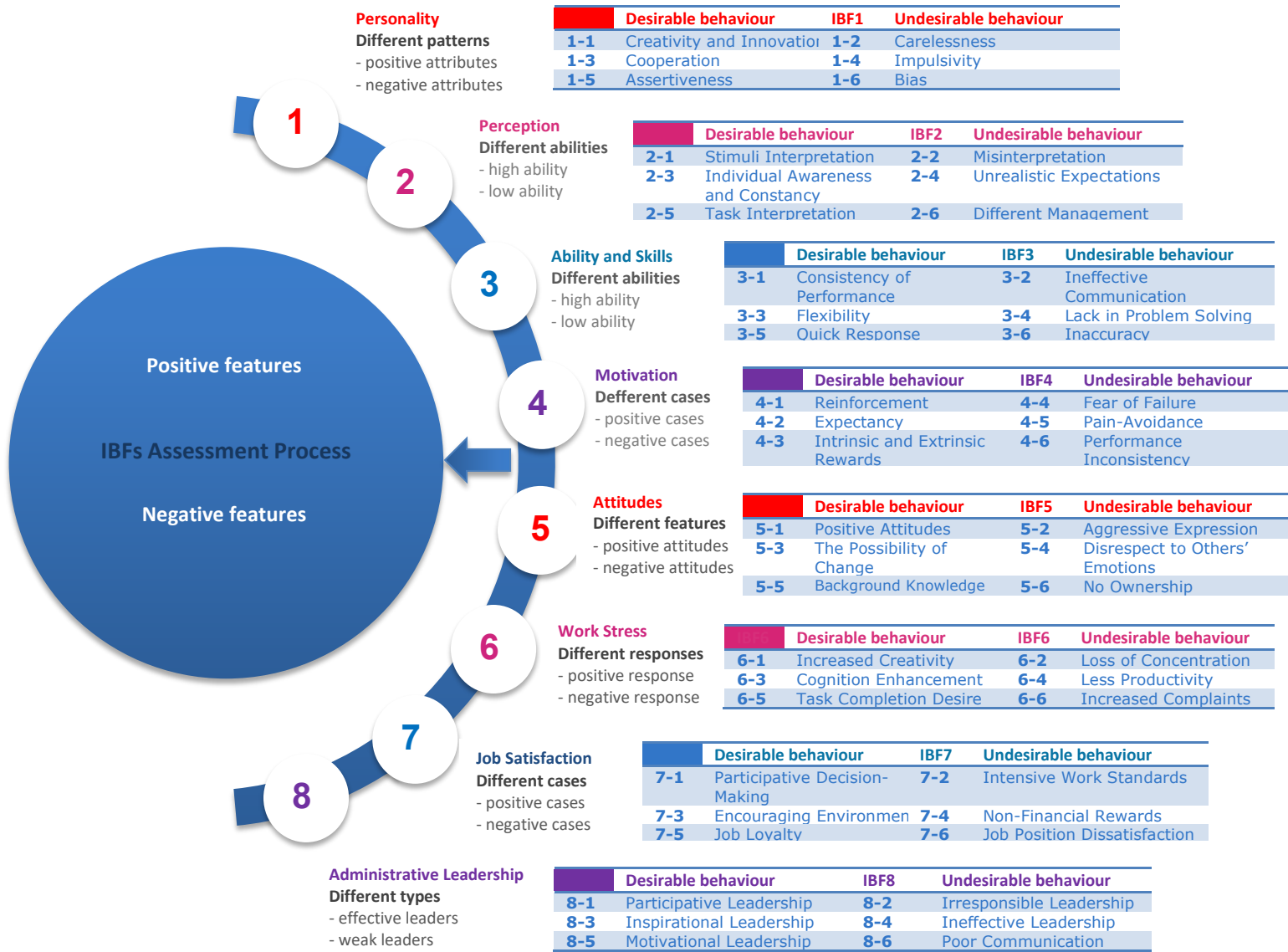
patterns. The multidimensional contribution of this thesis can be further represented in helping firms identify the individuals' and accountants' characteristics through the detailed assumptions of the IBFs and their sub-factors introduced in the third chapter of this thesis. Firms normally seek to exploit all the available resources and techniques that can develop their SID processes. From this perspective, they aim to allocating and controlling their resources in an efficient and effective manner to achieve their investment objectives.

### **1.5 Research Framework and Design**

The growing interest of the behavioural issue in accounting applications led to conducting a number of behavioural investigations and studies related to management accounting and strategic decision-making processes. Designing each study depends on the core elements of the research and its objectives. In this thesis, the contribution in this field is not restricted to one IBF, but it includes a wide range of IBFs (specific IBFs) and multiple sub-factors connected directly to strategic investment decisions. The distinctiveness of the research is carefully framed to be presented in an effective manner and to provide a valuable academic framework. By choosing the most influential IBFs derived from the literature, the dependent variable (strategic investment decision) is connected to these aspects in all the stages of this sensitive process. In this relationship, the IBC model created in this research essentially measures the influential level of the independent variable on the SIDs.

The study argues that the most effective sub-factors of the eight IBFs chosen in this study are represented in the following aspects as the study assumes:

**Figure 1.3: The main eight IBFs studied and their sub-factors**



(Researcher's figure)

The Figure 1.3 summarises the main eight IBFs covered in this research and the sub-factors. It is a reflection of the contribution framework of the thesis in wide behavioural areas. The behavioural transformation challenge of this thesis is processed by the IBC model that focuses on the 8 main IBFs and their 48 sub-factors shown in the Figure 1.3. The model essentially represents the integrated theoretical and practical chain that clearly transforms the behavioural

impact into specific individuals' performance levels (a comprehensive explanation of this model, its IBFs assessment process and its interpretations is provided in the chapter 3).

This basis is addressed in the research questions, and also is formulated in the hypotheses of this thesis. In this context, linking the main headings of the thesis in a consistent and coherent way is a priority of this research. Therefore, the next chapters gradually present the problematic nature of the association between the IBFs (independent variable) and the strategic investment decision (dependent variable).

The thesis argues that specific characteristics of the IBFs have a positive impact on individuals' performance, thus their contributions in the strategic investment decisions, whereas some particular patterns have the negative implications on their performance outcomes. All of these assumptions are formulated in the research hypotheses and also in the IBFs interpretations in chapter 3.

This study conceptualises the influential relationship mentioned based on a number of theories, models and scientific approaches that contribute also in designing the IBC model. The conceptualisation and examinations of this model are applied on the Libyan service companies as they have a significant weight in the overall institutional framework in Libya. From this dimension, the results of this study are carefully generated after eliciting and gathering the information required of this study through the new model. The core reasons of the transparent and accurate results are; to show the real impact of the IBFs studied on individuals' performance and therefore the quality of strategic investment decisions taken within the Libyan service companies, and to provide a more comprehensive behavioural model which is characterised by flexible integrated behavioural factors. Using the word flexibility here is arguably due to the possibility of applying and adopting the model on a wide range of financial, managerial and economic issues. As a result of this adaptability, conceptualising such an innovative model paves the way to future contributions related to combining many essential IBFs in one approach.

## **1.6 The Contribution and Distinctiveness of the Research**

Although the IBFs represented in personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership have been studied in some psychological and organisational behaviour studies, the IBFs mentioned have not been

sufficiently combined in one domain, especially in their influence on decision-making process in management accounting. Thus, this multidimensional influence can be studied and examined to provide a comprehensive coverage of their impact in the positive and negative ways on the quality of strategic investment decisions made. This comprehensive coverage is conducted to contribute in demonstrating the extent of IBFs' influence on the SIDs in the Libyan service companies in order to develop their human resources and SIDs. To strengthen the quality of SIDs, the research aims to provide a distinctive behavioural model that exploits the positive behavioural impact and help avoiding the negative implications. As a result of this importance, the research attempts to simplify the behavioural problem within firms through the assumed behavioural interpretation of the IBC.

### **1.6.1 The Theoretical Contributions**

The study is built on numerous theoretical contributions. It paves the way to increasing the behavioural knowledge in management accounting discipline and decision-making processes through understanding the relationship between the IBFs and SIDs. The IBFs have been extensively discussed in this thesis including their sub-factors and interpretations in a way that fill a significant gap in the literature. I argue that the complexity and interrelations of these factors pose a challenging issue to all the researchers in examining the underlying implications of these IBFs (Otley and Emmanuel, 2013). From this perspective, this research attempts to scientifically identify, simplify and introduce these IBFs in an understandable framework to be positively reflected in today's business environment.

Through this study, the theoretical contribution is to provide a holistic behavioural model capable of reflecting the underlying implications derived from a number of behavioural factors on the individuals' performance within the Libyan service companies, and consequently the quality of the investment decisions taken in these companies. The adoption of 8 essential factors and 48 sub-factors is a reinforcement of the behavioural concepts that have been directly and implicitly associated with the steps and mechanisms necessary for strategic decision-making, which increases awareness and enhances individuals' knowledge of the significance of these behavioural determinants.

The research aims to fill the gap by applying a combination of the IBFs and providing interpretational basis of these factors. The benefits of the theoretical and professional values of

this thesis stem from the critical insights and practical applications. The behavioural assumptions and their interpretations represented in the IBC model distinctively formulated in this research. This can be a beneficial theoretical approach to transform the complex behaviour characteristics into a simpler framework that can be operationalised therefore in different practical cases.

Interpreting the behavioural characteristics derived from the desirable and undesirable behaviour determinants is an additional contribution to the mainstream literature. This contribution critically attempts to simplify the complex eight main factors and their 48 behavioural sub-factors, and interpreting them into logical classifications through the IBC model. This can build a philosophical basis that can be further discussed in the future studies due to the significance of all of the IBFs chosen in this research.

### **1.6.2 The Practical Contributions**

In the practical stage, applying the new model confirms the effectiveness of the generated model and illustrates how the model works. Also, the influence levels and performance outcomes resulted in hypotheses testing stage. Applying this model contributes scientifically in reducing the existing research gaps by examining the individual factors in significant practical environment. The usefulness here lies in matching the positive and negative IBFs with the multiple stages of the SIDs to reach valuable results of how to exploit the affirmative characteristics and avoid the undesirable outcomes.

The practical contributions represent the set of results obtained through a comprehensive study process in which behavioural factors were associated with different stages of SIDs. In this context, the process of identifying problems that requires making investment decisions have been focused on from a behavioural aspect. Moreover, the operations of decision alternatives generation, the analysis of investment appraisals, decision selection process, and following-up and monitoring processes have been critically clarified in terms of the behavioural impact. The IBC model plays a significant role in this association as it has been the core element in this research which contributes to the existing knowledge by providing a novel model based on a number of theories, models and theoretical frameworks combined in a constructive manner.

In the Libyans service companies, applying such investigations will not only be useful for the local institutions, but also will be for international firms due to the flexible and reliable

procedures applied in this research. The additional values in the practical part enhance the knowledge of the relationship between the IBFs and a number of SIDs' stages such as identifying the proposed and possible projects as an initial stage in the SIDs. In addition, it contributes in the generating alternatives and formulating the available opportunities. Beside these stages, the contribution will be concentrated in understanding the participants' responses and indicators regarding which IBFs could affect the consequent stages such as making related assumptions and choosing the appropriate financial and investment options, evaluating the chosen alternatives through the investment methods, persuading managers to support the project and authorising the decisions made by the top management and decision-makers' board.

I argue that the theoretical foundation of the relationship between the research's variables enhances the understanding of research investigation and other similar relationships through the IBC model. The research contribution therefore represents in the theoretical knowledge of the main variables, and the applied approach.

### **1.7 Research Objectives**

This research aims to investigate the association between the IBFs on decision-making process related to investment strategic decisions through a number of the IBFs included in the IBC model based on the individuals' attitudes of the Libyan service companies. More precisely, the research objectives are represented in the following:

- To provide a holistic theoretical framework that includes the concepts, theories and models of the most influential IBFs, and explains how these factors are associated with many different requirements of decision-making processes.
- To establish an interactive and interdisciplinary model regarding the IBFs, and to investigate the proposed association with the SIDs including the eight elements of the IBC model based on prominent theories and models and a distinctive combination of the IBFs.
- To clarify and reflect individuals' attitudes of the relationship between IBFs and SIDs in the Libyan service companies, and how would the IBC model provide an effective and interdisciplinary approach in order to improve the decision-making framework in these firms.



- To provide an analytical and interpretive framework of the association between the IBFs and SIDs regarding the participation and authority levels to be precisely described in accordance with the IBC model.

### **1.8 Research Problem and Questions**

The exploratory design of this thesis concentrates on a deep understanding on the current problem of the research in order to investigate the underlying factors behind the problem and to formulate the relevant hypotheses to be tested later. It argues that the lack of understanding the behavioural impact on strategic decisions is a fundamental basis of this thesis (Lobao, 2016). As a result, the research demonstrates how the IBFs affect the SIDs within firms, and understanding the effects of each behavioural factor in details where typical behaviour of many individuals classifies as complex and incomprehensible behaviour (Altman, 2015). In order to address reliable and rational questions, the research provides a scientific approach that is based on linking the research questions with the empirical procedures (Khalid et al., 2012). In this framework, obtaining the relevant evidence from the chosen population will not be only useful for the Libyan business environment, but also will draw a significant inspiration to the behavioural researchers and the related studies.

Based on the research problem, the questions proposed in this research are represented in eight aspects related to the IBC model which are:

RQ1: What are the views as to how personality traits influence strategic investment decisions within the Libyan service companies?

RQ2: What are the views as to how individuals' perception influence strategic investment decisions within the Libyan service companies?

RQ3: What are the views as to how ability and skills influence strategic investment decisions within the Libyan service companies?

RQ4: What are the views as to how motivation influences strategic investment decisions within the Libyan service companies?

RQ5: What are the views as to how attitudes influence strategic investment decisions within the Libyan service companies?

RQ6: What are the views as to how work stress influences strategic investment decisions within the Libyan service companies?

RQ7: What are the views as to how job satisfaction influences strategic investment decisions within the Libyan service companies?

RQ8: What are the views as to how administrative leadership influences strategic investment decisions within the Libyan service companies?

### **1.9 Research Hypotheses**

Research hypotheses are testable proposition and predictive statements provided in order to be developed and examined in the next chapters. In this context, the research formulates the following hypotheses:

RH1: There is even view from the respondents on the impact of the personality traits on SIDs in the Libyan service companies.

RH2: There is even view from the respondents on the impact of individuals' perception on SIDs in the Libyan service companies.

RH3: There is even view from the respondents on the impact of the ability and skills on SIDs in the Libyan service companies.

RH4: There is even view from the respondents on the impact of the motivation on SIDs in the Libyan service companies.

RH5: There is even view from the respondents on the impact of the individuals' attitudes on SIDs in the Libyan service companies.

RH6: There is even view from the respondents on the impact of the job satisfaction on SIDs in the Libyan service companies.

RH7: There is even view from the respondents on the impact of the work stress on SIDs in the Libyan service companies.

RH8: There is even view from the respondents on the impact of the administrative leadership on SIDs in the Libyan service companies.

### **1.10 Methodology**

This thesis has a combination of theoretical, analytical and quantitative aspects. Quantitative approach will be used in this study which focuses on modelling the IBC and conducting this research within the Libyan service companies. This approach is widely used in the social sciences such as business, psychology, sociology and human behaviour studies which aim to reflect participants' responses into numerical forms (Given, 2008). Data collection method will be represented in the questionnaire instrument in order to reflect data collected in a comprehensive analytical and statistical framework. In this context, eight main IBFs will be measured through the questionnaires based on the IBC model. This method will be designed to answer different types of questions which will consist of closed, open, multiple choices and intensity rating scale questions using Likert scale that measures different possible answers to reflect the participant's attitudes (Collis and Hussey, 2013).

Questionnaire instrument is vastly used in quantitative studies to ensure the accuracy and logical examination (Jindal, 2017; Zikmund, et al., 2013). In this study, questionnaires are designed through two stages. The first form is carefully designed to represent the hypotheses examinations and gather the required information. This stage is conducted through distributing a number of questionnaires as a pilot study before revising them in the subsequent stage. In the second stage, the questionnaires were comprehensively revised and finalised in the final form after taking the constructive feedbacks of participants into consideration.

The nature of the research is characterised by a deductive approach that focuses on hypotheses development formulated in line with the existing theories and the proposed Interactive Behaviour Chain model (Wilson, 2014). This approach starts with identifying the relevant theories from the mainstream literature, formulating research hypotheses based on the theoretical background, collecting data required in order to examine and develop the hypotheses, and reaching the research findings to confirm or reject the proposed hypotheses and providing accurate results that represent the association between research variables.

A fundamental part of the methodological structure of this thesis and the IBC model established is the integrated design of the IBC technique and data collection instrument. In this research, data collection process will be conducted by the questionnaire to ensure reliable and accurate results of examining the research hypotheses. The IBC model is designed to be appropriately integrated with the questionnaires. By setting out the 48 sub-factors of the IBFs, the questionnaire can be

designed in accordance with this contextual design. In other words, the questionnaire can include 48 statements (as this thesis does) to accurately measure each sub-factor and then the overall influence level of all the IBFs. The flexible nature of the model allows other disciplines adopt this model to measure how the IBFs influence the performance levels of individuals and then their assigned tasks. As a result, it can be integrated with many types of data collection instruments, and with appropriate research statements that should be formulated to be in line with the 8 IBFs and their 48 sub-factors. To verify the applicability of this model, the research applies this model for many reasons. First, to provide a more comprehensive behavioural model that includes the most influential IBFs as the research argues. Second, to ensure that applying it in the questionnaires and surveys instruments would be an appropriate way to integrate. Third, to pave the way to the future studies related to human behaviour investigation within firms, and the association between the IBFs and many other organisational applications and systems.

### **1.11 Structure of the Thesis**

Designing the structural framework of the thesis definitely reflects the coherence and cohesion of the research as well as the critical insights of the researcher. According to Evans et al. (2011), In the PhD theses, the chapters should not be more than eight or ten chapters altogether to be in a consistent and organised context. They recommend that the average key chapters should be from five to seven chapters as an acceptable design that covers the main essential work of the thesis. I argue that dividing my thesis into 7 chapters is appropriate to the nature of this thesis. Excluding the introduction and conclusion chapters, five chapters represent the essence of this thesis. The general structure of the research therefor consists of the following chapters:

- Chapter 1: Introduction
- Chapter 2: Literature Review and Research Historical Background
- Chapter 3: Theoretical and Conceptual Framework: Modelling Interactive Behaviour Chain (IBC)
- Chapter 4: Research Design: Methodology and Research Structure
- Chapter 5: Data Analysis and Hypotheses Testing
- Chapter 6: Discussions of Research Findings
- Chapter 7: Conclusion and Implications

In the introduction chapter, introducing the research is a presentation of what the thesis consists of, and providing an overview of the whole research (Williams et al., 2011). The chapter focuses on the nature of the research as well as the research problem, questions, objectives, hypotheses, research contributions, and research methods. The second chapter shows what have been stated in the relevant mainstream literature, and the continuing gap of the study. The third chapter introduces the core theoretical and critical association between the IBFs and the SIDs, and entails the IBC model and its inspirational and dynamic processes as a fundamental innovative measurement of this research. Chapter four presents the research design and methodology, and it explains the nature of the quantitative approach that is applied in this study. The fifth chapter concentrates on analysing data gathered, and measuring the influential nature and level of the two key variables of the study based on the IBC model and some statistical techniques. The sixth chapter discusses the findings of related to the research hypotheses. Chapter seven provides a drawn conclusion of the research including finalising the research results, and the key implications summarised of the research findings.

## **CHAPTER 2: LITERATURE REVIEW AND RESEARCH HISTORICAL BACKGROUND**

### **2.1 Introduction**

This chapter primarily focuses on providing the literature and conceptual review of different contributions in the relationship between the behavioural context and decision-making process. The essence of this chapter lies in reviewing the key studies and relevant scientific approaches of this relationship in order to reflect which dimensions have been covered, and presenting their main findings and implications. In addition, identifying the continuing gaps of the aforementioned studies is a significant part of this chapter which confirms the importance of this study. Essentially, four main aspects will be covered in this chapter; a review of the behavioural contributions in management accounting, strategy as a fundamental domain in this thesis, strategic decisions in management accounting and finally reviewing the literature regarding the interaction between behavioural factors and decision-making process.

The initial overview of the behavioural contributions provides a framework of the multidimensional relationship between the IBFs and management accounting in retrospect. Different impacts have been investigated of various behavioural factors in management accounting context which will be presented in the first section of this chapter. To enhance this contextual framework, there will be additional reviews of budget participation regarding preparing, implementing and presenting this process by individuals. Furthermore, measuring individual performance is a substantial issue in this basis. This issue will be presented with control process as fundamental components in management accounting domains. With regard to strategy and management accounting literature in the second part of this chapter, some issues will be highlighted such as costing, planning and pricing. This part also focuses on strategic performance of institutions and the underlying effects of strategic leadership. It highlights the relevant literature of leadership contributions in organising strategic plans and making decisions within institutions.

In strategic decision context, the third section of this chapter presents the main decision-making domains as they have been covered by previous studies. Budgeting and investment decisions are fundamental types of strategic decisions which underline the need for institutions to make their decisions in accordance with strategic plans and budgeting requirements. This review will be

enhanced by focusing on decision-making outcomes related to strategic policies applied within organisations, and providing a balanced assessment of relevant literature. The fourth section of this literature will reflect the conceptualisations of the interactive chain of IBFs and strategic decisions which generally remain partial. This partial coverage addressed in accounting literature will be presented in order to determine the gaps in this influential relationship. Many IBFs will be highlighted such as personality and leadership to reflect the relevant studies and their main findings in this interactive behavioural effect on strategic decisions.

## **2.2 Purposes and Objectives of the Literature Review**

The theoretical, methodological and analytical framework of this thesis relies on a comprehensive scientific combination of relevant elements of the relationship between the IBFs and strategic decision-making process. Literature review chapter provides a significant base to investigate the underlying dimensions of this relationship and its implications. This thesis focuses on modelling the IBC technique which is based on crucial behavioural factors in affecting decision-making process. Providing such approach needs a distinct set of behavioural concepts through reviewing what have been addressed regarding this issue. The expanding literature in this context will be reviewed to clarify the contributions that have been undertaken in this aspect. Hofstedt and Kinard (1970) pointed out that creating and conducting behavioural research in management accounting will be a difficult task for researchers who aim to investigate the interrelations between the behavioural and accounting variables. This perspective reflects a set of challenges which need to be met such as human behaviour effects in accounting. Although some related studies have sought to identify the most influential IBFs on decision-making process, more work is needed to determine and clearly identify the positive and negative implications of these factors on this process (Carnevale et al., 2011).

The main aim of this chapter is to present the substantial contributions of the relationship between the IBFs and strategic decision-making through a varied scientific literature, and to identify and confirm the gap in this issue. The continuing studies of psychology and human behaviour related to management accounting have different aims and dimensions of the main objectives of these studies. In fact, the reason for this diversity lies in the complexity of human behaviour implications which is a wide issue that needs to be studied in more depth (Brown et al., 2011). There are several remaining work needed in investigating the underlying implications

of the IBFs within institutions (Goldfarb et al., 2012). The IBC model provided in this thesis is an additional attempt which is an essential tool in this study to contribute filling the gaps in the mainstream literature. Relevant behavioural and decision-making paradigms will be presented and analysed in this chapter to investigate the techniques proposed and implementation mechanisms of some relevant models. This literature will be a prelude and preface to the behavioural factors upon the IBC model. A significant part of the eight IBFs of this model will be highlighted in what have been addressed in the relevant literature, and what are the key findings and recommendations of the studies in this area.

The primary objective of this chapter is to provide a relevant comprehensive framework of the relationship between the IBFs and strategic decision-making through the mainstream literature. This essential goal is to determine the continuing gaps in this issue, and reflect the relevant contributions of behavioural studies in management accounting, strategic decision domains, decision-making models and the IBFs covered from multiple perspectives.

### **2.3 Background of the Behavioural Contribution in Management Accounting**

Human behaviour and social effects have multiple impacts in management accounting context, and they are connected with some accounting functions (Hopwood, 1989). Birnberg and Shields (1989) stated that behavioural studies apply some theories, models and principles of human behaviour field to investigate the interrelationships between accounting purposes and the behavioural framework. They also indicated five accounting areas which are affected by behaviour research;

- 1- Control systems in management accounting and their effects on employees and staff within organisations.
- 2- Accounting information systems regarding data used and prepared by individuals.
- 3- The processes of accounting information which require efficient human resource.
- 4- Decision-making processes related to auditors' work.
- 5- Social impact research in accounting.

The flexibility of some management accounting applications and their decisions makes this field slightly sensitive area where many IBFs can affect different processes in it. This interactive relationship can be historically traced to various research contributions. The following parts of the section present this enhanced literature by reviewing the key behavioural aspects highlighted,



participating process in budgeting, individual performance research in accounting and behavioural aspects of control process.

### **2.3.1 Literature Pathway of the Behavioural Influence**

Behavioural contribution in accounting is a significant part of accounting development in today's world. In the mid-twentieth century, some studies have emerged and addressed different behavioural issues regarding accounting systems in that time. Argyris (1952) provided an overview of the influence of budgets on individuals which covered some IBFs in their relationship with budget systems. Lord (1989) presented a historic coverage of the psychological impact in accounting research continued with additional studies which highlighted leadership and motivation in accounting field. His research includes development of behavioural impact in accounting from 1952 to 1981.

In the 1960s, Stedry (1960) focused on control systems and the multidimensional behaviour effects in accounting including some IBF factors. Similarly, Devine (1960) presented an accounting review including an explanation of accounting theory formation. The essence of Devine's research slightly focused on the methodological aspect in accounting research and how to build an inductive basis in accounting to measure the behavioural impact. Moreover, he included some behavioural assumptions and psychological attitudes of accounting processes users. Becker and Green, (1962) developed Argyris's research by providing a similar developed study concerning budgeting and the behavioural aspect of employees within firms. In fact, accounting behavioural research series clearly emerged with reliance on a few previous studies in that time. These analytical series caused a critical competition between Stedry and Becker who conducted developed research in 1964 combining the past and future perspectives of their analyses of budgeting process (Stedry, 1964; Becker and Green, 1964).

Behavioural assumptions were based on relatively limited key studies due to the lack of relevant behavioural accounting literature in that period. Benston (1963) analysed the underlying implications of motivation factor on firms' accounting systems. In his research, Benston found that decentralisation can contribute in enhancing the performance level and increase the motivation of individuals. This enhancement results in an effective motivation of employees reflected in their participating in essential accounting processes such as budgeting. Similarly, Caplan (1966) indicated in his behavioural article that despite some academic efforts regarding

behavioural assumption which have witnessed in the early sixties, the gap needs huge efforts to be covered in the behavioural accounting context. His research aimed to demonstrate that the behavioural theory is a relevant domain to management accounting field which is essentially a behavioural function. For proving the assumptions that have been proposed, he supported his analytical framework by relevant research (e.g., Richard and James, 1963; March and Simon, 1958; Simon, 1947).

#### **2.3.1.1 Early IBFs Highlighted**

Although the general picture of the behavioural research focused on particular areas in the 1960s and 1970s, there were some texts examined the underlying implications of these IBFs on different accounting issues. Birnberg and Nath (1967) addressed significant behavioural areas in management accounting. Their study attempted to provide analytical view of the relationship between human behaviour and management accounting information concerning budgeting process and control systems. Gynther (1967) reflected a significant initiative in self-perception of accounts concerning accounting hypotheses which was published in the Accounting Review journal. This research addressed a set of concepts such as social responsibilities. These concepts were linked to the personal perception of individuals within firms to measure the underlying psychological and behavioural actions on accounting functions and decision-making. In a similar manner, learning ability was examined by Mock et al. (1972) as another IBF to investigate the learning level influenced by some determinants such as performance and motivation, followed by examining varied learning patterns and their impact on decision-information variables. A critical study conducted by McRay indicated that the behavioural scientists aim to investigate the inter-relationships of firms' environments and individuals within these firms in order to redesign their job systems (McRae, 1971).

Behavioural literature reveals numerous studies regarding personality patterns. A study has been carried out by Mann (1959) examined the relationship between the personality patterns and the behaviour of individuals within firms. He indicated that human intelligence is the most important aspect in determining the performance level of individuals. Taking the critique a step further, Bouchard (1969) and Moerk (1972) examined multidimensional group effects occurred by different personality characteristics. These studies aimed to measure group performance in

accordance with the personal patterns of individuals. They also investigated problem-solving ability of different kinds of personalities which determine their performance in this matter. Vance and Gray (1967) explained the relationship between personality traits and measuring the performance success in firms. They found that the profit element is the only criterion to measure the performance levels, and they also found a difficulty for setting a set of standards to enhance this criterion. Saunders and Stanton (1976) developed the past research to find unique traits of personalities which adapt with different performance styles. Their research focuses on analysing this issue in accordance with decision-making requirements and they found that profit satisficing, maximising profit and sales trends are the main aspects in this relationship. Jones (1976) focused in his study on the positive mechanisms of providing relevant accounting information to decision-makers, and how do these mechanisms enhance the control process of firms. Another study in the same year conducted by Shackleton who reflected the crucial role of the behavioural sciences in management accounting especially with the individual roles which had become a complex issue in commercial and industrial areas as he stated in that time (Shackleton, 1976).

### **2.3.1.2 Accounting Behavioural Research in Management Accounting**

Accounting behavioural research as a substantial enhancement in accounting literature provides an evaluable contribution in management accounting domains. It focuses on the multiple behavioural implications of accountants and non-accountants who are influenced by management accounting systems and reports. In this contribution, many scientific accounting journals published series of articles in this aspect. The Accounting Review journal (1926-up to date) is one of the oldest accounting journals published bimonthly academic articles covering multidimensional issues related to accounting (Jean, 2007). The publications during the 94 years have a significant contribution in accounting literature, and the accounting behavioural studies since the 1960s as some of them mentioned in the previous section. Other academic journals have contributed in this area such as International Journal of Behavioural Accounting and Finance, Behavioural Research in Accounting and Journal of Behavioural Finance.

American Accounting Association (AAA) report (1971) highlighted the significant contributions of the behavioural research during the 1950s and 1960s in its report. This committee indicated that the period mentioned had witnessed increasing interests of the behavioural and

psychological implications in many functions regarding management accounting. In 1974, in a report of the same committee, it stated that teaching methods adopted in that period needs to narrow the gap between accounting and behavioural sciences through a set of teaching methods such as training, intensive studies and imperial research (Report of the Committee on the Measurement of Social Costs American Accounting Association, 1974). In a more advanced evaluation of the behavioural research opportunities, Bamber (1993) discussed these opportunities depending on reviewing what had been published during the 1980s and 1990s. He focused in his critical analysis on three main elements which represent the suggested areas in this context which are knowledge, decision-making and group and cultural features.

In comparative studies, Dyckman and Zeff (1984) presented the literature of two decades of Journal of Accounting Research publications. Two years later, Heck and Bremser (1986) provided a summary of authors' contributors of the Accounting Review Journals in six decades from 1920s to 1980s. Similarly, Brown et al. (1987) analysed and reviewed the articles of Accounting, Organisations and Society journal published from 1976 to 1984. Lord (1989) described the development pathway of behavioural framework in accounting between 1952 and 1981 including a number of management accounting issues. In the same year, Caplan (1989) and Burgstahler and Sundem (1989) have both shown analytical frameworks of what have been published from different perspectives. While Caplan's study provided a personal critique of this analysis, Burgstahler and Sundem evaluated the behavioural accounting research in the United States in the period from 1968 to 1987.

More recent studies in this area have reviewed the contribution of the behavioural accounting research. Meyer and Rigsby (2001) criticised the main focus of Journal of Accounting Research and Accounting, Organisations and Society journal. This critical review showed that although the essence of these scientific journals is behavioural research area, they widely focused on a variety research. The accessible information provided on the internet allowed researcher to conduct wide behavioural studies that have large samples which yield more accurate findings (Bryant et al., 2004). Merchant and Van der Stede (2006) provided a framework of the accomplishments and prospects of accounting research publications between 1981 to 2004. The concentration of this research covered many different articles in their methods especially in management accounting and the leading practices in the period covered. Further research (Williams, Jenkins and

Ingraham, 2006) reviewed the leading journals which have widespread domains concerning behavioural research in the US covering the period from 1963 to 1999. They indicated that the number of behavioural paradigms has grown in that period, and this genre has enhanced the multiple demands of institutions to find more specific ways in understanding human behaviour issue in accounting.

### **2.3.2 Budget Participation and Individual Contributions**

Budgeting participation process has been studied from different perspectives as an early issue in management accounting literature. These contributions have shown different IBFs that determine the level and way of this process. Personal attitudes can affect this process depending on their surrounding circumstances and thoughts (Milani, 1975). In addition, job satisfaction has been linked with this issue due to the significant relationship between this IBF and the process (Alutto and Acito, 1974). French (1966) focused on morale as an influential behaviour factor, and he linked this element with appraisal systems within firms which need variety information. Collins (1978) provided a significant dimension of this process when he linked this process with the personality factor. The concentration of his study was to highlight personality characteristics and how do these patterns interact with participating and preparing firms' budgets. In more concentration on personality traits, some research yielded substantial results of analysing this interactive relationship concerning the disparity of different personality traits (Abdel-Halim and Rowland, 1976; Shapira, 1976)

#### **2.3.2.1 Motivation Impact**

As a pivotal issue, motivation plays a crucial role in budgeting participation process. Providing the opportunity for individuals in this process would positively enhance managerial performance within firms (Brownell and McInnes, 1986). This empirical research analysed the relationship between three main elements; participation, performance and motivation. In fact, numerous articles focused on the positive connection of this relationship (Hsieh, 1998; Ragheb and Tate, 1993; Mia, 1988). (Hoque, 2006) indicated that beside increasing the performance level of employees, participating process yields additional benefits which can be exploited in a positive way such as raising the sense of responsibility, commitment and satisfaction level. The positive connection between the performance level and the motivational impact was confirmed by

Searfoss and Monczka (1973) and they assumed that (1) the affirmative relationship between these two variables will increase in line with the need of independence (2) the positions within firms partly determine the extent of this positive relationship. Maintaining and directing individual behaviour towards their goals can be achieved by providing an appropriate participation level in budgetary setting. In a theoretical approach, Parkinson and Taggar (2000) focused on expectancy theory which is one of the most popular theories of motivation and they linked it with the performance level. Motivation has been linked in a sample and significant model which shows how do subordinates' motivation and budgetary participation variables determine the level of budget goal commitment (Sandalgaard et al., 2011). In this perspective, some studies found that connecting motivation with the personal goals create a positive status of individuals and encourages them continuing commitment to work and participation standards (Heckhausen and Heckhausen, 2008). However, it is not necessarily to meet the general objectives of their institutions where they belong to (Latham, 2007).

Motivation measurement is a further dimension in this issue which has been controversially discussed by many researchers. Mayer et al. (2007) reviewed this issue by covering 75 years of studies concerning measuring this IBF. In management accounting, this issue is linked with control system. This significant connection has been partly highlighted by some publications which focused on discussing some behavioural models such as human resources model (Atkinson, 2001), conventional accounting and comprehensive behavioural model (Livingstone and Ronen, 1975). Expectancy theory of Vroom (1964) also has been discussed in management accounting literature. This theory assumes that the increased efforts are reflected in a positive correlation with individuals' performance. This theory is based on three main pillars; (1) emotional orientation to their rewards, (2) the need of developing human resources within firms and (3) the rewards expected by employees which have to fulfil their needs. The technique provided by Sandalgaard et al. (2011) measures the motivational aspect of individuals by designing multiple statements and images which reflect the current status of individual. By matching these variables, the researchers found that the need for power affirmatively interacts with participation aspect, while affiliation does not provide motivational level of commitment at work.

Leadership plays a fundamental role in participative budgeting and motivational factor issue as it is confirmed by Belkaoui (2002) who summarised some key factors in this relationship by focusing on leadership type, individual performance, work stress and the interaction between administrative leadership and organisational performance measurements. Similarly, Hopwood (1972) conducted an empirical study measuring the performance level of accountants and evaluating managerial supervision. The method used in his evaluation was partly concentrated self-motivation factor towards performing accounting required jobs concerning accounting data and standard cost systems. From motivational view, individuals can be motivated, inspired and affected by successful leadership within firms. (Sandalgaard et al. (2011) pointed out that individuals might be influenced by leaders or superiors when they feel that they achieve their goals and even exceed the work standards, whereas hard tasks required could be achieved if there is an affiliation of employees towards their institutions.

#### **2.3.2.2 Behavioural Effects of Participative Budgeting**

Behavioural framework linked to budgeting process is a complex set of IBFs which determine the level and quality of preparing this essential task. Many systems link the appropriate level of preparing the budget with incentive systems and rewards which encourage management accountants and lower level managers who participate in this process (Robinson, 2007). With regard to developing budget settings and for efficient preparation, Raghunandan et al. (2012, p.112) indicated three approaches that can be applied to develop budget settings which are:

1. “Imposed (top-down) budget- This type of budget is supportive of the autocratic style of leadership where top management alone decides on the budget and lower level management is only responsible for the execution.
2. Participative (bottom-up) budget- This type of budget is supportive of the democratic style of leadership where lower level management is empowered through their contribution to the budget.
3. Negotiated budget- This type of budget adopts both the imposed and participative styles of budgeting and creates an environment where there is shared responsibility for budget preparation”.

The interrelationships between all variables connected to the preparation of this process are slightly complex due to the significant outcomes of budgeting. This significance stems from the general goals of firms regarding continuity and to maintain achieving profits and also personal objectives of employees and managers. Within this framework, French (1966) stated that the impact on this process is determined by personality patterns and organisational culture within firms. As a result of these factors, budget participation should be provided through an effective internal control system which absorbs individuals' behaviour and their desires. In this aspect, the difficulty level of participation can be a substantial factor for participants' performance level. Personal ability and the nature of human challenge encourage individuals to be positively involved in performing this process in a high performance level which meet their job standards. Kennedy and Dugdale (1999) examined this perspective and they indicated that participants who work in hard work environments perform their required tasks in an effective level and their participation is successful, whereas participating in easier jobs does not reflect a high desire to participate in routine and repetitive tasks.

### **2.3.2.3 Budget Goal Commitment and Decision-Making Tasks**

Budget goal commitment is a substantial responsibility for individuals who participate in this sensitive process. Decision-makers and employees have normally different reactions towards organisational decision outcomes depending on some behavioural determinants which are linked to the personal objectives of individuals. Some studies focused on linking this issue with the need of achievement. Hollenbeck et al. (1989) found that individuals who have a high need of achievement are committed with the personal objectives rather than the general assigned goals of their firms. Similarly, Subramaniam et al. (2002) investigated that there are a positive interaction between the need of achievement and the work commitment.

From another domain, budgetary decision-makers are responsible for enhancing their decisions with adequate and effective information concerning financial and managerial areas. In an empirical study, Mia (1987) presented an overview of budgetary decision-making tasks and indicated work difficulty levels and the impact of individuals in this issue. He found that attitude as one of the influential IBFs is positively connected to participation process, while it has a negative connection with task difficulty. Budget commitment requires further actions which have



to be applied in an appropriate way with firms' goals. One of these elements is organisational commitment of individuals which can be measured by observing employees' involvement level and the extent of their positive participation and commitment in assigned tasks (Mowday et al., 1979). As behavioural interactive issue, providing the opportunity to employees to participative budget can be essentially applied through decision-making process. In a contextual analysis, Manger et al. (1995) provided an empirical study focusing on the interactive attitudes of employees who have less attitude level towards participating process in decision-making. They found that the interaction of trusting leaders and organisational commitment was in a high level. This reflected that both leadership and commitment features within firms should be primary elements that require more concentration to make successful participative decisions.

### **2.3.3 Performance**

Budgetary participation as a comprehensive procedure of financial, managerial and behavioural processes requires controlling and measuring performance of individuals who participate in this sensitive process. To address this issue, some studies have been carried out on this systematic procedure and focused on goal difficulty and how does this factor affect the performance level (Hong, 2019; Hussein et al., 2016). The concentration on this factor logically studied to develop systematic performance measurements within firms which have a considerable connection with budgetary participation (Almasi et al., 2015; Kren, 1992). Another dimension has been linked with task performance is goal setting. In fact, many IBFs are linked to this interactive systematic process such as motivating strategy development, personal abilities and individual differences (Locke et al., 1981). This study sought to summarise the effects of setting goals on the performance in assigned jobs, and to identify the behavioural determinants which affect these setting objectives. They found a set of significant results which are based on a wide behavioural and organisational literature reviewed. These findings are (1) around 90% of studies covered confirmed that there is a positive effects of goal settings on task performance (2) there are some mechanisms affect this relationship; directing individual actions and motivating individual strategic goals (3) the significant impacts of setting goals on task performance depend on the range and type of organisational goals and individual abilities in dealing with their assigned tasks.

### **2.3.3.1 Individual Behavioural Performance**

Individual performance ability plays a significant role in work development and job requirements in management accounting. Individual behavioural performance essentially refers to any action or reaction of individuals within firms which is aimed to achieve and meet firms' goals (Campbell, et al., 1993). Some studies have provided critical and analytical frameworks of this issue from different dimensions. Individual performance has been linked with job satisfaction as an influential IBF and an effective determinant in increasing the level of individual performance (Podsakoff et al., 1997; Ostroff, 1992). Herzberg (1968) created a critical technique of analysing job satisfaction which is based on its effect on individual performance. He concluded that there are some internal and external factors can determine the satisfaction level or cause dissatisfaction such as firms' policies, personal benefits, physical working conditions and equipment. Additional studies conducted have sought to identify different relationships concerning the relationship between motivation and individual job performance (Afful-Broni, 2012) and organisational performance (Dobre, 2013). These interactive behavioural factors pose a substantial threat to task performance commitment if leaders and firms' policies do not provide the professional adequate control to these influential IBFs (Yiing and Zaman, 2009). In a controversial aspect, two interactive elements that have been discussed are contextual performance and individual job performance (Borman and Motowidlo, 1993). The first variable refers to any action or performance which seeks to enhance the context of social and behavioural areas, while individual job performance lies in the personal abilities of fulfilling their assigned tasks. More precisely, further research in the same context has shown that the both elements have a significant contribution in enhancing the overall performance (Motowidlo and Van Scotter, 1994). In addition, they indicated that personality patterns as an IBF is more correlated with contextual performance than job performance, whereas experience is linked to job performance more than the contextual variable.

### **2.3.3.2 Individual Performance Enhancement**

Based on some technical and methodological approaches, individual performance can be enhanced by effective mechanisms such as goal setting, training, human resource management (HRM) and systems of rewards and incentives. Goal setting and interactive feedback provided by

individuals represent a substantial source to enhance the overall level of individuals' performance. From this perspective, Locke and Latham (1990) presented philosophical bases of goal setting theory and they linked their concepts with task performance. Their book focused on psychological mechanisms of individual in relevant behaviour features, and they provided analyses of the effect of task complexity on individual performance. In order to create a systematic approach to develop performance measurement and productivity concerning goal setting applied, a significant model has been created by the psychologist Pritchard (1995) called Productivity Measurement and Enhancement System (ProMES). This system measures the productivity levels of individuals in order to link these effective indicators with the performance criteria, and to improve individual abilities to meet required levels of performance.

In management accounting, as a core element of developing individual performance, training has been highlighted in this issue in line with the individual needs to meet their assigned jobs. Tannenbaum and Yukl (1992) linked training needs within firms with task requirements. They sought to recognise awareness, attitudes and skills required of trainees, and to identify systems applied needs and requirements through their review. In a similar perspective, Hesketh (1997) focused on similar elements to identify training needs such as skills and evaluation, and task variability in which task they seek to perform. An effective way presented by (Smith-Jentsch et al., 1996) is to motivate employees by providing an appropriate training course programme which achieves their personal goals. This involvement can be reflected in a positive performance level (Keller, 2010).

Another substantial aspect to enhance individual performance is to positively exploit human resources and the underlying abilities of employees in performing their tasks in high levels. The significant focus on the relationship between HRM and performance can be traced to Huselid's contribution (1995) who confirmed that the high levels of individual performance lead to a considerable increase in employees' values regarding their personal abilities. The interest of this relationship has grown to reach many further dimensions concerning developing the personal abilities and measuring HRM. These contributions focused on long-term viability and continuity (Paauwe, 2004), HR scorecard (Becker et al., 2001), human values (Mayo, 2001) and determining the return of investment and scorecard (Phillips et al., 2001).

As a strategic method, reward and incentive systems reinforce individuals' expectations of achieving their goals. This view reflects how do managers establish and develop work policies in line with behavioural features of individuals. In an investigative study, Kerr (1988) analysed how to reinforce individuals' behaviour in the functional work to be in the same line of organisational strategic goals. The key findings of his study negatively confirmed that (1) these systems lead to a concentration on the personal behaviour instead of mutual help (2) redirecting employees' behaviour to rewarded behaviour, which could affect desirable behaviour by managers (3) make a difficult for individuals to understand the behavioural relationship between their performance and rewards expected. Some authors focused on studying the linkage between enhancing individuals' performance and motivational theories such as Expectancy and Reinforcement theories. The interest of this interactive relationship represented in different research such as *Reinforcement, Reward, and Intrinsic Motivation* by Cameron and Pierce (1994) and *Interactive Effects of Work Motivation and Personal Control on Employee Job Performance and Satisfaction* by Orpen (1994). Such studies have been considerably expanded into management accounting applications and decisions. For instance, Datar and Rajan (2013) explained how performance enhancement can be achieved to support decision-making process in management accounting decisions and motivating performance through reward systems.

### **2.3.3.3 Decision-Making and Leadership Performance**

In addition to some dimensions mentioned of the performance literature in organisational behaviour and management accounting, decision-making process has been linked to leadership performance as a substantial determinant of utility of decision-making. Leiter and Maslach (2002) stated that leaders and decision-makers are responsible for directing employees to accomplish firms' goals. They indicated some effective adjectives which have to be in leadership decision-making to increase the performance level of individuals such as to be efficient, justifiable, clear, transparent and trustworthy. To understand leadership responsibilities concerning decision-making process, Ejimabo (2016) provided an investigative study which aimed to show the most appropriate paradigm that could be reflected in favourable outcomes of decisions. The findings of his research are concentrated in results linked to leadership performance; (1) leaders should be trained before making firms' decisions to avoid negative effects (2) decision-making process needs to include subordinates to be more comprehensive and

participative process (3) the ethical issue within firms must be a clear aspect for leaders who have to behave in appropriate morals and to be characterised by fairness and inspiration.

Decision-making is a complex process, and it needs efficient implementation of its stages. Criteria applied should be followed by managers and decision-makers who are responsible for directing decision outcomes and avoiding underlying expected risks of each alternative (Nelson and Quick, 2003). Ruslinawati and Prasetya (2021) investigated the relationship between employee performance and organisational culture, leadership and decision making. They emphasised that organisational culture, leadership and decision making should be included in the strategic plans.

A clear correlation has been explained in some studies between effective leadership and performance management in several studies. They investigated the characteristics required to be in leaders' personalities (Oakland, 1989), and the necessity of realising performance requirements to be managed in effective ways (Armstrong and Baron, 1998). Performance management as a controlling methodology aims to provide a shared vision to reach firms' goals through individuals' contributions and increasing performance levels of employees and their institutions (Fletcher and Williams, 1992).

#### **2.3.4 Behavioural Features of Control Process**

The traditional concept of control focuses primarily on organising and directing individual behaviour by the power. This conventional perspective reflected the necessity of using more restriction instead of the concentration of the behavioural features of individuals. Merchant (1985) emphasises that control system has a core function which is ensuring that individual behaviour are under control regarding their functions, and to be consistent with the strategic objectives of the institution. The necessity of involving employees in control system design is a crucial demand of control process that needs to be designed in line with achieving the overall goals within firms, and helping management to make appropriate decisions (Lawler and Rhode, 1976).

Management accounting has a significant link with Management Control Systems (MCS) which aim to design the procedures and transactions of firms' systems to be consistent with planning, individual performance required, budgeting and incentives systems. The behavioural issue in this relationship stems from the focus of the social activities and behavioural aspects of individuals

who are required to follow the MCS settings. The social impact of some IBFs on MCS has been considered as a substantial determinant which considerably contributes in determining the main features and mechanisms of MCS (Uddin, 2009; Wickramasinghe and Hopper, 2005; Hofstede, 1980).

#### **2.3.4.1 Decision-Making and Control Strategy**

The significance of IBFs in determining decision-making quality and control strategy has been criticised by several contextual studies in the last two decades. These critical perspectives included analysing different types of management accounting decisions (Matsoha and Ronan, 2006; Carr and Tomkins, 1996; Shank, 1996). With regard to investment decisions, the behavioural vision has not been linked directly with this type of strategic decisions, while it has been analysed from other perspectives such as risk attitude reviewed by managers (Hillson and Murray-Webster, 2005) and emotional intelligence (Gilovich et al., 2002). Although the contributions of linking the IBFs with the core of management control systems were slightly limited, Langfield-Smith (1997) reviewed a set of publications concerning the influence of MCS on strategic investment which focused on how MCS has changed in order to be consistent with strategic decision requirements and investment development. Also he presented critical view of interactive control and how MCS applications can be adapted to behavioural aspects.

Based on the interactive relationship between this issue and the behavioural influence, the term cognitive control has been linked and analysed from different perspectives in order to configure more comprehensive framework of decision-making and control strategy. Cognitive control refers to the ability of determining and directing human behaviour in order to achieve specific goals. This ability includes performing particular tasks within firms (Botvinick et al., 2001), implementing appropriate behaviour to be consistent with a specific goal in a specific situation (Miller and Cohen, 2001) and encouraging behaviour that can be positively reflected in work environment (Badre, 2008). In relation with decision-making, cognitive control resources and firms' goals have been considered as a significant base of decision strategy (Simonson and Tversky, 1992).

The interaction between decision-making strategies and cognitive control has been slightly integrated in several research such as (Wang, 1990) which focuses on cognitive strategies in

making decisions. In a more recent framework, Jackson, et al. (2016) emphasised that individual differences rely on cognitive capabilities and control. This perspective has been supported by an investigation of how individual differences can be assessed. They carried out this research to analyse and evaluate some relevant aspects such as cognitive abilities of employees, control process and different individual behaviour related to decision-making process.

## **2.4 Strategy and Management Accounting Literature**

As a chosen part of decisions in this research, strategic decisions will be reviewed in management accounting literature in the next section. This major domain requires covering the basis of strategic management accounting where this area has been historically developed since the 1980s of the last century as it will be reviewed in the next part of this section. Strategic management accounting was emerged due to restricted processes of conventional management accounting (Johnson and Kaplan, 1987; Kaplan, 1984; Roslender, 1995). This restriction was linked to many aspects in management accounting such as performance measurements, decision-making processes, traditional planning methods and the financial information provided (McManus, 2013; Baines and Langfield-Smith, 2003). The main areas reviewed in this section present the emergence of this concept through a historical review, highlighting strategic techniques used in management accounting, costing techniques and the core implications of contingency theory in management accounting literature.

### **2.4.1 Historical Review**

Over the last decades, there have been several attempts to link strategic management accounting concept to some IBFs which have multiple impacts in management accounting. In 1981, strategic management accounting was the first attempt of framing this concept through a research carried out by Simmonds (1981) who published this paper in Management Accounting Journal. This concept reflects several changes in the early and newer studies. While Simmonds focused on analysing information concerning competitors and using it in developing business strategy, Smith (2005) believe that the new vision of this concept should be more comprehensive and absorbs not only the financial context, it needs to be kinked to other external features of corporate processes.

In the 1990s, some perspectives have been criticised for strategic changes within firms. For instance, Shank and Govindarajan (1993) and Slagmulder (1997) assumed that planning

processes applied by firms can effectively determine the work features of these firms and their positions in business market environment. The conceptual framework of strategic management accounting assumes that the core of this concept lies in creating financial and non-financial information to firms helping them in their strategic plans and competitive environment (Guilding, 1999; Dixon, 1998; Lord, 1996; Bromwich and Bhimani, 1994; Shank and Govindarajan, 1993; Bromwich, 1990). In retrospect, Guilding et al. (2000) discussed the practices of strategic management accounting from international vision. They provided an international comparison of 12 strategic management accounting practices through distributing their surveys in different countries such as the United Kingdom, the United States and New Zealand. The concentration of the firms participated was on strategic pricing and accounting competitions.

The significance of strategic management accounting has been controversially discussed and analysed from different perspectives depending on various contributions in this aspect. The table below (2.1) summarises the key contributions in this area where many authors have provided their arguments which seek to develop the strategic positions of firms from different perspectives.

**Table 2.1: Relevant studies of Strategic Management Accounting (SMA)**

<b>Year</b>	<b>Author</b>	<b>Publications</b>	<b>Purpose and key contributions</b>
1981	Simmonds	Strategic management accounting	To provide an analytical framework of competitors information, and develop firms' strategy.
1989	Eisenhardt	Making fast strategic decisions in high-velocity environments	Explaining how do decision-makers can exploit the continuous needs and development of making fast decisions within computer industry, and how they gather and use the information of alternative choices.
1990	Bromwich	The case for strategic management accounting: the role of accounting information for strategy in competitive markets	Highlighting two theories utilised related to SMA by focusing on products features and business market concerning competitive strategy.
1992	Ward	Strategic management accounting	To reflect a clear understanding of SMA as a part of management accounting, and providing practical and academic framework of applying SMA techniques.



1993	Shank and Govindarajan	Strategic cost management	To discuss three main areas related to SMA which are; value chain, strategic positioning and cost driver investigation.
1995	Roslender	Accounting for strategic positioning: responding to the crisis in management accounting	To discuss the relevant techniques of SMA, and address the difficulties of adopting specific techniques.
1996	Lord	Strategic management accounting: the emperor's new clothes	To critically evaluate SMA and how do firms deal with information required in this area.
1997	Slagmulder	Using management control systems to achieve alignment between strategic investment decisions and strategy	Identifying strategic investment decisions and how does management control process play a substantial role to enhance this type of decisions.
1998	Dixon	Accounting for strategic management: a practical application	Addressing the underlying implications of SMA within firms' environment, and showing some key restrictions that occur in this aspect.
1998	Chenhall and Langfield-Smith	The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach	To analyse the mixed approach of management techniques and accounting applications based on specific strategic issues.
2000	Guilding et al.	International comparison of strategic management accounting practices	Providing a comparative vision of some practices of SMA within different countries such as New Zealand, the United Kingdom and the United States
2001	Roslender and Hart	Marketing and management interfaces in the enactment of strategic management accounting practices: an exploratory investigation	To present coverage of the CMA literature and highlight some issues regarding performance measurements and marketing.
2001	Cravens and Guilding	An empirical study of the application of strategic management accounting techniques	To investigate how CMA techniques can be used to make business decisions.
2003	Roslender and Hart	In search of strategic management accounting: theoretical and field study perspectives	To contribute in enhancing the literature of SMA by carrying out an empirical study on UK companies to examine SMA performance.
2003	Morse et al.	Management Accounting: A Strategic Approach	Explaining SMA from several perspectives which focus on cost drivers of value chain and cost behaviour.
2006	Elbanna	Strategic decision-making: process perspectives	Discussing different perspectives regarding decision-making processes, and reviewing the relevant literature of these views.

2006	Hoque	Strategic management accounting	To map out several management accounting techniques used with the growth of SMA tools, and to contribute in providing an objective framework which can be used for academic purposes by students.
2006	Holloway	Strategic management accounting and managerial decision-making reconceptualised: towards a collaboratively oriented theory of organisational decision enhancement (ODE)	Assessing essential issues in SMA such as budgeting, corporate governance and decision-making process through a critical approach.
2007	Elbanna and Child	The influence of decision, environmental and firm characteristics on the rationality of strategic decision-making	Modelling a combined paradigm of decision-making by three views which help making rational decisions. Also, to explain how environmental factors affect strategic decisions through several determinants.
2008	Cadez and Guilding	An exploratory investigation of an integrated contingency model of strategic management accounting	To examine the underlying influence of strategic decisions and company type on SMA by using qualitative approach to reach a descriptive framework of these relationships.
2010	Cinquini and Tenucci	Strategic management accounting and business strategy: a loose coupling	Investigating to what extent does business strategy influence strategic management accounting applications.

The contextual contributions of strategic management accounting built a significant basis in management accounting applications. This enhancement has reflected in many processes regarding planning procedures, business strategic and capital investments, and strategic decision-making (CIMA Executive Summary Report, 2016). The previous table shows the key studies in this area and the main purposes of their publications.

The behavioural features of this concept is characterised by a slight complex aspects concerning organisational behaviour context. From existing literature, many themes focused on human behaviour contribution in strategic decisions and planned performance. These various themes have linked the expected effects of human behaviour with strategic performance levels through a number of areas such as human resources, organisational behaviour, marketing, accounting

information systems and strategic management accounting (e.g., Brauns, 2013; Burney and Widener, 2007; Frow et al., 2005; Powers, 2001; Tonchia, 2000).

#### **2.4.2 Strategic Techniques of Management Accounting**

From strategic behavioural perspective, strategic techniques of management accounting are enhanced by several IBFs that underpin the aim of this concept. Principally, the configurational strategic techniques are set in line with the behavioural context of individuals. From this perspective, several studies focused on the linkage of strategic techniques with some behavioural determinants within firms. This relationship has been underpinned by some articles such as the strategic view of behavioural accounting studies published in the *Accounting Review* journal (Hofstede and Kinard, 1970). In a subsequent study, Fulmer and Fulmer (1990) investigated several strategic techniques of group work involving leaders in organising and fulfilling the assigned functions of strategic plans and goals. Similarly, the framework proposed by Birnberg (2011) focuses on providing an explanation of individual, group and organisation behavioural determinants within firms that can affect strategic applications. A more generalised study of Nwonyuku (2015) highlighted the behavioural implications of some IBFs on management accounting functions.

From a large number of strategic techniques in management accounting, Brouters and Roozen (1999) discussed some strategic functions that are normally carried out by individuals and managers in management accounting. They addressed a set of techniques which are represented in analysing firms' environment, generating strategic decision alternatives, selecting best alternatives, the implementation of alternatives chosen and control process of these procedures. Some of these aspects are clearly linked with the essential stages of decision-making process that depends on similar steps. This was subsequently followed by a series of management accounting research that reflected other techniques such as target costing, cost analyses, life-cycle and strategic marketing methods (Roslender and Hart, 2003). Further on the investigation of these techniques, Cadez and Guilding (2008) explained two different perspectives regarding strategic management accounting practices. These two views have been presented as a necessity of accounting orientation and accountants' contribution in strategic decision-making process.

### **2.4.2.1 Costing Techniques**

Significant concerns have been raised in strategic management accounting literature through a set of contemporary publications. Costing processes have been highlighted and divided into several essential techniques;

#### **1- Life-Cycle Costing**

Conventional cost accounting systems have to be improved in line with the continuing threats of environmental and recycling costs (Bennett and James, 1997; Epstein, 1996). A difficulty has been addressed by several researchers of how to use and deal with such environmental and recycling costs through accounting systems applied (Sternier, 2002; Aye, et al., 2000; Bogenstatter, 2000; Abraham and Dickinson, 1998). Life-cycle costing perspective differs from the traditional processes of evaluating investment alternatives concerning alternative's cost. The difference here stems from the estimated lifetime of products and the extent of product lifetime which has to be taken into account (Gluch and Baumann, 2004).

#### **2- Target Costing**

This technique is typically applied to new products to measure and determine standard costs that have to be adopted. It aims to reduce products' cost and develop the quality at the same time of these products through planned and managed technique (Akao, 1990). Another main objective of this technique lies in increasing profitability in the competitive market (Zengin and Ada, 2010). Target costing is a comprehensive process helps decision-makers to identify the direct and hidden costs associated with product and also enhances strategic plans of production, marketing and competition (e.g., Askarany, 2011; Monden et al., 1997; Kato, 1993).

#### **3- Value Chain Costing**

This technique includes a set of management accounting activities that institutions and individuals practise to enhance cost control processes. This tool aims to support management accounting by providing relevant analyses regarding design, products and distribution through a series of processes (e.g., Wu, 2007; Anderson, 2006). This view has been stated by Porter (1985) in his book that focused on competitive advantage in marketing and how do firms offer competitive products for the same cost value. He also explained an effective chain which is

based on a series of elements such as designing, producing, marketing and distributing products in valuable outcomes.

These types of techniques reflect a significant part of strategic accounting functions within firms. There is no agreed-upon classification of these techniques in management accounting (e.g., Anderson, 2006; Hoque, 2003; Ward, 1992). However, Aksoylu and Aykan (2013) classifies strategic management accounting techniques into five main areas (1) strategic costing that includes attribute costing, life-cycle costing, quality costing, target costing and value chain costing, (2) strategic planning which contains benchmarking and measuring performance, (3) strategic decision-making that focuses on strategic pricing and managing products' cost, (4) accounting competition that includes cost assessment, performance evaluation and balanced scorecard, (5) customer accounting tools such as profit analyses and lifetime evaluation.

#### **2.4.2.2 Contingency Theory**

Contingency theory is a relative approach that has been associated with organisational behaviour and management accounting fields. This approach reflects how conditional factors can be adopted in evaluating firms' circumstances and strategic analysis. It has been used by many researchers as an effective tool in studying and understanding strategic management accounting issues (Simons, 1987; Anderson and Lanen, 1999). The essence of this theory lies in every decision depends on some behavioural, technical and organisational factors, and there are no specific criteria can be followed according to this approach. The development of this theory was based on sociological theories that were stated in some studies by Woods (2009), Chenhall (2003), and Reid and Smith (2000). Contingency theory has been partly investigated in some publications that focus on individual and managers' performance (Ganescu, 2012; Mezmar, 2005; Donaldson, 2001). In a more comprehensive study, Wadongo and Abdel-Kader (2014) provided a developed theoretical framework that highlighted some contemporary theoretical and empirical studies concerning management accounting area. The primary purpose of their study stems from the necessity of understanding the underlying impacts of performance management on organisational effectiveness.

In the context of some prior studies, contingency theory has been examined in organisational behaviour field. Hayes (1977) proposed that contingencies can affect three main factors within

firms; interconnection factors, internal factors and environmental factors. From another perspective, Flamholtz (1985) focused on control issue that has to be connected with management accounting systems and to be consistent with three major aspects in this context (1) social perspective that includes human resources and individual sociological perspectives (2) administrative view which involves strategic plans, measurements and supervising individuals' assigned functions (3) psychological perspective that focuses on some IBFs and extrinsic and intrinsic rewards. In the same year, two more publications have explained further dimensions of this theory. Drazin and Van de Ven (1985) examined this theory applying three major approaches; selection, interaction and system aspects that measure this theory in a critical discussion involved management strategy and performance. In a similar study, Govindarajan and Gupta (1985) explained the correlation between strategic plans and performance by discussing how control systems can be linked with these core aspects within firms. Such studies have clearly enhanced the early investigations of contingency theory and their vast implications on firms' functions and strategic decision-making process.

## **2.5 Strategic Decision-Making Domains**

As an indispensable role within firms, decision-making process is applied and divided into many domains that shape the nature of firms' work. In management accounting, decision-making has been considered an integral and sensitive part of accounting strategies. In this section, the review will be concentrated in the past publications that focused on strategic decision-making domains in management accounting as a selected part of the general accounting decisions in this research. Fundamentally, this function deals with gathering, providing and choosing the most appropriate managerial and financial information used in identifying the best decisions through essential stages (Zager, 2006). Although this process has been reflected in various accounting research, the behavioural dimension was partly connected with strategic applications in accounting literature as it will be presented in the next parts of this section.

The following parts critically explore the relevant literature of strategic decision-making domains and the main strategic models. This section also focuses on the general conceptual framework of this kind of decisions, budgeting and investment decisions.

### **2.5.1 Strategic Decision-Making Models in Retrospect**

In the contemporary literature, management accounting has witnessed considerable contributions of strategic publications concerning strategic decisions. Numerous strategic decisions models have revealed in different accounting areas, and sought to provide a more comprehensive vision to firms in their future positions. As stated by Papadakis and Barwise (1998), strategic decision-making is a significant and rising aspect that has five main characteristics; the strategic decisions are normally big, they have risk and long term effects, they help firms to improve their emerging strategies, they are a fundamental source of learning and development within firms, they contribute in developing the personal abilities of managers and individuals as they are based on academic and practical basis. In a more comprehensive outlook, Mintzberg et al. (1976) reflected a prominent wide vision of strategic decision-making structure. They stated that this wide function is significantly linked to many different research areas as a subjective, perspective and descriptive aspect. In addition, they indicated that such process is fundamentally based on many different psychological, IBFs, economics, political determinants. Strategic decision-making can enhance planning strategies, investment decisions that are represented in various alternatives, products' development and internal reforms (Dean and Sharfman, 1996; Cray et al., 1988).

#### **2.5.1.1 Prominent Models**

The conceptual basis of strategic decision-making can be traced back to the evolution of firms and market competition as a result of the economic prosperity witnessed by the world at the end of the last century. The strategic decision-making models have been classified in several publications, which varied in addressing the most prominent models in the literature. For example, these models have been addressed and classified by Mintzberg (1973), Fahey (1981), Astley, et al. (1982), Chaffee (1985), Lyles and Thomas (1988), Bateman and Zeithaml (1989), Hitt and Tyler (1991), Hart (1992) and Oliveira, (2007). Significant indications to these models have shown by Hitt and Tyler (1991), Machina (1981) and Liang (1994) who have highlighted the rational model of strategic decision-making and the external control model.

##### **2.5.1.1.1 Rational Models**

Rational analytical models lie in decisions made by allocating weights to the criteria and through a systematic line that concentrates on planned targets (Lechner and Müller-Stewens, 2000). The

procedural rationality of this model deal with significant IBFs that determine identifying the problem, identifying decision criteria, develop available alternatives, evaluating these alternatives and then selecting the most appropriate option (Lombardo, 2016). In these analytical models, Dean and Sharfman (1993) discussed the procedural rationality in the strategic decisions and they addressed 57 decision types that are normally applied within firms using methodical structure in line with their study. They emphasised that the multiple relationships in these procedures need more rationality to be consistent with managers' view and surrounding circumstances of firms.

As a wide-ranging procedure, strategic decision-making in the rational sense is based to three major stages as stated by Eisenhardt and Zbaracki (1992) who pointed out that this process can be made through identifying the problem, alternatives development and selecting the most appropriate option. They generalised the procedural process of strategic decisions that was mentioned by Mintzberg et al. (1976) in their paper that produced a structured view of such decision stages. They emphasised that every strategic decision has a distinctive way that can be made through the three stages mentioned. In the first major stage, discovering and identifying the relevant information to recognise what kind of decisions can be made. The second stage requires differentiating and advanced search during the development step. In the final main stage, rational evaluating of all the alternatives is required to select the alternative which is consistent with the firms' objectives.

#### 2.5.1.1.2 External Control Models

The second wide vision of strategic decisions that can be adopted according to Rabin et al. (2000) is external control model and strategic select behaviour. In a multidimensional study, the paper of Hitt and Tyler (1991) described the strategic decisions that are based on intentional choice and external IBFs are crucial determinants of firms' strategy in general. The external control model primarily focuses on strategic decision-making that concentrates on the environmental circumstances of firms (Lechner and Müller-Stewens, 2000). According to Hitt and Tyler (1991), these models have developed into two major methods; organisation theory and industrial economics. In many circumstances, environment and external factors had significant impacts on strategic decisions within organisations (Duncan, 1972).



The individual behaviour as fundamental factors is motivated by economic features of firms. This motivation stems from the incentives applied within these firms that encourage employees to work in a suitable work environment. A significant relationship between strategic decision-making process and information system has been addressed concerning IBFs and this multidimensional relationship (Rahman, 2016; Abib, 2007). Organisational theory is primarily focuses on decision-making process that is determined by several IBFs and psychological factors. From another perspective, a number of authors in the industrial economics argue that industry profitability is considerably determined by the industrial structure. They indicated that industry environment influences strategic decisions in different planned challenges (Barney and Ouchi (1986).

Although rational and external control models have been covered from different perspectives to investigate the impact of such models on strategic decisions, a number of decision models have emerged to be additional models that support these major models (Ahmed et al., 2014; Keats, 1991; Shrivastava and Grant, 1985). Some of these additional models are positioned between the rational and external control models such as strategic choice model that proposes managers are responsible for making strategic decisions using some strategic techniques such as firms' goals and technologic aspect (Hitt and Tyler, 1991). Other significant models related to the behavioural context are politics and power oriented models. These models focus on the individual differences and the unique abilities of individuals within firms. In addition, these behavioural models consider that decision outcomes are generated by some IBFs such as perception and the unique power of individuals (Rajagopalan et al., 1993). Eisenhardt and Zbaracki (1992) pointed out that in political model, the decisions made depend on the negotiations between decision-makers who have different perspectives and goals.

There are varying notions of the behavioural effects on strategic decision-making. The main features of this thesis are linked to some models that have individual behavioural vision. Thus, they have multiple determinants and implications on strategic decisions. From this conceptualization, the strategic issue in management accounting decisions has various dimensions such as the behavioural impact which is linked to several strategic models. The underlying implications of some IBFs have been stated by Collier (2015) in his book that focuses on some behavioural determinants and human abilities in dealing with strategic goals within

firms. He indicated that individual goals may be linked to motivation factor and performance rewards that highly determine the performance level and fulfilling the assigned functions. In a general overview, the strategic models have been emerged and formulated to develop many managerial systems and accounting applications that need more consistent mechanisms and successful decisions in today's business environment. With regard to choosing the most appropriate decision model, it has been proposed that rational model can be chosen in making routine decisions (Butler, 1993), while normative model can be implemented when making strategic decisions that focus on firms' environment and their internal circumstances (Hitt and Tyler, 1991).

### **2.5.2 Budgeting**

The internal focus of management accounting has multidimensional purposes in gathering and processing accounting information to be aligned to strategic plans and decision-making purposes. This part of strategic decision domains highlights and reflects the relative weight of budgeting as a considerable issue in accounting literature. According to Bazley (1996), management accounting essentially aims to provide specific information that help managers making decisions. The information provided consists of accounting data which is used in budget preparation. The utilisation of budget as a fundamental tool of any firm stems from the necessity of planning and controlling accounting decisions within these firms, and reflecting the current and future status into a quantitative expression (Eaton, 2005). This quantitative statement is normally prepared for a specific period of time to show accounting items such as assets, liabilities, capital and revenues that describe the business position of any firm (Jackson and Starovic, 2004).

Budgeting is considered as an effective tool in management accounting. It has been defined by Wildavsky (1975) as a mechanism and a set of procedures that allocate financial resources for various managerial accounting goals. Further functions have been stated by Chadwick (1991) are represented in setting firms' goals and monitoring individual performance. In addition, a budget is typically used to develop the efficiency of financial and accounting data, and to illustrate the linkage between lowered costs and standard cost target (Wildavsky, 1975). Budgeting process can be simply divided into different stages that begin with inputs, process, outputs and outcomes (Guthrie et al. 1999; Lynch 1989). This simple model reflects an assumption that inputs basically result in outcomes. During the processing stage, many surrounding factors and some IBFs can

affect this process at any phase such as firms' policy, financial circumstances and behavioural impact (Rubin 1997; Lynch 1989).

Budget preparation involves resource allocation that should be prepared in an effective way and to reflect an efficient process of accounting system (Wang, 1999). The efficiency reflects the outputs values converted from inputs, and it can be measured by comparing the constant values of inputs with the amount reached of outputs (Diamond, 1990). Efficiency issue has been linked to budgeting process in several publications which have various perspectives regarding budget preparation, the main stages of budgeting and the efficient settings (Mikesell and Mullins, 2011; Mascarenhas, 1996). Schoch and Den Broeder (2013) and the relationship between policy effectiveness and decision-making related to budgeting process. They analysed a substantial framework of business policies from budgetary outlook and they sought to provide an evaluative basis of these policies to be aligned with decision-makers' objectives.

#### **2.5.2.1 Strategic Domain of Budget Decisions**

Strategic issue in budget decisions is essentially linked with strategic goals and planned targets of firms through a set of sequential procedures. The conventional stages of strategic decision-making process normally include: identifying and setting firms' goals, generating available alternatives, evaluating these alternatives, selecting the best option of these proposed alternatives, and finally implementing and controlling decisions made in line with the goals criteria (Harrison and Pelletier, 2001; Harrison, 1996). The core issue of this process has been confirmed as the quality of decisions made and addressed to what extent do these decisions fulfil planned goals (Basi, 1998). From this perspective, Barrett (1999) offered a systematic approach of efficient decisions that leads to more effective outcomes and enhances more accurate results. This view puts Harrison's analysis (1996) a step forward that explained how to guarantee the success of strategic decisions made, and how do these decisions contribute in achieving the planned goals.

##### **2.5.2.1.1 Efficiency Measurement in Budget Strategic Decisions**

The variety of strategic decision-making efficiency depends on many basic determinants that contribute in this type of decisions. The complexity of strategic decisions and their volume increase individual responsibilities in making budget decisions. Thus the participants in this

process should rely on specific decision tools and successful criteria to avoid the complexity risk (Davis et al., 1966). This early assumption has confirmed by several authors such as Carneiro (2001) who pointed out that in assessing decision-making process, a number of standards should be adopted within firms to assess whether these decisions are efficient or they need to change decisions made.

In order to create effective solutions that guarantee a minimum quality of strategic decisions, many tools have been suggested to assess the complexity level of strategic decisions and to address the underlying problems that need to be solved in budget decisions.

#### 2.5.2.1.2 Decision Guidelines and Procedures

Decision guidelines provide simplifying of the main roles that should be followed by decision-maker though a number of procedures applied. The guidelines adopted are basically based on similar strategic decisions made in the past in similar circumstances. (Johnson and Dayal, 1999). The importance of strategic decisions has been increased concerning which roles are more effective to be followed. Clemons and Weber (1990) confirmed that this increase led to the emergence of risk in strategic decisions that rely on consistent standards supported by strategic information technology. It is argued that modelling some paradigms such as dialogue model can positively enhance strategic analysis and decision assumptions, which is considered as a compatible with these analyses and guidelines of strategic decisions (Thomas, 1984).

#### 2.5.2.1.3 Decision Structure

In the sufficient decisions, the decisions taken have to be in a high degree of consistency within firms. From this perspective, decision structure or as it is known “decision tree” is a support method that is used to show the possible and proposed consequences after processing basic information required of relevant alternatives. This visual analytical tool shows how strategic decisions are made in different budget issues such as processing investment and capital decisions. Quinlan (1999) described decision structure as a generated tool which is emerged and developed from different collections of examples. He provided a descriptive analysis that focuses on simplifying decision structure to avoid the complexity of decision tree and to be more flexible in absorbing different inputs to be more accurate and compatible with decision goals.

#### 2.5.2.1.4 IT and Budget Decisions

Information Technology (IT) has been enormously considered as a prominent developing tool in helping decision-makers take more sufficient decisions. Essentially, budget preparation needs different accounting information regarding budget items and relevant data which should be reflected into quantitative expression. Relevance, reliability and timeliness of information are core requirements for gathering information by IT tools. Several contemporary studies confirmed that computer applications can help decision-makers and managers in making faster and more accurate strategic and repetitive decisions of budget (Turban 1995; Stevens and LePlante, 1986). Using such applications and software packages help decision-makers in generating more alternatives because they can gather the relevant information more easily with these applications, thus they can select an optimal alternative (Chu and Spires, 2000). In recent years, the use of IT software packages is now available for different purposes. Bots and Lootsma (2000) pointed out that many decision support systems are flexible created in proportion to financial planning and to support decision stages.

In the contemporary studies, many decision systems have been developed in processing different phases of strategic decisions especially those programs which support group work. For example, Carneiro (2001) stated that Group Decision Support Systems (GDSS) have been highlighted in several recent research. This type of software packages allow managers and management accountants make decision-process more efficient, and such programs help managers in evaluating and choosing the most appropriate strategic alternative. In a distinctive behavioural feature, Higgins (1998) emphasised that individuals can participate in this process more comfortable and there is a confidential data entry that allows individuals to participate and provide their views, ideas and estimated data that reflect their criticisms without work pressures or organisational impacts.

#### 2.5.2.1.4 Strategic Planning

Strategic planning is a significant process that seeks to develop and direct firms' efforts to achieve their strategic goals. This process is a considerable element of strategic decisions in management accounting domain and has a significant linkage with budgeting (Fabrizio and Hertz, 2005). The significance of this method has been highlighted from different perspectives that summarise individuals' and firms' orientations towards developing strategic policies,

mechanisms and procedures applied within firms. Numerous authors have sought to categorise the core elements of strategic decisions and strategy process research through the focus on budgeting and investment decisions (Rouleau and Seguin, 1995; Huitink, 1994; Chakravarthy and Lorange, 1991).

### **2.5.3 Investment Decisions**

Beside the diversity in accounting decisions, investment decisions are considered as a significant approach to determine future financial positions of firms. This kind of decisions considerably determines the future success of firms and affects their directions (Bierman and Smidt, 1988). In the mainstream literature, several studies have examined multiple issues regarding investment decision requirements and effects (Northcott 1998; Nickell, 1978; King, 1975). They focused on investment appraisal techniques and their mechanisms applied within firms. There is a relative agreement that such techniques are multi-staged and they have different procedures. The emergence and development of investment appraisal techniques have been indicated in different areas such as management accounting and financial accounting areas. However, the current literature has not covered all relationships between this type of decisions and other areas such as the behavioural issues. In a similar context, Kengatharan (2014) sought to examine the impacts of individual behavioural factors on investment decisions. This study reviewed the existing theories in behavioural area regarding financial field. In addition, it examined the influence of some IBFs on investment performance and how do IBFs can be exploited to enhance the investment decisions in a positive way. East (1993) focused on the theory of planned behaviour that connects individual beliefs and their behaviour including perceived behavioural. The study investigated how past behaviour and individual attitudes can be assessed and examined and to be in line with financial investment criteria.

To provide a relevant preface to the main tools of investment decisions, investment appraisal techniques will be briefly presented in the subsequent part.

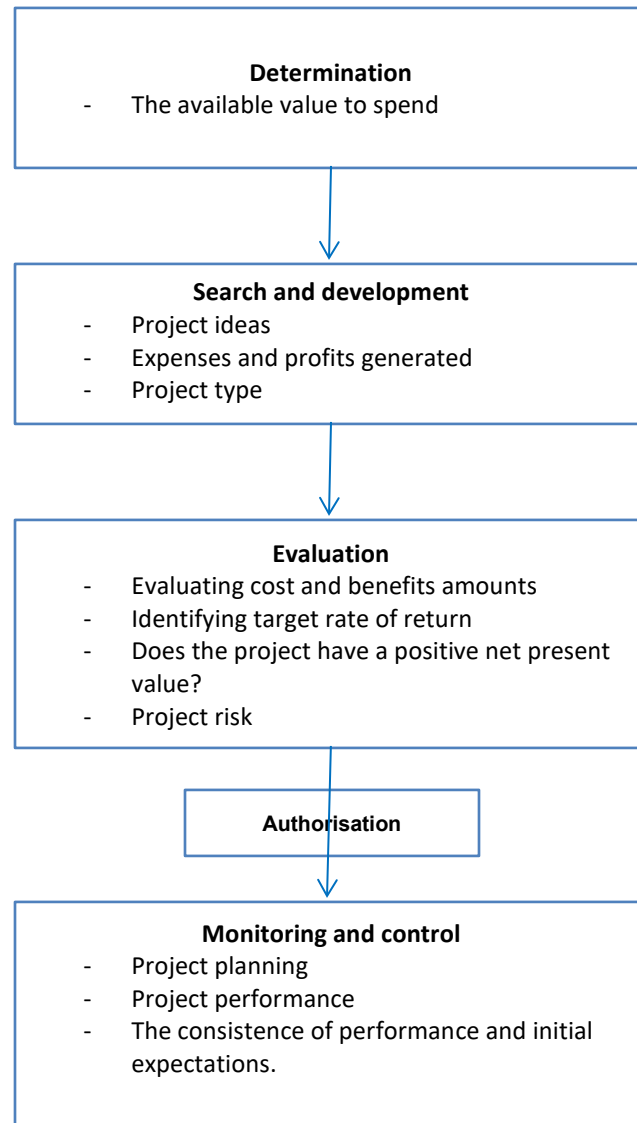
#### **2.5.3.1 Investment Decision Methods**

Although the mainstream literature abounds with different examples concerning the emergence and modelling different investment appraisal, the linkage between the individual behavioural factors and investment appraisal techniques have not examined and highlighted in details.

Conventional techniques of investment appraisal have been explained in numerous studies in management accounting and financial accounting areas. These significant tools are considered as investment decision enhancement and they help decision-makers to evaluate each investment alternative through different techniques (Collis et al., 2012; Petty et al., 2012; Friedlob and Plewa, 1996). There are many prominent methods in the accounting literature such as Discounted Cash Flow, Payback method and Internal Rate of Return. Pike and Neale (1993) explained the correlation between these different techniques and simple decision-making model. They provided an interactive relationship as shown in the Figure 2.1.

In this type of decisions, the determination of the budget is the first step of this process. Subsequently, focusing on the main features of projects and the available alternatives regarding projects' cost and profits. In this regard, Karpinski et al. (2021) stated that decision-making process involves the elements which affect the selection of alternates that can be carried out by decision-makers in different situations. The next stage is evaluating the estimated amounts of cost and benefits, identifying the rate of return and studying the risk of the proposed project. The final stage of this simple model is monitoring and controlling the project and identifying the expected performance of the chosen alternative.

**Figure 2.1: The simple model of investment decision-making process**



**(Adapted from Pike and Neale 1993)**

This simple model proposed is essentially based on the investment appraisal techniques mentioned that help to determine and evaluate the best alternatives of available decision options.

#### 2.5.3.1.1 Discounted Cash Flow

Discounted Cash Flow (DCF) measures the potential benefits of proposed investments. Brown and Byers (2005) indicated that DCF is an analytical tool which allows current and future indicators of cash flow to be calculated into the present value using specific discount rates.



Measuring DCF is based on the possibility of generating cash flow for the capital owners through the value of assets and proposed projects.

The DCF calculation helps investment decision-makers to choose the most appropriate options through evaluating the results obtained of this tool. In this aspect, Damodaran (2012) pointed out that DCF can be determined by the present value of assets as the future expectation. This technique focuses on time, money value and projects' risk (Lumby, 1994; Pike and Neale, 1993).

In the behavioural aspect, individual attitudes towards many investment decisions are directed by the personal assessments. Brophy and Shulman (1993) stated that the personal goals of customers, bankers, suppliers may have direct impact on investment decisions. In a similar context, Keasey and Watson (1993) emphasised that DCF technique can be applied to assess decision efficiency, and explained how do investment decisions contribute in enhancing and building customer loyalty for a long-term. Other behavioural features were discussed in applying DCF technique such as individual performance measurements (Crowther, 2004) and improving customer services, increasing job satisfaction and developing communication services (Grembergen, 2001). DCF tool is financially oriented evaluation technique that helps decision-makers to evaluate the available options of investment alternatives.

#### 2.5.3.1.2 Payback Period

Payback period is the required time to retrieve the costs expended of an initial investment (Farris, et al., 2010). Essentially, this method can be used when decision-makers create many investment options that vary in their payback periods. The mechanism used in selecting the most appropriate option lies in choosing an investment that its initial cost can be retrieved in the shorter time. Needles and Crosson (2011) provided an explanation of how to calculate and analyse the results of each alternative generated.

Turner and Doty (2007) indicated that this technique simply ignores time value, and the use of this method leads to making decisions that focus on the short term period. The simplicity of using this technique encourages small firms and managers to make initial decisions of which investment alternative should they choose. However, ignoring time value of money led to decrease in using this method (Needles and Crosson, 2013)

#### 2.5.3.1.3 Internal Rate of Return and Accounting Rate of Return

Internal Rate of Return (IRR) is normally used to evaluate investment projects and strategic investment decisions. This rate reflects to what extent do firms accept or reject investment decisions proposed. The investment option of new projects is approved when the IRR exceeds the standard rate of return, while it is rejected when the IRR lies below this standard rate. According to Kolbe et al. (2003), IRR is a methodical technique to analyse the cash flows and measuring the discount rate which makes the present value of the estimated cash flows equivalent to the initial proposed investment.

Accounting Rate of Return (ARR) is also known as the return of investment and the return of capital employed. This difference of this technique is that ARR focuses on profits rather than cash flow (Drury, 2012). This method also ignores the time value of money (Hansen and Mowen, 2000). Although the accounting literature witnessed many explanations the ARR mechanisms and some disadvantages, there have been other publications that support using this technique over many years by indicating different advantages (Needles, 1999; Bendrey et al., 1996; Polimeni et al., 1994). For example, Drury (2012) emphasised that this method helps managers in measuring managerial performance.

#### 2.5.3.2 Behavioural Features of Investment Decision-Making

The behavioural issue is essentially linked to management accounting research and a number of business areas (Wickramasinghe and Alawattage, 2007). In investment operations, human behaviour plays a multidimensional role in generating, evaluating, and choosing future investment alternatives based on many objective criteria, behavioural and sociological perspectives. Covalleski et al. (1996) focused on presenting core functions that have been highlighted in the accounting literature related to behavioural context and investment challenges which lie in information design, strategic plans and budgeting operations. They spotted these functions through a historical review of the most prominent organisational and sociological theories.

##### 2.5.3.2.1 Psychological Standpoints

According to existing literature, decision-making processes take two basic forms; programmed and non-programmed methods. Simon (1960) indicated that the majority of decisions taken are

considered non-programmed decisions. Thus, the psychological aspect is involved in determining and orienting these decisions. Strategic investment decisions are complex challenge for managers and decision-makers because many psychological and behavioural factors can be the main effective component in these processes. For example, Bass and Ryterband (1979) stated that some IBFs such as motivation and personal attitudes affect individuals' visions in decision-making within firms, consequently there were claims for focusing on mechanisms rely on programmed processes. Richards (2014) critically discussed how to avoid the behavioural bias in investment decisions. He emphasised that this factor is the largest single element behind unsuccessful decisions.

A significant aspect in management accounting concepts is opportunity cost that has been investigated in several studies (Kask, 2014; Simaan, 1993; Oh, 1976). Personal perception of individuals helps decision-makers to recognise the clear and hidden costs of investment alternatives. The study of Northcraft and Neale (1986) focused on examining investment information when decision-makers deal with many alternatives regarding resource allocation, and the main findings were concentrated on ignoring opportunity cost by decision-makers in most cases. The reason for that as they stated is decision-makers usually prefer using traditional cost evaluation instead of opportunity costs. In a significance indication, Chenhall and Morris (1991) provided explanation of the cognitive style effects on decisions made regarding opportunity costs and resource allocation, and they found that decision-makers are affected by some behavioural factors such as their sense and expectation which influence the consideration of opportunity costs. Another study in this issue by Vera-Munoz (2001) focused on individuals' background and decision-makers, and indicated that education and experience can significantly contribute in making successful structure of decisions.

#### 2.5.3.2.2 Behavioural Biases

In many cases, personal behaviour of decision-makers deviates from making rational and balanced decision to other biased decisions which are influenced by some IBFs. One significant reason for this behavioural deviation is overconfidence factor (Chira et al., 2011). This IBF poses a threat to individuals towards investment decisions that they make. From this perspective, several examples and cases have been explained in some publications concerning this factor (e.g., Fernandes et al., 2012; Dittrich et al., 2005; Barber and Odean, 2001). Another reason of

behavioural bias has been indicated is home bias which refers to a preferred behaviour that tends to making domestic investment rather than foreign investment. Home bias as many researchers stated still needs more deep studies (Hamberg et al., 2013; Ke et al., 2009; Coval and Moskowitz, 1999).

## **2.6 Interactive Behaviour Effects on Decision-Making Process**

This section mainly focuses on the mainstream literature of interactive impacts of IBFs within firms on strategic decision processes. This research creates a behavioural model which is Interactive Behaviour Chain (IBC) which is based on eight IBFs. This model is primarily created to provide a more comprehensive approach of the positive and negative behavioural impact on individuals' performance within firms and to measure the extent of individual performance level. The behavioural accounting literature in this area is a substantial basis for this model, and it is considered as a core contribution in modelling the IBC. The interactive behaviour in this section stems from several domains such as individual differences and behavioural change, the influence of personality traits and the impacts of leadership in strategic decision-making process.

### **2.6.1 Individual Differences**

Behavioural differences research is concerned with the various choices of individuals when they face similar circumstances. Many theories such as Rational Choice Theory focus on the rationality of decision-making and how to be logical choices (Manzo, 2013). Multiple arguments have been addressed in this aspect and emphasised that human decision-making could be based on the personal choices and perception level rather than the rational motives (Berg, 2005; Machina, 1981; Gabor, 1976). There are persuasive arguments in favour of the variety of individual behaviour choices when individuals perform their tasks and participate in decision-making process (Bruin et al., 2012; Appelt et al., 2011). The variety of individuals has been examined by (Knoch (2014) from a different angle that focused on brain activity, and how does the human interaction affect the personal perception, Hence the ability of making decisions in a social interaction environment.

#### **2.6.1.1 Behavioural Complexity and Strategic Choice**

The nature of individual complex traits leads to a wide variety of their behaviour even in performing their assigned tasks regarding making strategic decisions. From this perspective,

several studies have been conducted in psychological and organisational behaviour fields to describe and analyse individual behaviour within firms (Fantino, 2004; Schoemaker, 1993). This complexity requires a reasonable level of individual cognitive of accounting procedures and financial implications of any decision made. This demand poses a significant challenge to decision-makers who usually prefer to simplify their strategic techniques in decision-making process rather than adopting complicated procedures (Payne, 1976). Decision time is a further substantial function which has been demonstrated in multiple studies that focused on the relationship between this issue and the complexity of decision alternatives (Hendrick et al., 1968), and task complexity (Hogarth, 1973). Pollay (1970) modelled a paradigm which helps decision-makers take rational decisions in difficult situations. This type of studies confirms that the complexity issue is connected to many different situations in decision-making process.

The rational choice in making decisions has been included in several studies that allocated a prominent space of rational and logical scientific analyses of human ability in choosing the rational alternatives. In 1955, Simon introduced a behavioural model including the general features of rationality with the focus on alternatives generated and goal achievement. He analysed the rationality from different dimensions such as gathering information stage in decision-making process, and finding unique solutions of problems. He continued investigating different aspects in this issue by providing an analytical paper that identified the rational choice in work environment and the structural characteristics of individual behaviour (Simon, 1956). Developing these various thoughts continued with different papers such as (Park, 1978) who modelled operationalised satisficing-plus paradigm by examining the simplicity of strategic choice through a seven-point scale. His paper found that decision-makers copy their operational strategies to reach specific choice.

#### **2.6.1.2 Behavioural Confidence and Cognitive Levels**

Behavioural differences of individuals stem many IBFs and sub determinants which are derived from human nature. Confidence is one of these determinants that has a considerable effect on decision-making process (Lee and Dry, 2006). The relative contributions of examining the underlying impacts and threats of behavioural confidence showed some arguments and

controversial discussion concerning the confidence levels and decision-making process (Weber et al., 2012; Payne et al., 2009).

The interaction between behavioural confidence and their cognitive abilities has been slightly connected to strategic decision-making. This considerable relationship needs to be clearly understood by managers and decision-makers. A set of studies conducted individuals' cognitive tests to measure the confidence level towards assigned tasks within firms (Mengelkamp and Bannert, 2010; King and Witt, 2009; Goldberg and Wooldridge, 1993). In a prominent model, Gigerenzer et al. (1991) examined through the Probabilistic Mental Model (PMM) the overconfidence effects on individuals' action towards many tasks. This model provides a comprehensive framework of choice and the behavioural confidence, and how do these factors enhance decision-making evaluation under probabilistic conditions.

Many psychological studies built the essential basis of analysing investors' choices and their individual differences. These behavioural perspectives witnessed conducting several studies that focused on the necessity of understanding overconfidence factor and its underlying impacts on investment decisions (De Bondt and Thaler, 1995). From an investment perspective, Harris and Raviv (1993) found that the differences of opinion lead to increasing the trading volume of firms due to the multiple ideas generated. Biaise, et al. (2005) conducted an experimental study to examine some psychological aspects and cognitive abilities of individual, and how do affect trading and individuals' performance. This examination were conducted on 245 participant who summarised their attitudes towards their confidence levels, and the study found that trading performance can be reduced by several factors such as overconfidence.

#### **2.6.1.3 Individual Differences and Decision-Making Measurements**

Difference features of individuals can be measured through several approaches that have been emerged in relation with strategic decision-making processes. These measurements assess many different IBFs within firms in order to manage individual abilities efficiently (e.g., Ciampi et al., 1982; Ferreira et al., 2016; Manske et al., 2016). Efficiency of strategic decision-making process is an essential goal for most firms. From this objective, measuring decision-making competence has been measured by different scales such as Adult Decision-Making Competence and decision outcomes (Bruine de Bruin et al., 2007). The necessity of developing strategic decision-making

led to emerging many individual behaviour measurements in the mainstream literature such as cognitive ability (Gonzalez et al., 2005), risk attitude (Yager, 1999) and motivation measures (Dawkins, 1988).

#### **2.6.1.4 Cognitive Ability**

Cognitive ability substantially refers to the personal ability of individual of how do they recognise, realise and perform their assigned functions in relation to decision-making process. This aspect essentially focuses on individual intelligence and their capabilities which can be measured by Global Ability scale (Raven et al., 1996; Heim, 1968) and Specific Ability or Competence (Dewberry et al., 2013; Frederick, 2005).

Global ability includes different scales that can be used in measuring human intelligence from many aspects. For example, in 1955, Wechsler designed The Wechsler Adult Intelligence Scale (WAIS) which examines the extent of individual intelligence and their capabilities in performing their tasks (Wechsler, 1955). He published this scale after revising it, which is still broadly used and it has been developed to the fourth edition (Suwartono et al., 2014). With regard to the specific ability scales, they measure particular individual skills such as numerical skills that enhance the personal ability of dealing with information required for decision-makers (Peters et al., 2007). More specific skills have been stated by Thomas et al. (1996) in their study that provided a comparison between specific mental ability skills and the general capability of individual. Their study focused on some specific skills required for predicting individual performance in their assigned tasks and their mental ability.

#### **2.6.1.5 Risk Attitude**

Decision-maker's attitude is a substantial component of IBFs that can be measured by some proposed models. According to Weber and Johnson (2008), risk attitude measures can be categorised into three categories. The first method is the behavioural measure of risk that can be applied to individuals to measure their risk concentration when they face challenges in decision-making. The second technique evaluates risky situations within firms that can be faced by decision-makers. This method is typically applied through self-report forms that contain different questions related to risk determination and individual perception as an essential IBF studied in

this research (van Winsen et al., 2014; Kogan and Wallach, 1964). The third measure lies in the effect of personality patterns of individuals. This technique differentiates between many personality traits such as impulsive, biased and careless patterns through self-report forms of personality testing system (Aiken, 2002).

#### **2.6.1.6 Motivation Scales**

Motivation as one of the essential IBFs in this research and in the IBC model has been measured through several methods in psychological and business areas. Hart et al. (2015) continued a series of self-report studies that focus on measuring human responds towards any variables which individuals face. Motivational factor is a significant factor in this kind of methods that reflects how do individuals respond to interactive processes such as decision-making process (Rekik et al., 2015). Individual interaction is also affected by interpersonal motivation that determines human behaviour and it can be measured by Ring Measure of Social Values (Liebrand and McClintock, 1988) as an example of these measures. Besides these models, a set of methods emerged to measure psychological needs of individuals that are connected to motivation such as Need to Evaluate Scale (NES) (Jarvis and Petty, 1996), and Consumers' Need for Uniqueness (Tian et al., 2001) which are designed to evaluate individual response and their motivational implications.

#### **2.6.2 Multidimensional Influences of Personality Traits**

The variety of personality traits is reflected in many different ways in individuals' behaviour. In strategic decisions, there is similarity in the procedural and stages of these processes that might be affected by personality traits. However, the variety of individual personalities makes this process more complex due to the different patterns of personalities that determine many stages of this process. Allport (1991) described the personality as a distinctive behaviour of individuals that leads to unique action or reaction in managerial tasks, and it normally remains similar in many tasks.

Theoretically, strategic decision is determined by many components such as mechanisms applied (Wood et al., 1990), human resources (Korte, 2003), the availability of alternatives (Geurts, 2013) and behavioural patterns (Fantino, 2004). The last component in these factors is derived from many IBFs, and the personality here plays the fundamental role of determining individuals'



performance and the extent that they successfully involve in strategic decision requirements. The effective relationship between personality patterns and strategic decision making has been studied by Gudonavicius and Fayomi (2014) who reviewed the conceptual framework of entrepreneurial personality and they studied the substantial correlations between this kind of personality and strategic decision process. McKenney and Keen (1974) presented an analytical framework of the main challenges of making decisions in relation with personality patterns. These problematic issues are represented in systematic and intuitive aspects.

The systematic aspect of strategic decision-making refers to the following several stages using decision techniques in order to reach the successful decisions. This approach essentially depends on objective criteria and structured steps that enhance decision-maker's ability to solve strategic challenges and investment decisions. The second aspect lies in the intuitiveness of decision-makers. The IBFs are the core drivers of this approach, and they determine the main features of information required depending on individuals' perception and their experience. Although the complex nature of some strategic decisions requires accurate processing and rational analyses, solving these complex issues is derived from the belief that individuals have more comprehensive ability in analysing and selecting the optimum decision alternative.

#### **2.6.2.1 Personality Trait Differences and Complex Strategic Decision-Making**

The correlation between personality traits and strategic decision-making has been studied from limited aspects. The complexity of strategic decisions poses a challenge of eliciting the underlying positive and negative implications of personality traits. Complex systems have a considerable impact on the way of making strategic decisions (Milano and Lombardi, 2014). Matt (2012) reflected some complex strategic choices within firms through covering several social, financial and environmental factors. Similarly, Steinel and De Dreu (2004) explained the social motives and some IBFs that affect strategic decisions. They found that information provided by individuals concerning payoffs can affect decisions. Other results of this study reflected that some personality patterns such as competitive and cooperative patterns lead to different accuracy of information. For example, social and cooperative individuals provide more accurate information rather than selfish and competitive traits.

Personality traits have been classified in a wide range of social and psychological studies which are considered the main source of understanding these kinds of personalities. Some researchers focused on entrepreneurial personality which is one of the most significant personality characteristics that have been studied in recent years (Gudonavicius and Fayomi, 2014; Uru et al., 2011; Kickul and Gundry, 2002). Gudonavicius and Fayomi (2014) emphasised that strategic decisions studies lacks analysing entrepreneurial personality and how does this trait influence the efficiency of decisions. This indication confirms the continuing gaps of linking strategic decisions with the significant characteristics of personality. Other scholars addressed different patterns of personalities concerning their direct and indirect impacts on several aspects of strategic decisions.

A prominent theory in classifying personality traits was presented by the psychologist Holland who focused on six personality traits in his RIASEC theory. The name of this theory refers to the first letter of the most significant personality patterns (realistic (R), investigative (I), artistic (A), social (S), enterprising (E), and conventional (C)) that are relevant to decision choice (Nauta, 2010). These types of personality which are included in social and psychological factors need to be connected with each strategic decision stage to measure their different impacts. As some researchers stated, social and surrounding factors considerably affect the way of making strategic decisions (Bouten, 2015; Bauer and Smeets, 2015; Studdard and Darby, 2011).

Another significance classification of this factor is the Big Five personality traits which is also known as Five Factor Model (FFM). This classification is based on five characteristics; (1) Openness to experience which refers to human who has active imagination, sensitivity and experience, (2) Conscientiousness is used to describe individuals who are careful when they perform their assigned tasks and look for high performance levels, (3) Extraversion which refers to a social and energetic personality, (4) Agreeableness is a characteristic of kind, cooperative and sympathetic personality, and (5) Neuroticism which is described by anxiety, worry and loneliness (e.g., Byrne et al., 2015; Farkas and Orosz, 2013). Tolnai (2021) the included the Five Factor Model as it represents social preferences. The findings revealed that two personality dimensions (Agreeableness and Conscientiousness) indicate social preferences while four personality traits (Agreeableness, Extraversion, Neuroticism, and Conscientiousness) affect the ability to use structural power.

### **2.6.3 Leadership and Decision-Making**

Leadership styles have been widely discussed in terms of the different practices adopted by each style. Essentially, many prominent styles can be introduced in this context including transformational, transactional and laissez-faire leadership styles. These approaches along with a number of styles have different attitudes, techniques and practices in influencing subordinates in different ways to achieve individuals' and firms' objectives. With regard to SIDs, a number of essential practices and functions should be carried out by leaders such as influencing, inspiring and motivating individuals within firms to enhance their performance level and then the quality of decision-making processes (Nahum and Carmeli, 2019; Redmond and Dolan 2016; Zulfqar et al., 2016). Wan Hanafi and Daud (2021) investigated the impact of emotional intelligence on the relationship between leadership styles and strategic decision-making.

With a flexible approach, transformational leadership philosophy is built on providing the opportunity to individuals to participate in decision-making processes (Sagnak, 2016), helping management in changing some internal procedures (Deschamps et al., 2016) and the enhancing individuals' creativity and innovation at the individual level, group level and organisational level (Khalili, 2016; Jaiswal and Dhar, 2015). It is likely the transformational style would be favourable and desirable approach for individuals in decision-making process if individuals obtained the opportunity to participate in this process with reasonable authority. Cerutti et al. (2020) pointed out that transformational leadership and rational decision-making style have positive impact on the intention of the employees to remain in their organisations.

In more restricted style, transactional leadership usually aims to maintain the successful work conditions without change (Afsar et al., 2017; Mgeni and Nayak, 2016). This approach can be positively reflected in making strategic decisions that can be classified as routine decisions. In this regard, the flexibility in involving individuals according to this style is limited which pose some challenging to leaders to obtain richer data and information through decision-making process. In addition, positive practices such as creative and innovative contributions might be influenced due to the restrictions applied.

Laissez-faire leadership has different approach as it is based on the freedom provided by leaders to subordinates to perform their tasks in accordance to their choices and estimations. In this style,

leaders provide the opportunity to participate in SIDs in higher authority level than other styles as leaders consider that the subordinates have the ability in understanding work and accounting conditions in an appropriate level, and therefore, they can perform and make effective SIDs.

Psychological and behavioural factors play a significant role in the relationship between leadership and SIDs as the leadership practices are based on the communication interaction between leaders and individuals (Ruben and Gigliotti, 2016) and other issues linked to individuals' attitudes and emotions (George, 2000). In SIDS, in many conditions, leaders consider the intellectual capacities of individuals and choose the nature of tasks that can be assigned to subordinates (Northouse, 2018). These estimated procedures can be conducted by leaders through the accumulated performance levels of subordinates that allow them to obtaining appropriate level of participation in SIDs. In this respect, Conger and Lawler (2009) pointed out that participative decision-making involves meetings, discussions, planning and making decisions with hierarchically unequal individuals.

## **2.7 Continuing Gap**

Though reviewing and studying the contemporary literature related to the various relationships of behavioural determinants and decision-making processes, the gap remains in these relationships that require additional research in this field. In this context, the research aims to bridge the continuing gap through establishing theoretical and critical framework of a number of distinctive IBFs and sub-factors that produces additional theoretical and empirical contribution to knowledge based on the IBC model. The IBC model will be established and introduced in the next chapter.

The continuing gap in the relevant literature and the lack of studies in the Libyan context in this field reflects the significance of this research, which seeks to cover this gap by enriching the literary content in the literature and the Libyan context. In a number of relevant studies that include IBFs, the necessity of further studies have been implicitly recommended by a number of studies. Carrington et al. (2014) emphasised that the behavioural factors need to be further investigated in terms of decision-making process and could be the subject of future research. Sun et al. (2020) identified the continuing gap of the behavioural determinants that should be considered in decision making of technological use. Individuals' attitudes have been identified as

a behavioural factor that needs to be additionally investigated in its association with decision-making especially with customer behaviour and ethical practices within organisations.

Personality has been associated with decision-making process from different perspectives (Mendes et al., 2019; Azeska et al., 2017). However, the distinctive characteristics of the positive and negative patterns of personality studied in the current research have not been combined in an integrated research. Individuals' perception has been an essential part of many studies related to decision-making processes due to the indispensable role that such factor plays (Driever et al., 2020; Leder et al., 2019). In this context, the sub-factors of perception chosen in this research can contribute in filling a significant gap that needs to be covered.

Leadership with its various styles is investigated in different studies that focused on transformational, transactional and other styles of leadership (Gill and Berezina, 2020; Hallo et al., 2020; Battal et al., 2017; Brower and Balch, 2005). Although a variety of characteristics of leadership styles has been linked to investment decisions, the desirable and undesirable factors chosen in the IBC model can bridge the continuing gap in this context.

## **2.8 Interpretations of the IBFs and Hypotheses Development**

This part provides the essentials of the IBFs' assumptions, and an interpretation of these assumptions. In addition, the hypotheses of this research will be presented in accordance with each behavioural component in this study. The expectations of these hypotheses are formulated in line with the proposed association between the IBFs (independent variable) and the strategic investment decision (dependent variable). The idea is to explain the core concepts of the assumed IBFs and interpret the association between these behavioural factors and the possible interactive impact on individuals' performance. The behavioural insights will be reflected in the eight IBFs in the next parts.

### **2.8.1 Personality (IBF 1)**

Personality assumptions are derived from different rational perspectives and experiments. In the behaviour context, many personality characteristics have been identified and analysed in different views. The positive and negative characteristics have also been indicated in 'the big five personality traits' theory, which includes different patterns (Komarraju, Karau, Schmeck and Avdic, 2011). Effects generated from these different traits influence the personal ability to

perform the assigned work such as the main roles of making or participating in strategic decision-making process.

Even though linking the personality factor with the potential impacts through the IBC model is a complex issue, I argue that the presented characteristics can be an advanced support to the interactive chain. IBC model assumes that the shown traits can determine the performance level of individuals in a significant way. These patterns are Creativity and Innovation (Openness), Cooperation (Agreeableness), Assertiveness (Extraversion), Carelessness (Opposite Conscientiousness), Impulsivity (Neuroticism) and Bias.

According to Amabile (1996), creativity is a production of beneficial thoughts or philosophies in a specific aspect, while he defined the innovation as a case occurs in implementing the creative thoughts within firms, and stated that creativity is the first element of innovation. This definition seems to be logical in terms of the stages of creating new ideas or techniques. In order to identify some essential implications of innovation and creativity, it would be necessary to know the base of each factor. King and Anderson (2002) introduced innovation as a process involves generating new things into social settings, it can affect public and it is created to be beneficial. These characteristics are generated by the innovative behaviour that determines the new ideas or solutions, or modelling new techniques within organisations (Carmeli et al., 2006). From similar perspective, Shi (2012) emphasises that innovative behaviour is a process of improving and applying new thoughts for production and firms' methods. Izadi et al. (2020) provided an investigative study that reviewed the literature of the relationships between innovation management capability and organisational performance. They found that there is a positive relationship between the innovation and performance as some factors can drive this relationship derived from the personal attributes such as entrepreneurial attitude and personality.

Creative personality is widely studied by many popular theorists (Feist and Barron, 2003). They indicated that in more than 4500 publications, innovative and creative traits have been included into the mainstream literature during the period from 1970 to 1990. The immense interest in these kinds of personality is not surprising because they have a significant impact of individuals' performance. Therefore, determining the performance level can be positively reflected in a desirable behaviour.

Cooperative personality is a case of individuals who usually tend to help others in a valuable way. Understanding these behavioural tendencies help firms to exploit the positive patterns of such personalities that can positively enhance the desirable performance. Linking this pattern of personality to performance level has been highlighted in several studies. Borman and Motowidlo (1993) discussed the difference between two performance tasks. First, task performance which refers to how individuals can positively transform work inputs into desirable outputs such as firms' processes and systems. The second type is contextual performance that contributes in indirect way in maintaining the positive social and psychological features during performing the assigned tasks. This positive performance of cooperative personality could be applicable to agreeable people who have a set of positive patterns such as kindness, sympathy and warm relationships (McCrae, Costa, and Martin, 2005).

As an essential part of the big five personality traits mentioned, extraversion reflects the extent of individuals being sociable and enjoy participating in team work. In this classification, assertiveness is considered a significant trait that represents a characterisation of individuals' response of being able to deal with situations in a positive way even in conflict situations (Ames, 2009). Individuals who have these characteristics have a feeling that they express their thoughts and desires and they reflect working team ambitions, rights and goals. This reflection can be introduced by managers, leaders or any inspirational employee who are able to express and standing up for their rights in a reasoning manner (Hadfield and Hasson, 2014).

Undesirable performance levels can be affected by several individual characteristics derived from the negative traits of personality. As mentioned in the IBC model, carelessness is one of these traits that can affect the most functions within firms in a negative way. For example, decision-making process as a significant role requires commitment and a high ability of individuals who hold any accounting or managerial positions (Mihaela, 2015). One of the major domains of the big five personality traits is conscientiousness, the term which refers to the tendency of individuals to follow prescribed standards to be in line with the firms' goals and the assigned roles (Leary and Hoyle, 2009). This dimension includes different positive sub-traits such as self-efficacy, dutifulness, orderliness, achievement striving, cautiousness and self-discipline (Christiansen and Tett, 2013). Careless pattern is an opposite character to these

patterns. Individuals who have this pattern behave without paying attention to the required tasks, and they normally have a lack of concern in many significant aspects (White, 1961).

Impulsive personality as an essential sub-trait of neuroticism in the Big Five Personality Traits approach could pose a threat to individual performance in different tasks. For example, deviation control of the costs and profits needs balance and concentration of the required procedures. In addition to this example, management accountants who have this kind of personality are typically do not prepare accurate data of the standard and factual values, and their behaviour are reflected without being careful (Lucas and Prowle, 2013). In fact, this role has significant effects on the estimated budgets and the reports made in the deviation control's context. In management accounting, the accuracy is required in determining the standard and factual values to identify the deviations of the cost and profit and to make strategic decisions for the estimated costs and profits. Impulsive personality traits could also affect the deviation process in other aspects. For instance, this process involves sub-processes such as analysing the general deviations and determining the additional costs. The potential negative impact, which might affect these processes, is made by this kind of personality through unfocused operations. It seems likely that the preparation and implementation of data used are inaccurate when the management accountants characterise by the impulsivity.

Another negative trait, which is biased personality has been discussed in the organisational behaviour literature and the psychological studies that behaves without credibility (Langton et al., 2013; Bauer and Erdogan, 2009). In management accounting context, biased personality of individuals' traits might provide inaccurate standards data in order to get personal benefits. For example, setting high cost standards will lead to allocate a value, which is higher than the factual value. This intended deviation is might made to receive personal benefits of the additional value allocated to cover the deviation between the standards and factual values. In this consequence, although the negative implications can be invisibly reflected, many firms seek to develop their systems to avoid the similar behavioural threats (Elliott and Elliott, 2005; Greig and Allen, 2013; ACCA, 2013). In other words, controlling the personal behaviours within firms has become an extremely important issue, which has developed with the management methods and control tools. In fact, this significant interest might limit the negative effects of these kinds of personality on individual performance.



Logically, it seems that these behavioural elements can logically enhance the desirable performance or hinder it depending on the underlying behaviours behind individuals' traits. Thus, the first research hypothesis in this context is proposed that:

RH1: There is even view from the respondents on the impact of the personality traits on SIDs in the Libyan service companies.

### **2.8.2 Perception (IBF 2)**

This behavioural determinant has been linked to several areas in human sciences due to the nature of this unique factor of individuals. In organisational behaviour's context, which is the main area of studying the combination of psychological and organisational issues, Griffin and Moorhead (2014) described this factor as interpretive environmental information through many procedural processes. In management accounting, Pierce and O'Dea (2003) introduced a significant framework of the relationship between perception and management accountant roles. They indicated that the perception of management accountants leads to many different implications regarding design and reporting tasks which need to be consistent and accurate.

The six major assumed factors of perception are Stimuli Interpretation, Individual Awareness and Constancy, Task Interpretation, Misinterpretation, Unrealistic Expectations and Different Management Styles. Interpretation is the final step of perception, which reflects how individuals understand what they face, and represents the personal response to perceived stimuli. Stimuli are generated as signals or variables determined by many factors such as personal experiences, culture and expectations. Stimuli interpretation therefore could be a significant determinant of individual performance due to the different abilities in interpreting the perceived variables. The nature of accounting applications involves many interpretation processes that help accountants in understanding their tasks, regulations and financial standards. For example, Jinnai (2005) explained how the conceptual framework and accounting standards were transformed into contemporary accounting interpretations. Other accounting issues pose a challenge to the required understanding of international financial reporting standards (Chand et al., 2010). This additional factor should be interpreted to be consistent with the personal ability in receiving and processing stimuli, and then to be reflected in positive outcomes. Decision-making process is an example that entails addressing and resolving problems through interpreting data and information in order to produce desirable outcomes (Penolazzi et al., 2013).

Individual awareness or self-awareness is a set of integrated components that interact with each other to produce how individuals can reflect different variable in a logical manner. Kight (2014) mentioned the core elements of this context, and he indicated that self-awareness is about understanding values, emotions, targets, desires and ambitions. Some economists have studied the implications of this concept from different perspectives including consumptions decisions, gathering information and job search (O'Donoghue and Rabin, 2001). Additionally, constancy is another distinctive pattern that maintains a steady pace in business performance, especially in realising updated or changing work standards.

Another essential element in perception domain is task interpretation. Interpreting organisational and procedural tasks relies on understanding the basic and detailed information that involves any required work. Ferguson et al. (2015) explained how people could interpret beliefs, desires and goals of others. They clarified the perspective-taking, the concept of realising other people's mental states. It is about viewing situations from another's perspective (Brown-Schmidt, 2009; Galinsky et al., 2008; Hanna et al., 2003). It could be argued that task performance relies heavily on individuals' interpretation and that depends on their knowledge gained, mental states, assigned work nature and surrounding environment.

Mental image of individuals involves another path in perception factor that represents in the negative implications on performance outcomes. Misinterpretation is the first part of this path, which reflects inability of understanding the phenomena and variables whether in accidental or intentional ways. The competitive nature of firms today leads to the need of qualified staff who are able to interpret and perform their tasks in accordance with the firms' strategies and goals. Some processes such as cost analysis and understanding cost structure may be affected by interrelationships with internal and external activities (Weil, 1985). These interrelationships need to be understood by individuals and appropriately analysed due to the sensitive information of these processes. Relevant information to management accounting decisions has been discussed by Palowski (2011) who explained the misinterpretation of strategic cost driver based on management accounting applications. It is a crucial issue that such sensitive information poses a challenge to decision-makers who aim to gather reliable, accurate and timely information. It is obvious that this sub-factor can negatively pose a threat to tasks performed within firms and to strategic decisions, as they require an appropriate level of understanding.

Related perceptual element is unrealistic expectations of individuals. This initial failure of expecting strategic and long-term issues, results and outcomes often results in undesirable performance outcomes. Strategic plans may not always be interpreted appropriately because of the unrealistic expectations of individuals, and this could be occurred during implementing strategic decisions (Chapman et al., 2007), and providing inadequate information characterised by inaccurate expectations (Bazley and Hancock, 2009). In a similar context, Triantis (2013) argues that the more challenging issue in this aspect is effective strategic and long-term goals are not applied by firms due to the difficulty of finding experienced managers who have the ability to expect the future's requirements. This perspective clearly supports this undesirable pattern of the IBC assumptions.

IBC model also assumes that change management, organisation development and adopting different management styles can affect the ability of interpreting tasks. This occurs because individuals' reactions towards any unpersuasive change or crisis situation (Jones, 2004). In fact, clarifying any essential change or systematic structure within firms needs to be obvious to all employees who are involved in implementing these changes. The comprehensive image of processing information systems or dealing with accounting information system requires understanding the whole changing of new processes adopted. These operations are essentially designed to operate a set of processes including inputs, transformation mechanisms, outputs, and internal and external feedback mechanisms. Changing of any of these elements needs a suitable level of perception and awareness. Undoubtedly, a significant goal of firms is to maintain and increase many useful characteristics of its individuals such as coherent awareness and knowledge, experience, performance and enhancing decision-making process among leaders and participants in this process (Obioma Ejimabo, 2015). Individuals who are characterised by these patterns and abilities can understand and address problems from varied perspectives as they have experiments and perceptual ability in this context. As a result, this flexibility can be a considerable aspect of increasing the performance level.

Based on this combination, the second research hypothesis suggests that:

RH2: There is even view from the respondents on the impact of individuals' perception on SIDs in the Libyan service companies.

### **2.8.3 Ability and Skills (IBF 3)**

The significance of individual ability and skills in management accounting has been implicitly recognised in accounting and organisational behaviour fields. IBC model provides six substantial aspects in this area that have multidimensional impact on individual performance. These characteristics are Consistency of Performance, Flexibility, Quick Response, Ineffective Communication, Lack in Problem Solving and Inaccuracy. In accounting literature, some studies in this domain focused on problem solving skills and interpersonal skills (Jones and Davidson, 2007; Kern, 2002), while others investigated the consistency of accounting and financial performance (Peterson et al., 2015; Alwathainani, 2009). Beside these skills, communication has been highlighted from different perspective concerning the required skills in this area (Waner, 1995), and improving integration and communication in management accounting (Mitchell, 2002).

Consistency of performance is assumed an effective way to maintain the performance level in a stable situation or in a higher level. This challenging aspect has been linked to performance management area that managers seek to track and enhance individuals' performance within firms (Douwe et al., 1996). Zavadsky and Zavadska (2014) explain that this is a part of firms' systems and processes. It also described as a strategic view (Kaplan and Norton, 2001; Kaplan and Norton, 1996). The necessity of providing a stable situation of performance led to creating many different models, which aim to achieve higher levels of performance. For example, Evans et al. (2012) proposed performance excellence model that focuses on the core levels of performance concerning the strategic goals and requirements as a significant demand within firms. Growing interest of performance consistency would be extended in the next decades due to its relations with many different business areas, and because of the positive features of this issue.

Many responses across different tasks require behaviour flexibility of managers and employees. These responses can be reflected in many different ways through various work circumstances and assigned work such as participating in decision-making process, engaging in interactive practice with others and the ability of dealing with each task in an objective and flexible way. Managers have a considerable responsibility in this issue, as their positions are sensitive in inspiring and motivating employees and in helping subordinates understand work standards and

roles. From this view, Wang and D'Souza (2006) emphasised that the complexity of accounting standards can affect managers' flexibility in performing their work.

Accounting professionalism consists of many different practices. Some of these practices need quick response as a positive behavioural characteristic. Quick response as a sub-trait of ability and skills has not yet been studied in depth concerning accounting applications. Mosso and Sack (2010) briefly presented this issue by highlighting early warning and required responses in accounting area. Although some studies such as Shin's study (2006) that highlighted some common issues related to consumers' attitudes and quick response required in e-business, the most relevant studies in this issue are conducted in psychological and behavioural areas. The complex behaviour effects on individual performance consist of many IBFs that interact with human responses in different reactions. A prominent theory has focused of this interaction is Human Capital Theory that absorbs many behaviour traits in one essence including human skills, knowledge and abilities. The philosophy of this theory implicitly presents a conceptual framework of how individuals' responses can be reflected in different ways depending of their skills and abilities. Technically, quick response helps accountants in dealing with customers, clients, accounting software and their assigned function in an appropriate way. Thus, it increases the performance level as it is assumed as a desirable behaviour in the IBC model.

In the negative sub-traits of the IBF 3, ineffective communication plays a core role in this factor. The significance of this skill has been recognised for years due to the influential nature of this sub-trait. The American Accounting Association (AAA) pointed out that communication is a substantial tool in accounting practices, and its significance is not less than the importance of information (Christensen and Rees, 2002). This confirms the growing interest of communicating role. Logically, when leaders and managers ineffectively communicate with employees their inspirational and influential roles can negatively be reflected in a negative performance.

The lack in problem solving is another undesirable sub-trait of ability and skills. In accounting context, many researchers implicitly emphasise that learning accounting principles and essentials in educational stages help individuals in developing problem solving skills (Weygandt et al., 2017; Hunt and Kieso, 2012; Fogiel, 1994). This view derives its rationality from individual realisations, experiences and accounting exercises and activities learnt in their educational paths. In different insights, Wolk and Cates (1994) compared problem solving abilities between

accounting student and business majors. They found significant differences between students and professionals in solving different accounting practices and innovative issues. In addition, they indicated that professionals are more innovative than students due to their experience in routine activities of accounting. This ability is linked to many different accounting issues such as decisions-making process that essentially begins with problem identification as the first stage of this process. As a result, the lack of this ability leads to decrease in individuals' performance in such processes.

Inaccuracy is a significant challenging issue within firms. The assumed features of this issue classify it to be one of the most influential negative behavioural factors. According to So and Smith (2004) who discussed decision-making accuracy and presenting accounting information, information complexity has a significant impact on decision accuracy. They indicated that the low complex information has no effects on accuracy, while the high complexity of information needs a high level of accurate information provided and processed. The first stages of any decision-making process involve gathering information that needs to be accurate regarding each alternative generated. Some relevant variables have been studied concerning accurate information needed in decision-making process. For example, Doskocz (2016) linked risk assessment to decision-making and he stated that the probability of performance errors pose a significant threat to decision-making process. Another relevant examination of accurate information needed in strategic decision-making conducted by Weber et al. (2012) focused on confidence-accuracy as a behavioural issue and found that a significant influence of strategic decisions on confidence-accuracy. These indications confirm that inaccuracy of information poses a challenging in maintaining an acceptable level of accuracy reflected in individuals' performance.

Rationally, these behaviour determinants can be resulted in different ways of performance depending on the implications of abilities and skills. Thus, it is expected that:

RH3: There is even view from the respondents on the impact of the ability and skills on SIDs in the Libyan service companies.

#### **2.8.4 Motivation (IBF 4)**

The motivational factor of the IBC involves a set of sub-traits that shape the possible and real implications on individuals' performance. These parts are Reinforcement, Expectancy, Intrinsic and Extrinsic Rewards, Fear of Failure, Pain-Avoidance and Performance Inconsistency.

Reinforcement theory is an approach of the motivational aspect. It is one of the oldest theories in the twentieth century, which has developed through many years. The basis of this theory relies on The Law of Effect principle of Thorndike who articulated this belief in 1911 (Mwaura et al., 1999). This principle states that any action or reaction made should be measured by the personal evaluation, and then people can determine where the positive and negative implications are to be repeated. From this perspective, in 1957, Ferster and Skinner developed this theory and they supposed that if people within firms produce a specific performance level and they receive rewards for their levels performed, they will maintain and continue at the positive level in the future (Landy and Conte, 2013).

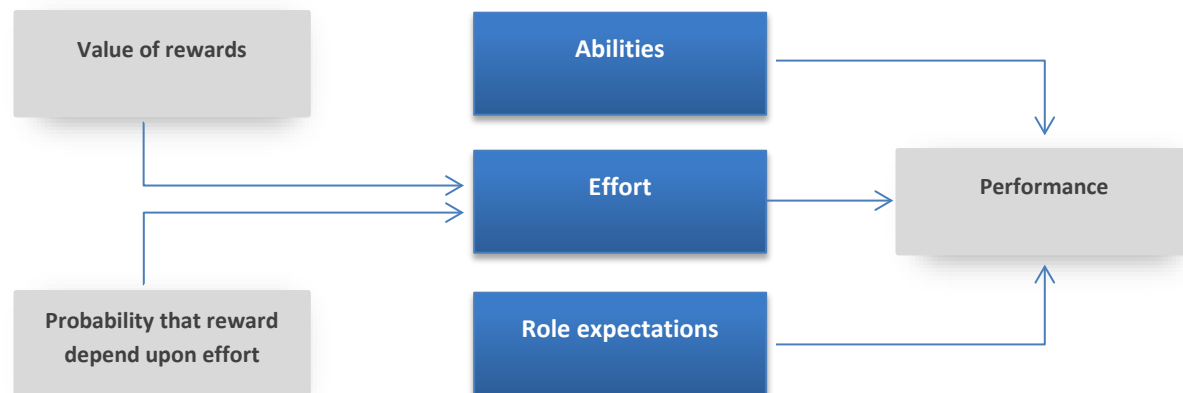
In organisational environment, the essence of this theory stems from the consequences accrued of employees and managers' behaviour, which encourage them to reinforce their current behaviours depending on their reward obtained. Cole and Kelly (2015) stated that managers could support generating new ideas by employees regarding their job functions if they realise that the contribution of these suggestions positively reinforce their efforts. In contrast, managers would ignore other ideas when they consider that the previous employees' contributions were not successful. It can be argued that linking the previous behaviour with the current and future performance plans needs similar circumstances and systems applied. For instance, changing some functions or systems within organisations require specific roles and actions which could considerably differ to the previous behaviours. The reason for that lies in some roles, duties and positions need different actions to meet the required job, especially with the rapid development of business systems applied. As a result, reinforcement behaviour needs to be applied in a similar job circumstances.

Expectancy theory is a prominent addition to motivation literature, which assumes that the motivation level will increase when individuals realise that the expected rewards will be achieved if they devote more effort. According to Miner (2007), Expectancy theory was formulated by Victor Vroom in 1964 to provide a comprehensive awareness regarding the

expected outcomes of people in their works based on specific desired outcomes. Essentially, individuals within firms continuously look for developing their jobs, increasing salaries and improving their job environments and conditions. In fact, such desires need to be linked with the sustained efforts in order to achieve the preferred outcomes through increasing the performance level. For example, employees who seek to improve payment systems regarding their works will expect an improvement in this system if they perform their functions with a high performance level.

Armstrong and Taylor (2014) pointed out that the theory has been developed by Porter and Lawler in 1968 by creating a new additional model which is based on three main parts linked in one interaction chain. These elements are represented in value of reward with reward probability, efforts and performance. In more details, this model presented in Figure 3-4 shows supporting to Vroom's theory with an additional development of how the process of motivation works within firms through the three elements.

**Figure 2.2: Motivation model of Porter and Lawler**



**(Armstrong and Taylor, 2014, p.175)**

As can be seen that the value of rewards and the expectancy of these rewards are two determinants of the motivation extent. These two elements determine the performance level through the efforts of the human resources within firms. In addition, there are two additional aspects can support the performance increase which are the personal abilities and role prediction of the individuals in their jobs. As a result of this process, managers should be aware that



providing strategic and incentive plans of the future could significantly help the individuals to increase their job performance through linking their expected rewards with their efforts.

A further determinant to the motivational aspect of the IBC is intrinsic and extrinsic rewards factor. This controversial factor forms a positive part of the whole performance issue. Cameron and Pierce (2002) who pointed out that these rewards are normally provided to strengthen the desirable behaviour that supports this positive perspective. Intrinsic rewards are principally non-physical rewards. Firms provide this kind of rewards as emotional rewards or in recognition forms to express that the performance provided by individuals are in a high level and they deserve valuable encouragement. Extrinsic rewards are represented in the physical rewards provided by firms such as bonus or commission, payment and profit sharing. The model created by Porter and Lawler in 1968 confirms the strong relationship between performance and intrinsic and extrinsic rewards (Chelladurai, 2006). As stated by Chelladurai regarding this model, the performance can be affected by rewards provided whether they are intrinsic or extrinsic. The relative weight of this factor led to analysing this issue from different perspective and critical insights (e.g., Boedecker et al., 2013; Ledford et al., 2013). Although the negative implications of these rewards are possible as stated by some researchers such as Deci et al. (2001), I argue that the positive impact outweighs the negative effect on performance level due to the overall features of motivational rewards. Furthermore, including this factor to the IBC model can enhance measuring the desirable performance of individuals.

As a natural feeling of many individuals, fear of failure can be an effective factor of decreasing the performance level. In management accounting, this pattern differs from one to another when individuals perform their task, especially with the difficult assigned tasks and challenging roles (Chapman et al., 2009). The reason for that lies in some challenging tasks such as decision-making process that involves a high level of responsibility, thus the lack of confidence could be the crucial determinant in this issue. This is consistent with what Collier and Agyei-Ampomah (2007) stated regarding other tasks in management accounting such as information technology techniques and individuals' ability to control these techniques.

Pain-Avoidance is related to fear-avoidance model, which describes individuals' desire to avoid real or possible painful situations based on fear (Crombez et al., 2012; Pincus et al., 2010; Leeuw et al., 2006). This situation occurs when individuals seek to remove unwanted stimuli or

avoiding any situation that might poses a threat to their work environment. In a similar context, Waddell et al. (1993) prepared Fear-Avoidance Beliefs Model that indicates that Fear-Avoidance Beliefs of individuals is mainly related to the possibility of losing their works. It would seem that this situation occurs in different cases related to the possible threats expected. This is assumed as a further negative factor according to the IBC, and it would be therefore classified as an undesirable behaviour factor.

The last sub-trait of motivational aspect is performance inconsistency. The fluctuation of individual performance records is the mirror of this case. Cardoso et al. (2011) who introduced accounting information inconsistencies linked inconsistency with regular, accurate and reliable accounting information needed. This positive feature of this linkage is a considerable demand within firms, and it should be as a reflection of a positive performance in preparing and presenting such information in financial reports or for decision purposes. For example, strategic decision-making process needs an acceptable level of information consistency regarding each proposed alternative. Performance inconsistency in this context is classified as an undesirable behaviour in the IBC model, and therefore would affect the quality of decisions.

Based on the insights presented above, the fourth hypothesis of this research supposes that:

RH4: There is even view from the respondents on the impact of the motivation on SIDs in the Libyan service companies.

### **2.8.5 Attitudes (IBF 5)**

Attitude is an interactive psychological process that reflects how individuals think. Perloff (2016) defines the attitude as a mental state, which characterises person. A prominent definition by Murchison (1935) described attitudes as the most distinctive scientific concept in social psychological and social sciences. The main assumptions of the six sub-traits of this IBF are Positive Emotional Attitudes, the Possibility of Change, Background Knowledge, Disrespect to Others' Emotions, Aggressive Expression and No Ownership in Mistakes Committed.

Positive emotional attitudes are a combination of sympathy, loyalty and strong relationship between individuals. These characteristics allow skilful leaders and managers to deal with different cases of employees where their sympathy, loyalty and relationships can be reflected in their performance. While these differences seem slightly obvious and expressive in many cases,

the affect usually can be understood and interpreted in different ways (Russell and Barrett, 1999; Oatley and Jenkins, 1996). From this perspective, many emotional phenomena of employees need more consideration by leaders and managers who are responsible for monitoring common attitudes to be in line with firms' goals.

In addition to the first sub-trait, the possibility of change as a flexible situation reflects the probability of changing negative attitudes and replacing them with attitudes that are more positive. Changing accountants' attitudes logically depends on the persuasion of the new concepts or thoughts. Deriving from this insight, Theory of Reasoned Action (TRA) was established to clarify the relationship between attitudes and the possible behaviour that can be changed according to the new persuasive thoughts (Yousafzai et al., 2010; Shimp and Kavas, 1984). This prominent theory helps firms in predicting individuals' behaviour based on the changed attitudes and thoughts. The persuasive level of any proposed attitude plays an indispensable role in changing the current attitudes of accountants and other employees within firms. This changing can be a considerable encouragement to individuals towards following the appropriate behaviours, especially when leaders or managers are able to link individuals' attitudes to be in line with firms' goals and strategies. This can enhance the flexible performance of accountants in performing their assigned work (Lavinia and Artemisa, 2017).

Background Knowledge as a reflection of individual's background represents the current cognitive ability and personal knowledge of individuals. Accountants' performance as a result of educational background and gained knowledge has been highlighted in different studies. Some of them have linked the educational performance of accounting students with their background through different empirical research (Duff, 2004; Gammie and Millar, 2003; Gracia and Jenkins, 2003). The most of these studies have pointed out that there is a positive correlation between the prior knowledge of students and their academic studies and performance. From another perspective, Aldin et al. (2011) indicated that the overall scores of students do not affect background knowledge of accounting professionals significantly. Rather than this, they emphasised that there is a significant relationship between accounting proficiency and choosing their careers.

The opposite assumed aspect of IBFs lies in Aggressive Expression, Disrespect to Others' Emotions and No Ownership in Mistakes Committed. Aggressive expression is a negative way in

communicating with others. This sub-trait could indirectly affect the relationship between individuals in workplace, especially if individuals who have this kind of behaviour ignore others' attitudes and their rational thoughts. Although the aggressive expression of individuals' attitudes often leads to negative implications, it is still slightly obvious and it can be ignored by others. The core problem in this issue as De Angelis (2009) stated is some promoted leadership positions could behave in a positive, diplomatic and supportive ways, while their core sense hides negative traits. This can be considered and classified as a hidden aggressive attitude.

Disrespect to others' emotions can be described as individually behaviour that does not reflect respecting others' emotions and their attitudes. In fact, the rationality of classifying this sub-trait in the undesirable behaviour stems from the sensitive situations of individuals who have specific attitudes, which are considered different, or opposite attitudes of others. Essentially, individuals who recognise that there are no commonality and connection to others often seek to behave differently to others, and sometimes without respecting others' attitudes. Despite the psychological features of this complex issue, accountants who participate in this process can negatively influence some team-based group processes such as decision-making.

Further component to these negative patterns is when individuals do not take responsibility for mistakes committed. In decision-making process, the extensive literature of decision-making related to risk and uncertainty implicitly included this sensitive issue as an individual action of managers and participants in decision-making process (Kurahade and Wankhade, 2016; Abdellaoui et al., 2011). In addition, the behavioural consequences of this issue have been highlighted and measured by Dohmen et al. (2011) in terms of individuals' attitudes. It can be argued that risky decisions and uncertainty are the main determinants making decision-makers and participants do not take the required level of responsibility for any mistakes or possible negative implications of their decisions.

This research argues that such sub-traits would affect the performance level of individuals through the positive and negative features of personal attitudes, and therefore it is proposed that:

RH5: There is even view from the respondents on the impact of the individuals' attitudes on SIDs in the Libyan service companies.

### **2.8.6 Work stress (IBF 6)**

Stressful work can lead to different implications in business environment and workplace in general. The six assumed elements of this IBF stem from the controversial perspectives of the relationship between work stress and individuals' performance. The assumed sub-traits of work stress factor are Increased Creativity, Cognition Enhancement, Task Completion Desire, Loss of Concentration, Less Productivity and Increased Complaints.

Increased creativity is a positive situation where individuals work in challenging circumstances that provide the opportunity to create useful work contributions. Challenging circumstances typically require individuals to brainstorm their creative work and innovative techniques in their assigned work. Creative and innovative behaviour occurs when individuals link their ideas generated to work stress and challenges (Ren and Zhang, 2015). Some situations associated with creative work have been examined by Schieman and Young (2010) who found that creative work can be generated by individuals with greater work demands and multitasking work. An interpretation might be that competitive environment of individuals could encourage them to create new work techniques in order to achieve their personal goals even if their work circumstances under the pressure.

Similar to the increased creativity matter, cognition enhancement can be associated with substantial determinants such as competition and challenges. It is a situation which enhances several aspects of individuals' mental power and develops the ability to adapt to challenging issues. This issue allows individuals learning new knowledge, and gathering information related to their work due to the stressful work conditions that require understanding challenging components. Molins et al. (2021) emphasised that work stress can emotionally influence decision-making and such impact remains unclear which needs more investigations.

Task completion desire is a motivational factor occurs when individuals seek to complete their assigned work in a specific time rather than being late. Although there are several studies have described some features of this issue such as task completion as a motivational factor (Craig, 1965) and instructional difficulty related to task behaviour and task completion (Gickling and Armstrong, 1978), the recent studies are slightly limited and have not linked this issue to strategic decision-making process. According to the IBC technique, task completion desire is a desirable attitude that often generates a positive performance.

Loss of concentration and attentional control are similar terms, which refer to a natural periodic occurrence of individuals. This normally occurs when individuals face some difficulties including cognitive problems and emotional stress. Some explanations clarified that attentional control is related to executive functions of brain (Astle and Scerif, 2011; Posner, 1990). Based on the varied mental abilities of individuals, some employees suffer from the inability to remember particular details regarding their work even when they need them. This could occur when their lack of concentration outweighs the appropriate level. Another dimension of this issue is the personal intelligence which is related to some significant elements such as self-awareness, ability of learning, problem solving and quick response. Learning has been associated with many different aspects that support decision-making process such as implementing e-learning and other technologies in these processes (Naveed et al., 2020). These interactive components could pose a substantial threat to performance outcomes if they are in a low level. I believe that leaders and managers have a considerable responsibility of encouraging staff/employees to be engaged in, and commitment to their roles by setting control systems that follow-up their performance and concentration levels that can be obviously reflected in their work.

Less productivity is a further issue that has been connected to work stress in different studies. Several researchers found a negative relationship between these two variables. For example, Yeh et al. (1986) investigated this relationship and they addressed a negative correlation between them by providing a self-report measure. This means that individuals who work under stressful work conditions are less productive than others are. A more comprehensive study conducted by Jamal and Baba (1992) drew a conclusion of this relationship that examined four areas of this issue (overload, conflict, misunderstanding, and resources' adequacy). The core findings of this research confirm that more stressful conditions lead to less productivity levels. I would argue that work stress conditions maximise undesirable behaviour responses, and therefore lead to decreasing the performance levels.

Increased complaints can be described as an expression of individuals' dissatisfaction increase. This occurs when individuals feel that they need more appropriate works or fairly designed tasks. Complaints could be introduced to set out legal documents or recorded procedure in order to change the stressful situation that individuals are not comfortable with. The results drawn from

such procedures would affect some relative and interactive features of human behaviour such as job satisfaction and motivation. The relevant example in this context is strategic decision-making process that needs a consistent procedural process including applying the main stages in appropriate conditions without work stress threats.

The sixth hypothesis in this research is formulated in line with the underlying behavioural effects that could be created by individuals concerning work stress, and it is assumed that:

RH6: There is even view from the respondents on the impact of the job satisfaction on SIDs in the Libyan service companies.

### **2.8.7 Job Satisfaction (IBF 7)**

One of the leading challenges in management accounting, which is considered an important factor, is maintaining job satisfaction in stable condition within firms. Spector (1997) defined job satisfaction simply as people's feelings about their jobs and the work environment, and to what extent they are satisfied or dissatisfied in their jobs. Bavendum (2000) believes that there are many factors could determine job satisfaction within firms which are represented in leadership, stress, work standards, fair reward and adequate authority. I would argue that all of these factors could affect job satisfaction in some way, however, determinants of job satisfaction related to helping and hindering individuals' performance and decision-making process are concentrated in Participative Decision-Making, Encouraging Environment, Job Loyalty, Intensive Work Standards, Non-Financial Rewards and Job Position Dissatisfaction.

Participating in decision-making is a significant aspect that determines the degree of job satisfaction. In fact, employees who participate in decision-making may feel more committed to execute these decisions properly. As a result, participation has a clear influence on performance and job satisfaction. Employees' participation in decision making has a significant impact on job satisfaction and therefore the performance levels (Mohsen and Sharif, 2020). Decision makers simply are able to provide effective participation to employees. In this case, decisions will be enhanced by feedback, diversity, and a more comprehensive participation of employees, especially when the leaders and managers provide a systematic linkage between the personal goals of employees and firms' goals. On the other hand, there will be a threat to the effectiveness

of decision-making if the employees lose the opportunity to participate because decisions will lose their comprehensiveness.

Encouraging environment is a situation where individuals perform their work in a wide range of supportive conditions such as business culture and management style and policies (Salunke, 2015). The positivity of surrounding environment and working conditions positively affect job satisfaction and provide a comfortable situation (Robbins, 2001). This rational stance was supported by several studies that emphasised that providing an encouraging environment is a crucial part of increasing positive performance (Miller et al., 2001; Parvin and Kabir, 2011).

Job loyalty is also classified in the desirable patterns units related to job satisfaction. It is a personal feeling of being loyal to a firm as a part of it. LaLopa (1997) stated that employees who are satisfied in their jobs tend to continue in, and commit to their employers, and to be in their position for a long time. From this perspective, Abdullah et al. (2009) confirmed this positive relationship between job satisfaction and job loyalty. A further support to this positive relationship stated by Walker and Boyne (2006) who clarified that job loyalty would be more positive if firms offer appropriate developing opportunities such as learning and career development. Further components of this relationship addressed by Fosam et al. (1998) and they represented in recognition and rewards, improving work conditions and relationship enhancement with work supervisors.

Intensive work standards related to job satisfaction refer to a stressful situation stems from work difficulties and complex rules such as the nature of assigned tasks, hard tasks and long-hours culture at work. These standards are rules or regulations applied. For instance, if employees who prepare and evaluate predetermined cost in management accounting are not satisfied towards their jobs and functions, their behaviour could be reflected in a low performance. Consequently, dissatisfaction would negatively affect estimated future cost used in many different domains such as estimated budget and strategic decisions.

A non-financial reward is another situation where individuals work without receiving additional bonuses or rewards even in stressful work conditions. According to Silverman (2004), providing recognition rewards to individuals may encourage and support them in their works. He indicated that while financial rewards obviously affect extrinsic motivation, it slightly influences intrinsic



motivation (Further explanations are provided in the previous parts of motivation). Non-financial recognition which is slightly similar to the non-financial reward in this context means that there are no physical rewards such as cash rewards or acknowledgement (Rose, 1998). Although the non-financial reward does not mean that the firm does not provide emotional and supportive recognitions, I would argue that individuals, in the most cases, could be motivated by physical and financial rewards.

Dissatisfaction of job position reflects an unsatisfactory situation of individuals regarding deserved job positions as they suppose. A rational reason could be introduced in this issue is the unsatisfactory situation that might occur when employees feel stuck or not able to perform their assigned task in an appropriate way, subsequently, inability to maintain required levels of productivity and desirable performance. A key further reason in this aspect lies in position development and appropriate authority level needed that could help individuals in decision-making participation.

Another argument related to research hypotheses is that:

RH7: There is even view from the respondents on the impact of the work stress on SIDs in the Libyan service companies.

### **2.8.8 Administrative Leadership (IBF 8)**

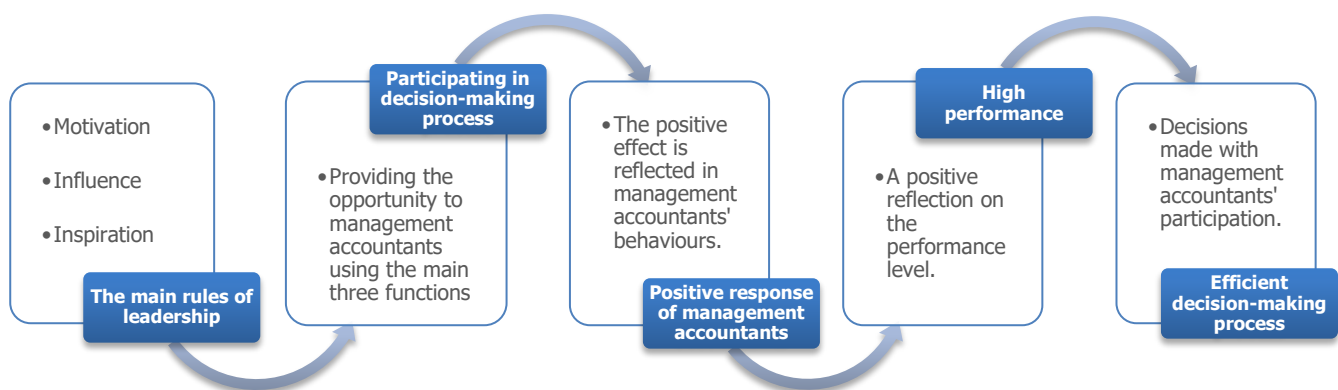
Administrative leadership is the last IBF assumed in the IBC model, which largely influences, inspires and motivates individuals to develop their performance. In this aspect, Zimmerman and Kanter (2012) pointed out that leadership as a significant behavioural factor forms a combination enabling leaders to deal with decisions by uniquely human skills. It consists of six major components which are Participative Leadership, Inspirational Leadership, Motivational Leadership, Irresponsible Leadership, Ineffective Leadership and Poor Communication.

Administrative leadership has three main functions within firms, which outweigh managers' functions. These are motivating, influencing and inspiring employees in their main tasks, and rules concerning decision-making process. Moreover, these functions require an appropriate level of the administrative leaders' awareness in how to implement these functions. The positive implementation of these functions would be reflected in the ability of leaders in creating a positive sense for individuals by sharing their knowledge, effective communication and loyalty

enhancement. In addition, creating encouraging environment would help subordinates in receiving their deserved rewards and recognitions.

In fact, some researchers indicated that providing the opportunity to subordinates to participate in decision-making process leads to a high level of performance, thus increasing the performance level in this process (Muindi, 2011; Posas and Fischer, 2008; Montano et al., 2001). For example, the response of management accountants can be positive when leadership provides the opportunity to participate in the main decisions made. To clarify this relationship, the first three assumed sub-traits are interactively connected to each other. In this context, Figure 3.5 shows the interactive chain based on performing the main rules of administrative leaders to motivate, influence and inspire individuals, thus increasing their performance level.

**Figure 2.3: The interactive chain of leaders and management accountants related to decision-making process.**



**(Researcher's figure)**

These functions will generate a positive response of management accountants, which leads to increasing the performance rate. Subsequently, the high performance of management accountants will lead to the efficient decision-making process as a consequence of this process. In the behavioural aspect, it seems likely that decisions made in management accounting context such as investment decisions would be more efficient when leaders are more aware of the behavioural

dimension and its impact on decision-making process. This efficiency confirms the positive dimension of the IBFs including the core rules shown in Figure 3.5.

Irresponsibility is a situation occurs under certain circumstances, and reflects individuals' inability to be responsible. This ethical issue can be undesirably occurred when leaders ignore performing essential rules such as creating a long-term plan, impulsive response to some situations and ignoring making strategic and crucial decisions.

Ineffective leadership essentially describes leaders who are unable to persuade others with logic or rational attitudes and actions that make a positive sense to their groups. A significant role of leaders is to ensure that performance tracking is applied within firm. The IBC model assumes that ineffective leadership is normally ignores the underlying impact of providing performance tracking system that can be designed and included in many techniques. In this aspect, such system has to be designed by including accessibility to individuals' platforms, historical attendance, their training programs and other possible techniques. The inability of securing these methods can negatively lead to poor performance of employees.

Poor communication is represented in inability to communicate to individual in an effective manner due to some difficulties such as being unclear, hesitant or disrespectful. Communication is one of the most challenging issues for leaders who have to reflect an inspirational image into subordinates' minds. The poor communication can negatively affect employees and creates misunderstanding situation. It occurs in many circumstances such as the lack of respect, identifying the purpose of communication, the lack of listening to others and ignoring others' sense and emotions.

Based on the logical insights of the proposed leadership effects, the research proposes that:

RH8: There is even view from the respondents on the impact of the administrative leadership on SIDs in the Libyan service companies.

## **2.9 Conclusion**

This chapter has presented the mainstream literature of the relevant contributions that explain the relationship between the individual behaviour factors and strategic investment decisions. The preface of this chapter is concentrated on presenting the purpose and objectives of the literature

review to generally explain the theoretical framework and the critical insights of the previous contributions. It is important to understand that setting inclusion and exclusion criteria of the research by focusing on the relevant publications and related topics (Fink, 2014).

The literature pathway of this relationship has been gradually presented by showing a background of the behavioural contributions in management accounting field as an essential part of the research. It entailed the behavioural impact, early IBFs studied, accounting behavioural research and publications, budgeting participation and individual performance. As this thesis focuses on the strategic decisions in accounting, the chapter has introduced the strategy and management accounting relationship to continuously make a gradual comprehensive presentation of the mainstream literature. Several accounting processes in this aspect and approaches have been explained such as strategic techniques, costing techniques and contingency theory.

This thesis argues that the strategic investment decisions have a considerable relative weight in the firms' decisions. From this perspective, it focuses on these types of decisions. In this context, the chapter has introduced the strategic decision-making domains by focusing on decisions related to budgeting process, investment decisions and the prominent investment appraisal techniques that help decision-makers in making rational and effective decisions.

The core elements of the research have been covered by connecting the two main variables; IBFs (independent variable) and SIDs (dependent variable). This linkage is presented in the interactive behaviour impact on decision-making process. Based on the reviewed literature, it is argued that the relationship between these two variables still need more studies to investigate the underlying impacts of the behavioural factors on this sensitive process. This part introduced and paved the way for establishing the interactive behaviour chain model (IBC) created in the next chapter. The mainstream arguments of the behavioural issue in management accounting have been explained in the individual differences part including behaviour complexity, behavioural confidence and cognitive levels. In addition, this part presented the different behavioural implications derived from personality traits and some other behavioural determinants. The next chapter additionally presents the IBFs in a structured framework, which is built on the general IBFs, sub-factors and the IBC assumptions.

## **CHAPTER 3: THEORETICAL AND CONCEPTUAL FRAMEWORK: MODELLING INTERACTIVE BEHAVIOUR CHAIN (IBC)**

### **3.1 Introduction**

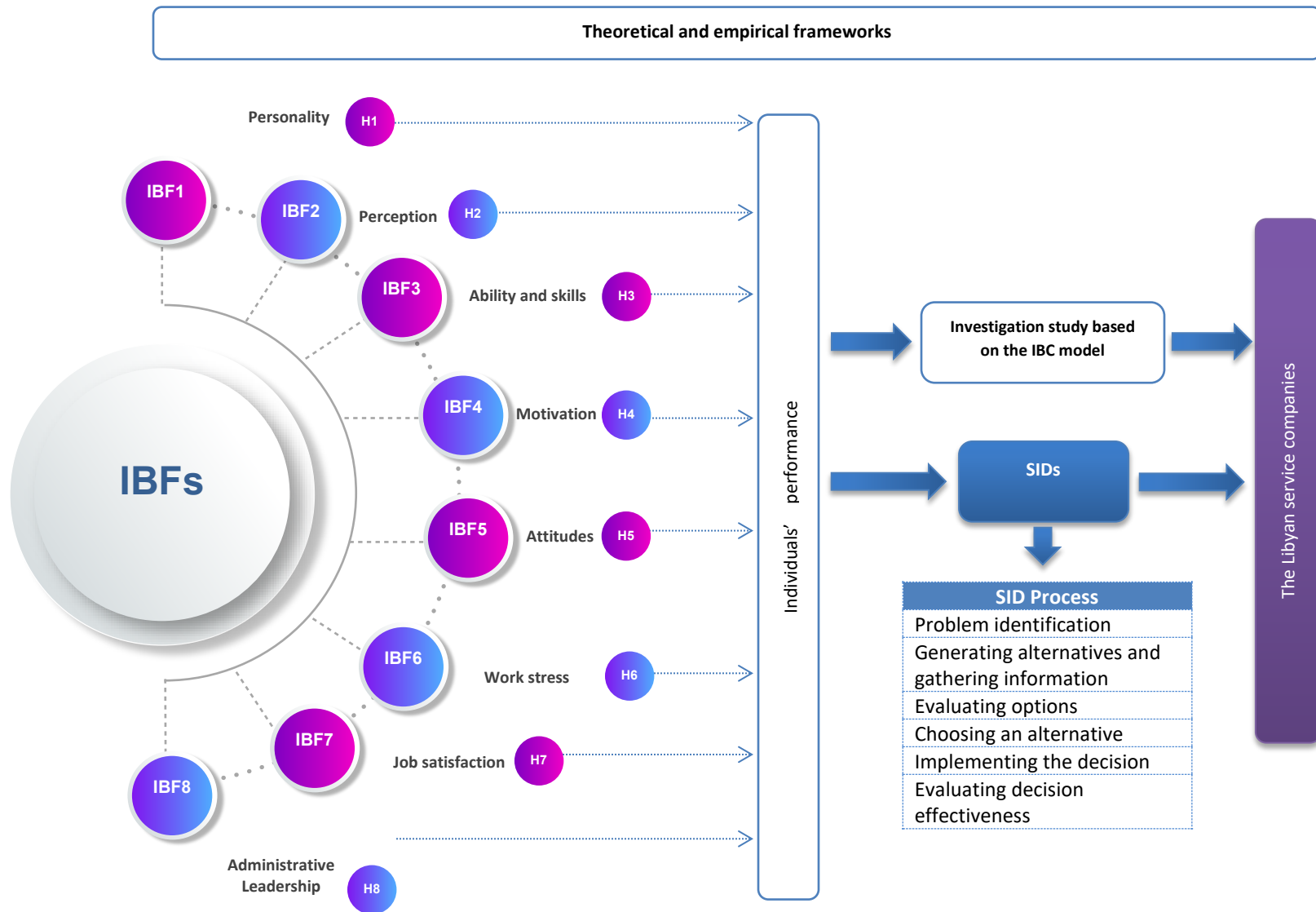
Theoretical and conceptual framework of this research shows the prominent concepts, theories and models that have been emerged regarding research variables and design. As a fundamental and complementary part of this research, the chapter presents the IBC model through providing a comprehensive framework of emerging this model, and explaining the relevant concepts which represent the essence of this model. In addition, it explains the general structure of this model and its behavioural elements including theoretical discussion and critical perspective. Clarity and rationality are the most significant challenges in explaining and identifying the core concepts of this approach due to the complex relationships of the IBFs studied in this research. As a result, the research provides a clear explanation of the eight behavioural elements of the IBC model, and how individuals' performance can be determined and interacted with these elements.

Another main part of this chapter is introducing the IBC techniques and how does the measurement process work. In this regard, the chapter provides detailed procedures of impact measurement of the eight IBFs studied through a set of stages. These steps include gradual processes to reach accurate results. The IBC techniques deal with affirmative and negative behavioural features of individuals which are processed according to model strategy. A significant part of this chapter is represented in linking the IBC model with strategic decision-making process. Fundamentally, the research is built on measuring the influence level of the IBFs on strategic decisions, and therefore applying the IBC model in this relationship is a fundamental strategy of this research. Theoretical and critical discussion will be enhanced with different behavioural, psychological and management accounting concepts in the key elements of this chapter. This enhancement will build a more comprehensive framework and pave the subsequent chapters in this research.

### **3.2 Conceptual Framework**

The research conceptual framework represents the distinctive characteristics of the research and the relationships between research independent and dependent variables. The following figure shows the main and sub-variables of the research.

**Figure 3.1: the research conceptual framework**



(Researcher's figure)

### **3.3 Interactive Behaviour Chain (IBC) Model as a Scientific Approach**

Interactive Behaviour Chain (IBC) is a multidisciplinary model, which enables firms to understand to what extent do individual behavioural factors influence and determine the performance levels of individuals by clarifying and providing the positive and negative implications of these factors. This model is based on eight behavioural determinants, which have direct and indirect impacts on the performance levels, which are personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership (Nayel, 2019b). The conceptual framework of this model is derived from a set of prominent theories and models in the psychological, behavioural and management accounting fields. The essence of this model lies in providing a comprehensive coverage of the real and possible impacts of these IBFs on the performance levels of individuals in performing their assigned tasks. This model can be applied in many different fields and organisations due to the main common features of the IBFs' impact.

The core relationship of this research stems from two main variables; the IBFs and strategic decision-making process. As a supplementary framework, this chapter aims to clarify the Interrelationships between these variables and the extent of influence through using this new behavioural model that represents a fundamental aim of this chapter. Strategic decision-making process can be mainly divided into six stage; (1) identifying problems, (2) gathering information of available options, (3) generating detailed alternatives, (4) choosing the most appropriate alternative, (5) implementing decision made and (6) controlling the decision and evaluating its outcomes. Each stage of this process requires a certain performance of decision-makers and individuals who participate in this process. The IBC model arguably plays a considerable role in identifying the underlying impacts of the IBFs and providing an analytical basis which helps firms to evaluate and enhance their individual performance and therefore the decisions made.

#### **3.3.1 Establishing and Designing the IBC**

The distinct characteristics of the IBC model stem from a set of behavioural determinants which are formulated in one essence. IBC technique absorbs many IBFs in a formulation that derived from several theories and methods. These inspirational theories, approaches and methods have been applied in many different behavioural and accounting studies including this model. The Big Five Personality Traits or Five Factor model (FFM) represents a conceptual structure to



understanding personality patterns as an essential IBF in the IBC model (Leutner et al., 2014; Goldberg, 1993). FFM as a significant base of many psychological studies that search in core personality patterns has different traits that can be applied in more details with the IBC model. As stated before, the IBC technique is based on eight main IBFs, and the complex interrelationships between these behavioural factors derived from some prominent approaches and the assumptions of the research. Behaviourism approach inspired many psychological and behavioural studies due to the continuing interest of human behaviour implications since the beginning of the last century including the behaviourist movement in 1913 that witnessed publishing 'Psychology as the behaviourist views it' of Watson (1913). This approach produced a number of research assumptions concerning methodological and analytical framework (Watson, 1930; Morris, 1974; Woollard, 2010).

Besides these approaches, the motivation factor of IBC is built on a combination of researcher's assumptions and motivation theories such as Expectancy and Reinforcement theories as it can be noted in the next parts. Expectancy theory assumes that the motivation level will increase when people realise that the expected rewards will be achieved if they devote more effort. According to Miner (2007), Expectancy theory was formulated by Victor Vroom in 1964 to provide a comprehensive awareness regarding the expected outcomes of people in their works based on specific desired outcomes. Essentially, individuals within firms continuously look for developing their jobs, increasing salaries and improving their job environments and conditions. In fact, such desires need to be linked with the sustained efforts in order to achieve the preferred outcomes through increasing the performance level. Reinforcement theory is one of the oldest theories in the twentieth century which has developed through many years. The basis of this theory relies on the law of effect principle of Thorndike who articulated this belief in 1911 (Mwaura et al., 1999). This principle states that any action or reaction made should be measured by the personal evaluation, and then people can determine where the positive and negative implications are to be repeated. From this perspective, in 1957, Ferster and Skinner developed this theory and they supposed that if people within firms produce a specific performance level and they receive rewards for their levels performed, they will maintain and continue at the positive level in the future (Landy and Conte, 2013). I would argue that these theories can be developed further to create a more combined model of IBFs.

As a significant component of the IBC model, leadership plays an indispensable role in influencing, inspiring, motivating and monitoring individuals within firms. Although there are a wide variety of leadership theories which can be applied in different behavioural purposes, it could be argued that the IBC assumptions are linked to some of these theories in the leadership component which are Trait theory, Transformational theory, Transactional leadership and Contingency theories. Trait theory is a combination concept of personality traits and leadership characteristics. This theory focuses on measuring individuals' traits and their repeated behaviour, thoughts and emotional characteristics (Kassin, 2001).

Transactional leadership theory (also called managerial leadership) is primarily interested in supervision and performance measurements (Antonakis and House, 2014; Sanders et al., 2003). It relies on reward and punishments policy provided by transactional leaders in order to ensure compliance from employees with related assigned works. This could help leaders to find the underlying deviations of individuals' performance to ensure that the actual positive performance equivalents or exceeds expected level. Another significant approach is Contingency theory that can be integrated into the IBC assumptions. In this theory as stated in the previous chapter, many decisions require contingent actions by leaders which are normally occur depending on the internal and external circumstances. The reason for including the philosophy of this theory is that strategic decisions are not only based on specific criteria or known standards, but there are many unexpected variables might happen during this process which requires contingent actions.

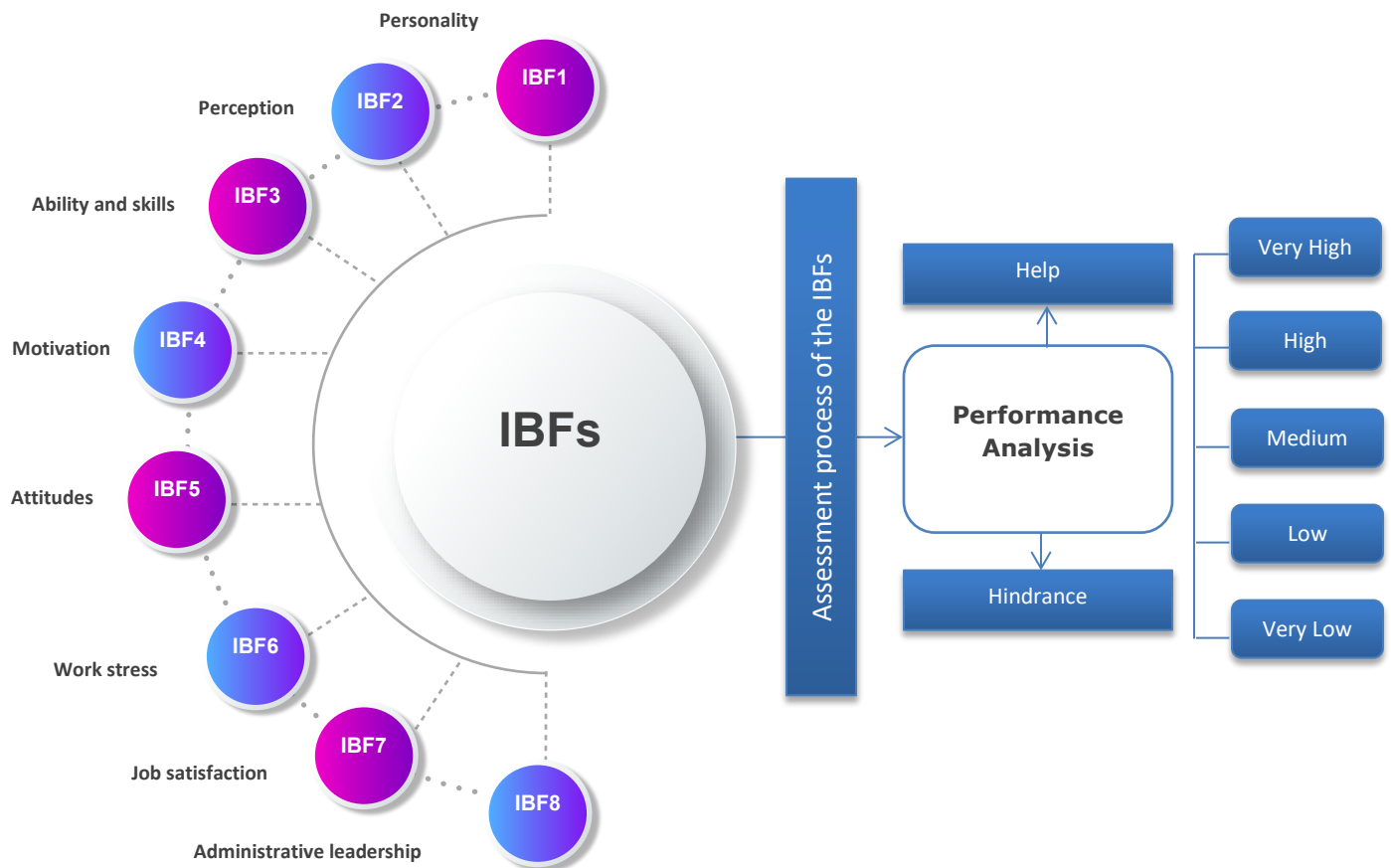
Technically, IBC as a measurement tool uses Likert scale to measure individuals' attitudes to reflect their psychological and intellectual orientations (Likert, 1932). This scale is partly used to determine the positive performance levels of individuals through assessing the eight IBFs used in this model. The next parts explain the basic assumptions, essential components and the measurement mechanisms of the IBC model.

### **3.3.2 Modelling the IBC**

IBC technique is the core measurement tool of this research and a combination approach of several IBFs that can be applied in a wide variety of studies as a multidisciplinary model. In this thesis, the influence features and level of the IBFs chosen will be measured by this technique which allows firms to know to what extent these essential behavioural factors determine the positive performance level of individuals in strategic decision-making process. Figure 3.1 shows

the essence of this model. It is essentially based on 8 IBFs which will be analysed and discussed in more details in the next sections of this chapter.

**Figure 3.2: Interactive Behaviour Chain (IBC) model**



**(Researcher's figure)**

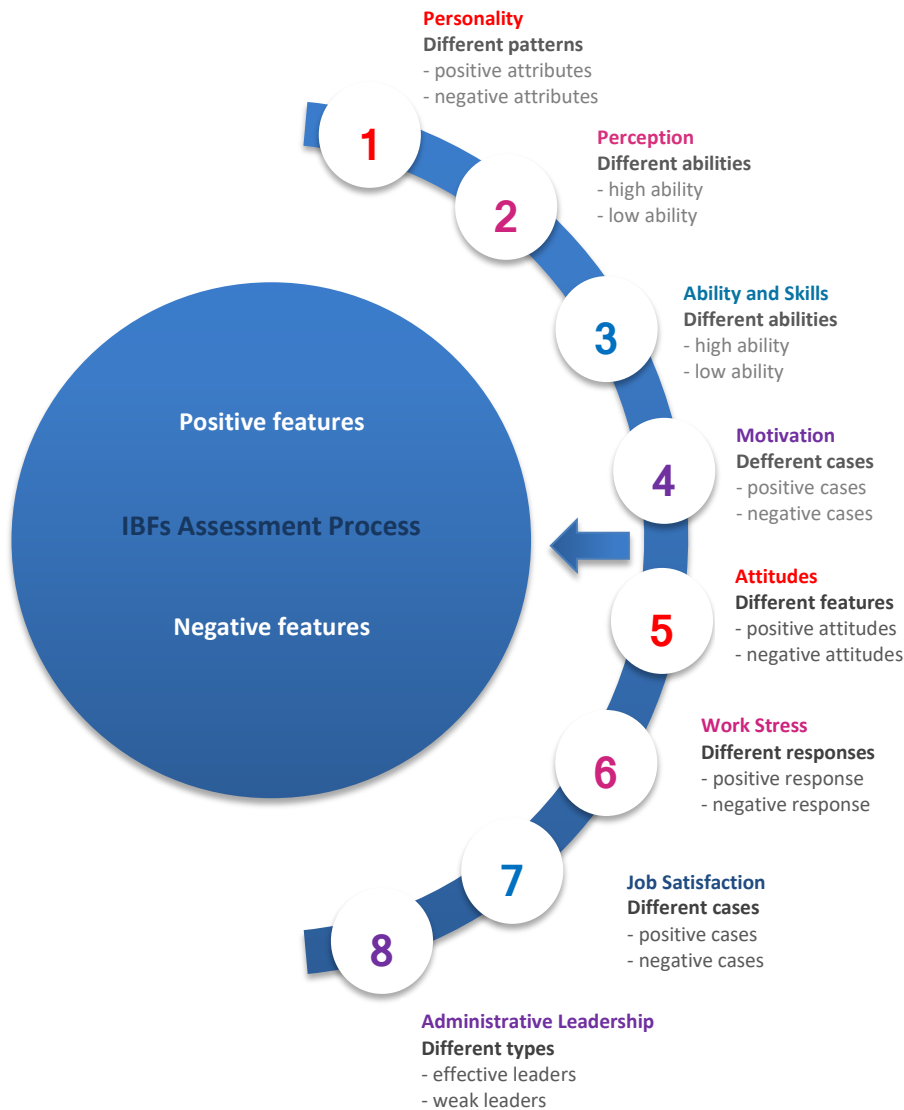
This structural diagram displays the essence of the Interactive Behaviour Chain model and the essential behavioural components. The formation of this model can be divided into three main stages; first, applying the eight IBFs in a wide variety of fields within firms (strategic investment decision-making process in this research). The basic conceptualizations of these IBFs are reflected in the main form that can be applied in several cases. Second stage lies in the IBFs assessment process which examines and evaluates the influence of these behavioural factors on the performance level of individuals in any case study. The final stage of this model is analysing

the performance of individuals depending on the response of applying the eight IBFs. This analysis process determines the performance in which exact level is, and investigates whether these IBFs help or hinder individuals in their performance. As a result of this analysis, five major outcomes reflect the performance level which are; very high, high, medium, low and very low levels. In addition, more specific percentages can be presented with this model to allow managers and decision-makers make objective and accurate evaluation of individuals' performance (detailed assumptions of these outcomes are in the next section).

### **3.4 IBFs Assessment Process and Basic Assumptions of IBFs**

This section expresses the conceptual framework of the IBC, and the basic assumptions of all the IBFs chosen in this approach. Typically, this involves the positive and negative features of each behavioural component. This section presents how the IBC model can be operationalised in different cases including strategic decision-making process as a fundamental issue in this thesis. The scientific framework of this model stems from a set of significant conceptual and scientific values of relevant literature. To provide a comprehensive explanation of modelling this approach, it is necessary to note that the core IBFs are fundamentally divided into positive and negative implications that would affect the performance outcomes. For more clarification, Figure 3.2 shows the IBFs in the form that illustrates the positive and negative aspects.

**Figure 3.3: Multidimensional impact of the eight IBFs**



**(Researcher's figure)**

This combination is systematically and logically designed to reflect the real and expected features of individuals' performance in desired and undesired outcomes. From this view, the next parts show the IBFs assessment process, summarise the core assumptions of all the IBFs included in this model through the research view, literary criticism and detailed analyses.

### 3.4.1 Assessment Process of the IBFs

This essential process assesses the behavioural impact within firms using input–process–output (IPO) model which is used to describe information structure (Pavitt, 2014; Jarboe, 1988). It relies on the basic assumptions of the IBFs (next part) which represent the input components of this process. The core system of this assessment includes two main elements; positive and negative assumptions and five-point scale that measures participants’ responses through answering the assumed phrases where the model requires specific attitude of each participant. The outcomes of this model are represented in specific percentages which can be gathered to reflect the influence feature (positive or negative) and in what level these outcomes are. Table 3.1 shows the IBFs assessment process in details which includes the eight behavioural factors.

**Table 3.1: Assessment process of the IBFs**

Key Response	Desirable Performance Enhancement					
	Attitude	Positive		Neutral	Negative	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1
Assumptions						
IBF 1	<b>IBF 1-1</b> Creativity and Innovation (openness)					
	Using the imagination and intelligence for creating new things such as systems, models, decision paths and effective guidance.					
IBF 1	<b>IBF 1-3</b> Cooperation (Agreeableness)					
	Working with a group for achieving common objectives (personal and organisational objectives) and mutual benefits.					
IBF 1	<b>IBF 1-5</b> Assertiveness (Extraversion)					
	The ability of being able to stand up for people’s needs, ambitions and helping them to express their own views.					
IBF 2	<b>IBF 2-1</b> Stimuli Interpretation					
	Giving a unique meaning by receiving stimuli from environment, organising and transmitting them into clear meaning.					
IBF 2	<b>IBF 2-3</b> Individual Awareness and Constancy					
	Personal ability of understanding the environmental requirements and dealing with them by a constant realisation.					
Key Response	Undesirable Performance Impact					
	Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	1	2	3	4	5
Assumptions						
IBF 1-2	<b>IBF 1-2</b> Carelessness (Opposite Conscientiousness)					
	Not paying enough attention to others, and being unconcerned, inaccurate and having lack of awareness.					
IBF 1-4	<b>IBF 1-4</b> Impulsivity (Neuroticism)					
	Behaving without adequate thoughts that often result in undesirable consequences.					
IBF 1-6	<b>IBF 1-6</b> Bias					
	Individual tendency and inclination for a particular decision or attitude that occurs without objectivity.					
IBF 2-2	<b>IBF 2-2</b> Misinterpretation					
	Providing incorrect meaning of any variable, relationship or tasks which reflects the misunderstanding.					
IBF 2-4	<b>IBF 2-4</b> Unrealistic Expectations					
	Initial failure of determining the reality and how to expect the future features.					

Key Response	Desirable Performance Enhancement					
	Attitude	Positive		Neutral	Negative	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1
Assumptions						
IBF 2	IBF 2-5 Task Interpretation					
	Individual ability of understanding the assigned tasks in an appropriate way.					
IBF 3	IBF 3-1 Consistency of Performance					
	Individual ability of performing tasks with the same principles, standards and regulations.					
IBF 3	IBF 3-3 Flexibility					
	Ability to respond in different ways through different work circumstances.					
IBF 3	IBF 3-5 Quick Response					
	Dealing with phenomena, variables and circumstances by taking immediate appropriate actions.					
IBF 4	IBF 4-1 Reinforcement					
	Using rewards to encourage individuals to desirable behaviour, and punishments to prevent the undesirable behaviour.					
IBF 4	IBF 4-3 Expectancy					
	Determining the behaviour in line with certain ways which lead to desirable outcomes.					
IBF 4	IBF 4-5 Intrinsic and Extrinsic Rewards					
	Physical and non-physical rewards which often encourage individuals increasing efforts in order to be rewarded.					
IBF 5	IBF 5-1 Positive Emotional Attitudes					
	A combination of sympathy, loyalty and strong relationship between individuals.					
IBF 5	IBF 5-3 The Possibility of Change					
	A flexible situation which allows individuals to change their attitudes when they realise that they have to think more positively.					
Key Response	Undesirable Performance Impact					
	Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	1	2	3	4	5
Assumptions						
IBF 2-6	IBF 2-6 Different Management Styles					
	The difficulty of realising assigned tasks of different systems.					
IBF 3-2	IBF 3-2 Ineffective Communication					
	Communicating with others in irrational, illogical and unclear way, and inability to persuade others.					
IBF 3-4	IBF 3-4 Lack in Problem Solving					
	Lack of skills needed to solve specific problems					
IBF 3-6	IBF 3-6 Inaccuracy					
	Providing or supporting inaccurate information during performing assigned work, or making mistakes permanently.					
IBF 4-2	IBF 4-2 Fear of Failure					
	Fear of being failed in achieving the required goals that allow individuals receiving rewards.					
IBF 4-4	IBF 4-4 Pain-Avoidance					
	Avoiding painful situation when individuals expect the negative outcomes which result in helplessness and depression in some cases.					
IBF 4-6	IBF 4-6 Performance Inconsistency					
	Inconsistent programs of motivation which lead to inconsistent results of individual performance.					
IBF 5-2	IBF 5-2 Aggressive Expression					
	A negative reflection on individual's expression of some issues which are represented in aggressive communication.					
IBF 5-4	IBF 5-4 Disrespect to Others' Emotions					
	Behaving in an insulting way with others, and acting in an impolite and offensive way.					

Key Response	Desirable Performance Enhancement					
	Attitude	Positive		Neutral	Negative	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1
Assumptions						
IBF 5	<b>IBF 5-5</b> Background Knowledge					
	Cognition ability and personal knowledge derived from individual's background which is considered a significant base of individual attitudes.					
IBF 6	<b>IBF 6-1</b> Increased Creativity					
	Working hard in a challenging circumstances which provide the opportunity to create useful work contributions.					
IBF 6	<b>IBF 6-3</b> Cognition Enhancement					
	A situation which boost several aspects of individuals' mental power and the ability to adapt to challenging issues.					
IBF 6	<b>IBF 6-5</b> Task Completion Desire					
	A desire of completing the assigned work in an appropriate time to avoid being late.					
IBF 7	<b>IBF 7-1</b> Participative Decision-Making					
	The satisfaction level derived from providing the opportunity to individuals to participate in decision-making process.					
IBF 7	<b>IBF 7-3</b> Encouraging Environment					
	The positive surrounding environment which is reflected in some positive behavioural implication.					
IBF 7	<b>IBF 7-5</b> Job Loyalty					
	A personal feeling of being loyal to an organisation as a part of it.					
IBF 8	<b>IBF 8-1</b> Participative Leadership					
	A leadership style which allows subordinates in participating in some functions such as goal setting and decision-making.					
IBF 8	<b>IBF 8-3</b> Inspirational Leadership					
	The ability of leaders in creating a positive sense for individuals by sharing their knowledge, effective communication and loyalty enhancement.					
Key Response	Undesirable Performance Impact					
	Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	1	2	3	4	5
Assumptions						
IBF 5-6	<b>IBF 5-6</b> No Ownership in Mistakes Committed					
	A negative attitude towards taking ownership of committing mistakes within firms.					
IBF 6-2	<b>IBF 6-2</b> Loss of Concentration					
	A natural periodic occurrence of individuals which could be related to cognitive problems and emotional stress.					
IBF 6-4	<b>IBF 6-4</b> Less Productivity					
	Working under stressful work conditions which lead to carrying less work.					
IBF 6-6	<b>IBF 6-6</b> Increased Complaints					
	An expression of individuals' dissatisfaction increase due to their work conditions or other related issues.					
IBF 7-2	<b>IBF 7-2</b> Intensive Work Standards					
	A stressful situation stems from work difficulties such as the nature of assigned tasks, hard tasks and long-hours culture at work.					
IBF 7-4	<b>IBF 7-4</b> Non-Financial Rewards					
	Working without receiving additional bonuses or rewards even in stressful work conditions.					
IBF 7-6	<b>IBF 7-6</b> Job Position Dissatisfaction					
	An unsatisfactory situation regarding the deserved job positions of individuals as they suppose.					
IBF 8-2	<b>IBF 8-2</b> Irresponsible Leadership					
	A style of leaders who are unable mentally or behaviourally to bear responsibility.					
IBF 8-4	<b>IBF 8-4</b> Ineffective Leadership					
	Leaders who are unable to persuade with logic or rational decisions and actions that make a positive sense to their teams.					



Key Response	Desirable Performance Enhancement						Undesirable Performance Impact					
	Attitude	Positive		Neutral	Negative		Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1	Degree	1	2	3	4	5
Assumptions							Assumptions					
IBF 8	IBF 8-5 Motivational Leadership						IBF 8-6 Poor Communication					
	Creating encouraging environment which involves helping subordinates in receiving their deserved rewards and recognitions.						Inability to communicate to individual in an effective manner due to some difficulties such as being unclear, hesitant or disrespectful.					

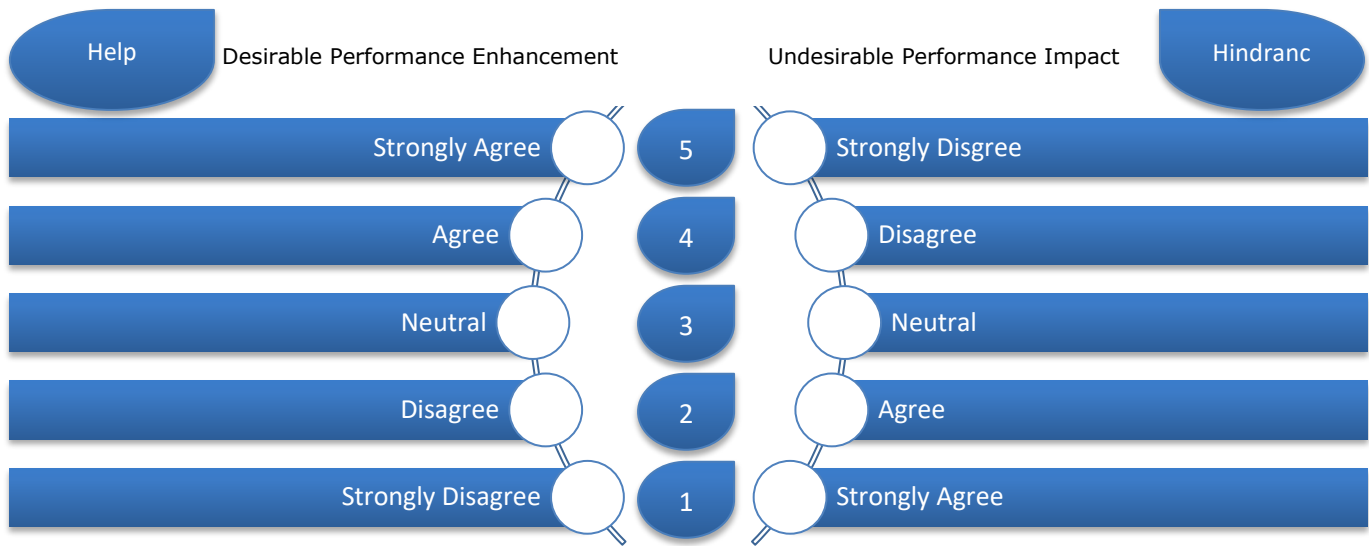
IBF	IBF Numbers refer to individual behavioural factors as presented in the figures 3.1 and 3.2. For example, <b>IBF 1</b> refers to personality, while <b>IBF 8</b> refers to administrative leadership.
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### 3.4.1.1 Dual Response Features

Assessment Process of IBFs as an essential part of the IBC model primarily aims to determine, identify and measure the behavioural impact on individuals' performance level, and shows the positive and negative features of this level. As it can be seen in the Table 3.1, the IBFs assessment process provides two major features of behavioural proposed and possible implications of individuals; desirable performance enhancement and undesirable performance impact. The first part lies in the positive attitudes of individuals which positively enhance the performance level, while the second part stems from the negative vision of individuals that lead to undesirable performance features.

To determine individuals' attitudes towards these issues, IBC model uses Likert scale which supposes 5 main responses to reflect respondents' attitudes (Likert, 1932). These responses specify the agreement or disagreement of respondents by selecting the degree which reflects the personal perspective of the IBFs' impacts. Figure 3.3 shows how the Assessment Process of IBFs is formulated based on dual response process of Likert scale.

**Figure 3.4: Dual response process of the IBC**



**(Researcher's figure)**

The main idea of this figure simply lies in the positive responses of individuals lead to supporting the positive IBFs' impact on performance level. The strong agreement of the positive assumptions enhances the desirable performance; subsequently the degree 5 is a reflection of this agreement, while the strong disagreement is reflected only in the degree 1. In contrast, whereas the strong agreement of the negative assumptions reduces the desirable performance (which is in favour of the undesirable performance), the strong disagreement enhances the positive impact of the assumed IBFs. As a result, the degree 1 represents a low performance level, while 5 reflects the high performance.

It is important to indicate that there is a difference between the integration process with questionnaire and survey, and organisational use of this dual response process. In the questionnaire and survey integration (as this research carries out), the Likert scale is designed in "a one-way analytical process" as it is linked to direct hypotheses. In organisational use, the firms can use this form as shown in the Figure 3.3 as it reflects the "the existence" of specific behaviour, which means that in the positive assumed behaviour, if the sub-factor is existing, then the strong agreement reflects the degree 5. In contrast, if the negative assumed factor is existing,

that means that the strong agreement of the existence is 1 as this negative sub-factor hinders the performance and then the performance is resulted in the lower level 1.

### 3.4.1.2 The Relative Weight of Measuring Performance Quality and Level

Performance measurement system of the IBC or performance analysis is the stage where firms can keep tracking the progress of its individuals' performance. IBC provides a significant part of performance determinants and reflects the relative weight of the behavioural impact on performed aspects regarding to different target-setting of firms. This advanced stage generates the data of IBC Assessment Process into five performance outcomes which are very high, high, medium, low and very low.

The assumed assessment of the IBC supposes that the very high and high levels are classified as positive performance or desirable performance, while the low and very low levels are considered as a reflection of negative performance or undesirable performance. More specifically, performance outcomes are generated and classified as follows:

**Table 3.2: The relative weight and average response of IBFs' effect on performance level**

Performance level	The relative weight	Average response
Very High	80% or more	4 or more
High	60% to 79%	3 to 3.95
Medium	50% to 59%	2.5 to 2.95
Low	30% to 49%	1.5 to 2.45
Very Low	29% or less	1.45 or less

These assumptions are the base of the IBC assessment outcomes. As a consequence of applying this model, the results of this multidisciplinary model will show that the performance in the positive area when the outcomes fall into the range 60% to 79% (high), and 80% or more (very high). The medium position is represented in the percentages between 50% and 59%. The undesirable performance will be in the low level if the outcomes are from 30% and 49%, and in the very low level if the results fall into the percentage 29% or less.

The Assessment Process of IBFs can be applied in many different areas to examine the behavioural impact. For example, in processing the IBF1 which is personality, there are 3

desirable and 3 undesirable behaviours represented in positive and negative attributes. Reaching and examining performance outcomes of this factor can be conducted as following:

**Table 3.3: An example of an individual response**

IBF 1			
1	<b>Creativity (openness)</b> Here, the assumption should be formulated to be in line with the issue studied. For example, decision-making process, the relationship between two variables, the influence level of independent on the dependent variable, performance assessment and investment techniques etc. The response should be positive when the participant believes that individuals under evaluation have creative personality which enhances the desirable performance.  For example, the assumed response here is <b>(4)</b> .	4	<b>Carelessness (Conscientiousness)</b> The response here is proposed to be in a high agreement if individuals consider that the personality evaluated is characterised by this negative personality trait. In contrast, it refutes the existence of this personality pattern when the response is 4 or 5 which is in favour of the desirable performance.  The assumed response is <b>(5)</b> .
2	<b>Cooperation (Agreeableness)</b> Again, as a positive attribute of personality, this point and the rest of assumptions should be introduced in an evaluative framework as mentioned above.  The assumed response is <b>(3)</b> .	5	<b>Impulsivity (Neuroticism)</b>  The assumed response is <b>(2)</b> .
3	<b>Assertiveness (Extraversion)</b> The assumed response is <b>(1)</b> .	6	<b>Bias</b> The assumed response is <b>(4)</b> .

From this short example, the relative weight of performance outcomes can be simply determined as follows:

**Table 3.4: calculating the performance outcomes**

No	Assumed response	The relative weight	Performance outcomes
1	4	80%	<b>63% High</b>
2	3	60%	
3	1	20%	
4	5	100%	
5	2	40%	
6	4	80%	
<b>Sum</b>	<b>19</b>	<b>63%</b>	

This presented case shows that the calculated percentage is 63% which reflects a high level of the IBFs' impact on individual performance. The overall percentage is simply generated by dividing the total number of responses by the highest possible number of responses.

$$\text{The percentage of IBFs' impact on individual performance} = \frac{\text{the total number of responses}}{\text{the highest possible number of responses}}$$

$$\text{The percentage of IBFs' impact on individual performance} = \frac{19}{30 (5 \times 6 \text{ IBFs})} = 63\%$$

### **3.5 Additional Advantages of the IBC Model**

In business environment, the behavioural implications can be interpreted in different ways by individuals. These interpretations vary depending on individuals' knowledge background of the psychological and behavioural concepts. I argue that these varied interpretations would be a significant determinant of the quality of SIDs. Although it could be a challenging issue to find direct relationships between these two variables, I contend that using reliable behavioural approaches to measure the underlying effects can provide a closer view of the real implications. From this perspective, the IBC model established in this study is proposed to scientifically measure and examine these sensitive relationships. It helps individuals understanding a wide range of sub-behavioural factors that can be done by them or others. A number of advantages can be achieved by firms with this approach covering many strategic investment decisions, performance tracking enhancement and managing performance of human resources.

#### **3.5.1 Strategic Investment Decisions**

Even accountants are aware of some basic behavioural interpretations, they still would not be able to reflect these features into their assigned tasks (Caplan, 1996). The IBC model entails main 8 IBFs and 48 sub-factors with respect to decision-making processes. I argue that understanding the possible and real behavioural implications in these sensitive processes would lead to high performance levels, thus effective and efficient decisions if this understanding basis is transformed into useful accounting implementation.

It is a challenging issue that the firms integrate the assumed IBFs into their accounting systems. In this context, firms should create a complementary management accounting system that

absorbs both SIDs and the performance evaluations and tracking systems that can be linked to the IBFs' assumption.

### **3.5.2 Performance Tracking Enhancement**

Individuals and systems' performance can be tracked by different systems within firms. Firms normally set a number of different tracking systems to ensure that the human resources are appropriately exploited to be in line with the firms' objectives. Tracking individuals and systems' performance is a challenging issue that needs considering how the performance can be measured (Piper and Piper, 2016; Scarlett, 2005). Essentially, applying different evaluative systems would lead to obtaining different performance results due to the different standards and definitions of each system (Piper and Piper, 2016). The research argues that behavioural factors are fundamental determinants of the performance, thus the measuring any accounting system implementation or the performance of making effective SIDs implicitly depend on the behavioural factors as all the systems are designed and applied by individuals. From this context, the research focused on establishing a more comprehensive IBC model that has a combination of the most influential IBFs as the research argues. The model can be integrated into financial and managerial systems to be regularly used in tracking individuals' performance from the behavioural dimension whether they are in the very high, high, medium, low or very low levels as it can be seen in the model explanations.

### **3.5.3 Managing Performance of Human Resources**

Managing individuals' performance should be built on a solid basis and reliable measurements. The IBC technique helps firms developing their human resources' performance in terms of the behavioural aspect. Organisations normally seek to develop their human resources by focusing on several settings such as annual strategy planning setting expectations and measuring traits, behaviour and results (Pope, 2005). In order to achieve desirable performance levels, I would argue that linking the personal goals to the general firms' objective would lead to higher performance levels (Ashdown, 2016; Edwards and Bach, 2013). As the IBC model focuses on the behavioural traits, the motivational factor (IBF 4) plays a fundamental role in encouraging accountants to performing their assigned tasks in a way that matches the intrinsic and extrinsic rewards provided and their objectives. The integration of the IBC model into managerial accounting systems would provide additional dimension of performance measurements. In many

cases, firms provide different performance tracking systems working with vendors in designing these systems that normally meet some aspect and not necessarily include the behavioural part.

According to Bragg (2017), performance measurement is designed to be introduced in numeric outcomes to reflect the firms' ability in achieving their goals. These goals are linked to a number of accounting activities and related domains such as management accounting, finance, marketing, production management, research and more. He highlighted some important performance measurements regarding management accounting represented in tracking (1) the firms' ability in gathering information of accounts receivable (2) new services, products and sales activities (3) the liquidity and financial position (4) the inventory levels (5) marketing and sales employees in their ability of developing marketing activities and sale levels (6) revenue and cost centres. These aspects are typically compared with standards established by firms to maintain sustainable and appropriate positions. Although I agree that all of these tools are significant, I argue that focusing on the behavioural implications and measuring the IBFs would significantly enhance the overall performance and then it can be positively reflected in several accounting activities.

### **3.6 Linking the IBC to Strategic Decision-Making Process**

This thesis as stated earlier has a comprehensive scientific combination in a theoretical, methodological and analytical framework. This combination builds a significant overview of the association between the IBFs and strategic decision-making process based on the IBC approach presented in this chapter. This section introduces and analyses strategic decisions within firms, and provides critical insights of this significant and complex relationship.

The research focuses on strategic investment decisions (SIDs) that represent a significant relative weight of strategic operations and plans of firms. The strategic nature of this type of decisions involves challenging issues which stem from risk, uncertainty and the long-term performance effects (Harris et al., 2009; Alkaraan and Northcott, 2006; Chittenden and Derregia, 2004).

The core SIDs studied in this thesis represent contemporary systematic rules characterised by long-term objectives and challenging issues. They are capital investment decisions including expansion, replacement and renewal investment decisions, and highlighting mergers and acquisitions' decisions. Chartered Institute of Management Accountants (CIMA), the UK

professional body, classified SIDs, as the most important decisions can be made by managers (Harris et al., 2009). They indicated that the failure of making successful strategic decisions leads to collapse of their firms.

A prominent style related to this relationship has been examined in some previous studies is cognitive style. It describes how individuals think, perceive and remember events related to their work. This style has been tested by Hough and Ogilvie (2005) in its effects on strategic decision outcomes and individual performance required. Another study conducted by Cools and Ven Den Broeck (2008) emphasised that this style can affect managerial behaviour in many ways. The different approaches tested led to varied academic insights such a different perspective stated by Jennings and Disney (2006) who have not reached obvious evidence concerning the influential relationship between the psychological factors and strategic decisions.

### **3.6.1 Interactive Impact between the Dependent and Independent Variables**

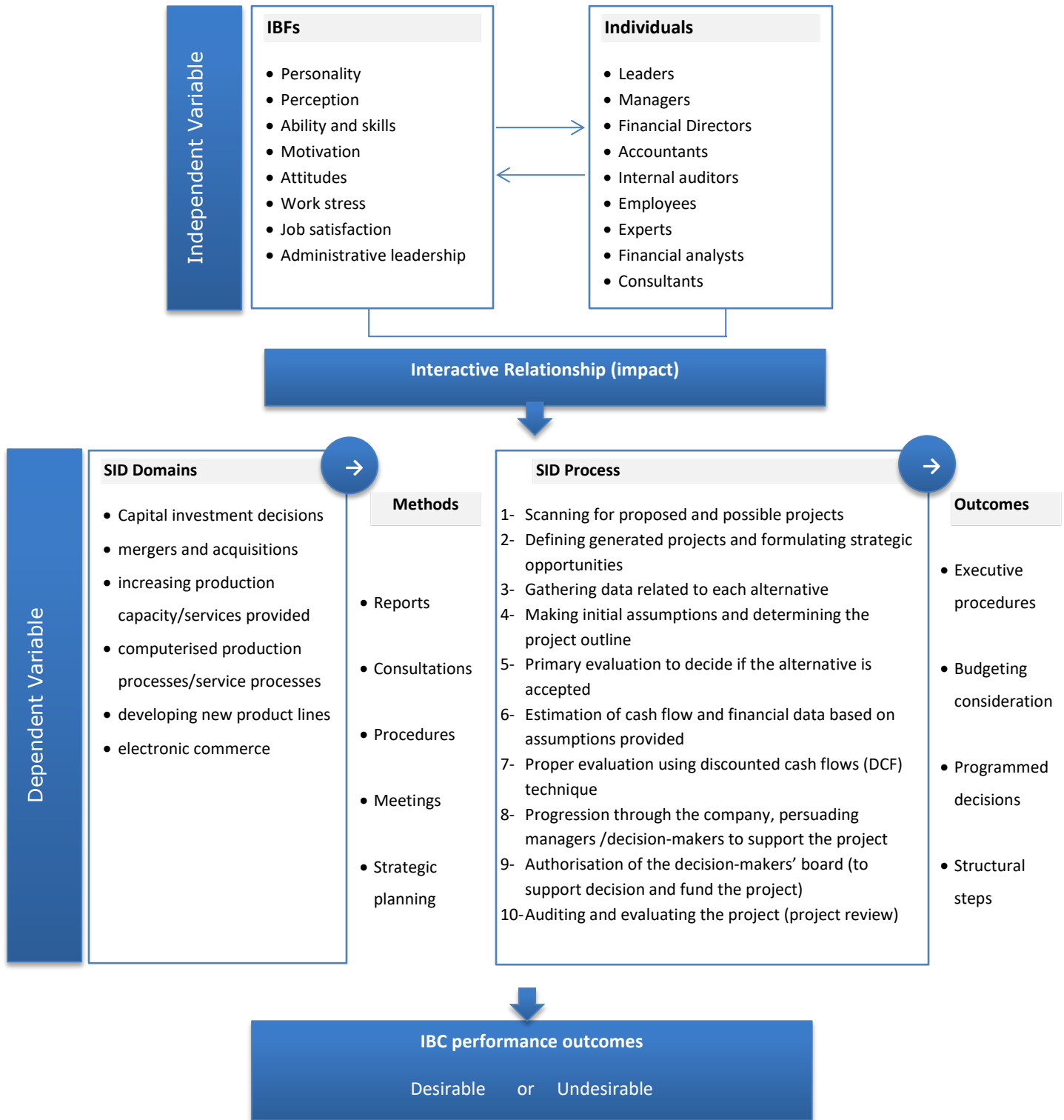
Strategic investment decisions are essentially a representation of businesses' investments that have a long-term impact of their financial and managerial positions. This perspective has been widely discussed by several researchers (e.g, Carr et al., 2010; Abdel-Kader and Dugdale, 1998; Slagmulder et al., 1995). In the mainstream literature, scholars and reviewers have not covered the behavioural insights of determining the long-term impact by using a significant combination of the IBFs. This is the continuing gap, which this thesis aims to fill. In order to apply a more comprehensive behavioural model in this issue, the interactive relationship between the IBFs and SIDs will be explained from an evaluative and critical perspective.

Successful entrepreneurial firms look at exploiting the beneficial contributions of the contemporary research conducted in this type of decisions in order to enhance the positivity of the behavioural impact. I use the term impact here as a fundamental theme in this thesis that links the two main areas of this research; SIDs (the dependent variable) and IBFs (the independent variable).

The Chartered Institute of Management Accountants (CIMA) has presented proposed ten stages that can be applied in capital investment decisions. In this context, the Figure 3.6 shows these adopted stages and the relevant IBFs that should be taken into account in order to increase the desirable performance according to the IBC model.



**Figure 3.5: Interactive relationship between independent and dependent variables**



(Partly adapted from Harris et al., 2009)

The Figure 3.5 shows the relationship between the independent and dependent variables involved in the IBC model as an interdisciplinary evaluative model. This figure provides a representation of how the eight IBFs can be linked to the SIDs through several interactive stages. The independent variable (IBFs) is a set of behavioural factors that characterise individuals (different functional levels) in varied psychological and behaviour patterns. These natural characteristics of individuals play a significant role in determining performance levels of functional responsibilities (HM Government, Understanding the Behavioural Drivers of Organisational Decision-Making, 2016).

The dependent variable (SIDs) is represented in the main investment decisions studied in this research. Essentially, the main stages of SIDs systematically conducted through several methods or tools such as reports, consultations, procedures and meetings. CFA Institute (2014) stated that reports are the most valuable method for providing required information regarding proposed investments. Also, consultations (Isopi et al., 2014), procedures (Government Finance Officers Association, 2004) meetings and strategic planning are considered as essential methods in helping decision-makers making appropriate decisions. These methods are used in different ways in organisational structure for decision-making purposes. Designing these tools should be consistent with strategic decision process shown in the Figure 3.6.

The ten stages presented can be slightly changed depending on the type of decision and firms' policies. Garvin and Roberto (2003) argued that these stages take weeks, months or even years depending on the nature of decision and discussion between all organisational levels. The proposed stages in this figure require many different resources such as financial support, cost analyses and accounting reports that enhance the efficiency of gathering information and generating project alternatives. It can be noticed that the first and second stages are related to the strategic financial planning, and then the third stage need detailed accounting information and data to be used in the proper evaluation stage. Making initial assumptions is a step where financial managers and the main responsible individuals draw the project outline based on accounting analyses and the expected return of each alternative. Stages 5,6 and 7 are crucial steps which initially evaluate investment projects using the appraisal methods such as discounted cash flows (DCF) technique, and then making initial selection of the best investment alternative. These stages could be affected by different IBFs and some IBC sub-traits such as bias and

overconfidence (Kumar and Goyal, 2015). Therefore, the rationality of selecting the best alternative should support this selection in the next stage where managers and decision-makers confirm this logical and beneficial chosen project. The final stages involve numerous procedures of implementing and generalising the decision including monitoring and auditing review to make a more comprehensive support.

The psychological and behavioural impact on these stages is described with more details in the Figure (3.8 integrated investment decisions with IBC model assumptions).

The outcomes of these strategic decisions are normally reflected in executive procedures and programmed decisions through progression of budgeting process. For instance, the decision of expanding firm's warehousing could be generated after financial analyses and strategic planning of the expected benefits. The executive processes here involve detailed programmed procedures of applying such expansion. Financially, they should be simple, straightforward, and cover all required elements such as preparing sale orders, preparing packing and shipping to customers, creating invoices and matching these orders and invoices generated. For technical and operational purposes, they should include (1) determining space utilisation, (2) layout and equipment needed, (3) operating procedures, (4) and employees' tasks and (5) planning receiving and shipping volumes including appropriate mechanisms of tracking numbers and incoming and outgoing items (Tompkins and Smith, 1998).

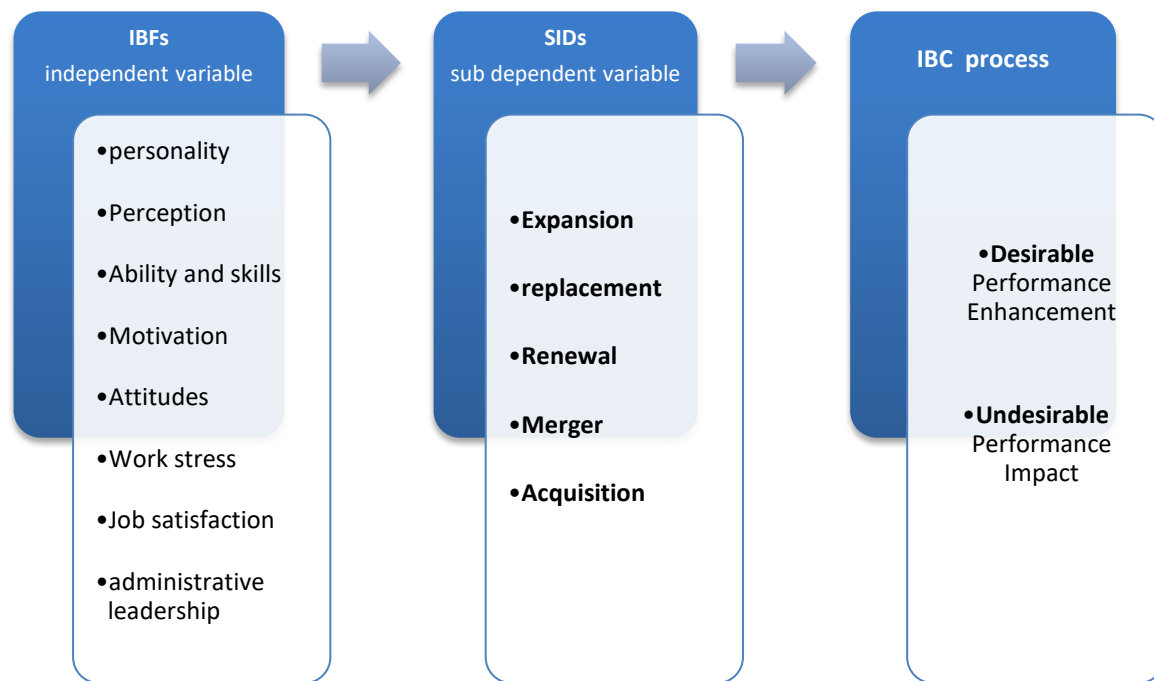
These stages are interactively linked to the IBC performance outcomes. As described earlier, during decision-making process, individual's performance is proposed to be measured by this model, which accurately determines whether performing this process is desirable or not. I argue that using this model provides many benefits to managers and management coordinators in allocating resources and making investment decisions. Generating performance indicators support managers in different ways in this process (Wholey, 1999; Moynihan, 2005). In a similar perspective, LeRoux and Wright (2010) argue that performance indicators introduce valuable insights regarding the positive and negative features of firms' strategy, thus they direct managers with useful data for strategic decisions. Additionally, Moynihan and Ingraham (2004) indicated that data collected from performance measurement systems allow leaders to evaluate individuals' performance to increase this level and therefore decision-making effectiveness.

Applying this distinct interactive process shown in the Figure 3.6 requires a reasonable understanding level of the main behavioural assumptions of this model and the underlying effects of the eight IBFs studied and their sub-traits. In addition, the IBF assessment process can be integrated into performance management and financial reporting software. This integration helps firms automatically tracking individual performance and transforming data into analytical forms. The core challenge here is not only in integrating this process into smart software, but in interpreting the 48 sub-traits of the IBFs (8 IBFs X 6 sub-traits). Leaders, managers, and performance analysts can do the evaluative process (filling out the IBC model), and they need a behavioural sense in interpreting and reflecting the real behaviour features of individuals into accurate numeric outcomes.

### **3.6.1.1 Capital Investment Decisions**

Capital investment decisions (CIDs) include a wide range of decisions that have a long-term financial impact. According to Northcott (1996) capital investment decisions are sub-set of organisational decisions involve long-term and financial planning matters. As Patra (2006) classified these types of decisions to expansion, replacement, modernisation, diversification, and finally research and development decisions. Although this classification slightly covers the main domains of this type of decisions, it seems logically that adding stock investment is a significant option for many corporations. The sup-set of capital investment then can be presented in a reflective relationship with the IBFs as shown in the Figure 3.7 below.

**Figure 3.6: the interactive relationship between the independent and sub dependent variables based on the IBC model**



**(Researcher's figure)**

The complexity of understanding the underlying impact of the IBFs in this relationship needs effective and inspiring leaders who can interpret and reflect this complexity into a reasonable understanding. To reach this advanced level of the behavioural impact, leaders and management accountants should link the behavioural factors with every investment decision made to ensure reaching individual desirable performance and avoiding and undesirable levels. IBC model is created to solve such complex issues by providing an obvious behavioural map that can be applied in many accounting departments.

It is a wide demand of small, medium-sized, large enterprises, public services and not for profit firms to expand their businesses by increasing their buildings, equipment or production strategies. It entails also opening up new stores in new locations in order to achieve an estimated growth in their businesses. Making SIDs regarding expansion involves selecting a group of responsible individuals including finance managers and others who have the ability to look at the

feasibility of any investment decision proposed (Chittenden and Derregia, 2004). In large firms, usually a research and development department provides initial expectations of the proposed projects. This committee includes accountants and financial analysts who help providing financial estimated views through applying the appraisal techniques and contemporary systems used to evaluate any proposed capital investment project.

The necessity of understanding the IBFs by SID makers lies in providing an obvious view of the how these strategic decisions can be behaviourally performed, subsequently, which performance outcomes can be reached. This researcher's argument entails linking the eight IBFs and their assumed sub-factors with the main steps of SID processes.

In evaluating investment alternative stage of decision-making process, appraisal techniques are used to provide the most appropriate alternative. In the literature review chapter, the key appraisal methods such as discounted cash flow (DCF), payback period, internal rate of return (IRR) and accounting rate of return (ARR) have been presented and explained. Applying these techniques involves dealing with the possible risks and uncertainty that makes decision-making complex and more complicated. According to Atik (2012), during applying the appraisal techniques, there are some issues could pose threats to this process such as exchange rate fluctuations, financial complications, further operational expenses, inability to analyse new market requirements and customer expectations. I argue that understanding the underlying behavioural impact of this issue could make these challenging aspects easier to deal with. This conceptualization is built from a fact that the most procedures of this process are programmed and performed by individuals who have different characteristics, which naturally determine the performance levels.

#### 3.6.1.1.1 Expansion, Replacement and Renewal Investment Decisions

Firms essentially do not rely on limited strategies in developing their businesses. Investment planning often includes a wide range of investment decisions that should maintain all desirable conditions and exploit the financial ability in expanding business's growth. The authority of making such investment decisions is linked to the firms' policies and structural procedures adopted. The essence of these challenging decisions is usually a representation of managers and directors' views, which affect firms' financial position and owners/stakeholders. Expansion decisions often have positive and negative effects on stakeholders who aim to achieve their

objectives through these decisions made (Fisher et al., 2014; Fleming, 2004). Luo (1999) explained international expansion of firms and multinational companies and how do they differ to international operations. He stated that while international expansion focuses on the mechanisms of how, when investment projects should expand, while international operations is related to the operational procedures that have to be applied in a country where the business is established.

The behavioural issue related to this type of decision is usually linked to performing the required stages of these decisions. Expansion investment decisions usually involve different decisions such as acquiring fixed assets and buying new buildings. Some of the IBFs studied in this research can determine how do decision-makers make crucial decisions, and with which performance level can they achieve the desirable outcomes. In financial and management accounting areas, proposing a project has to be attached with significant estimated financial information such as fixed and variable costs, gross profit expected of the new project, taxes and the new expected net income of expanding firms' assets and operations. Undoubtedly, such preparations are made by different individuals who are characterised by different personality traits. As a result, the performance outcomes of this preparation can be affected differently based on which kinds of personalities do individuals have. For example, the Big Five Personality Traits inspired in the IBC model is adapted in the main IBF 1 assumption by including significant patterns related to performing different tasks of making strategic decisions. For more details in this context, creative, innovative and cooperative individuals are proposed that they enhance investment project preparation by their unique abilities and intelligence (Openness and Agreeableness), while careless (opposite Conscientiousness), impulsive (Neuroticism) and biased personalities would negatively affect the accuracy, reliability and timelessness of information provided in such tasks.

Beside the IBF 1 (personality), other IBFs such as perception, ability and skills, and motivation would affect gathering accounting information required in the second step of the basic decision-making steps. The information here has to be logically estimated to reflect the financial and managerial information regarding each alternative (investment project) generated. I argue that many assumed sub-traits of the IBC model have a considerable impact on different decision-making stages. The positive assumed sub-patterns can be represented in individual awareness

and constancy, task interpretation, flexibility, consistency of performance and quick response, whereas the undesirable factors are misinterpretation, unrealistic expectations, ineffective communication, lack in problem solving and inaccuracy. Different studies have been conducted from various perspectives. For example, Lang (1997), and Jennings and Chang (2014) focused on individuals' flexibility and strategic planning regarding decision-making process. Other studies support the positivity of different IBFs such as strategic attitude of individual (Nithya and Krishnan, 2016), quick response (Palmer and Markus, 2000).

Interpreting each factor empirically can be examined by reviewing the relative weight of each component's effect on the outcomes of individuals' performance. Through the IBCs assessment process explained earlier, different accounting tasks related to expansion decisions can be examined in accordance with the required quality of decisions.

Replacement decisions are normally made when firms' assets that become outdated or their conditions do not meet the required production level. In these cases, such assets need to be replaced to develop the efficiency of any asset changed. Replacement decisions can be applied for machinery, different equipment and vehicles. In finance and management accounting, the asset which would be replaced is called the defender, while the new one which is planned to replace the defender is called the challenger (Crundwell, 2008; Badiru and Omitaomu, 2007).

The long-term ownership of assets involves evaluating the current condition of assets, and the expected production of asset in which one can be the best option (Cripps and Meyer, 1994). Bias plays a significant role in the behavioural effects on replacement decisions. Cripps and Meyer (1994) have interpreted this affective relationship in terms of making strategic decisions under uncertainty. Making such decisions could be a controversial issue between decision-makers especially when the challenger is provided in competitive conditions. The reason for that is in selecting the best alternative of challenger asset step, decision-makers could be biased in their decisions to be in favour of particular brand or supplier that involve gaining personal benefits. For instance, in some equipment which become obsolete such as computers and electronic equipment, replacing them needs cooperation and help from professionals instead of making impulsive and biased decisions. The professional support here should include accountants, IT and networking staff with responsible individuals in the organisational structure of firms. This



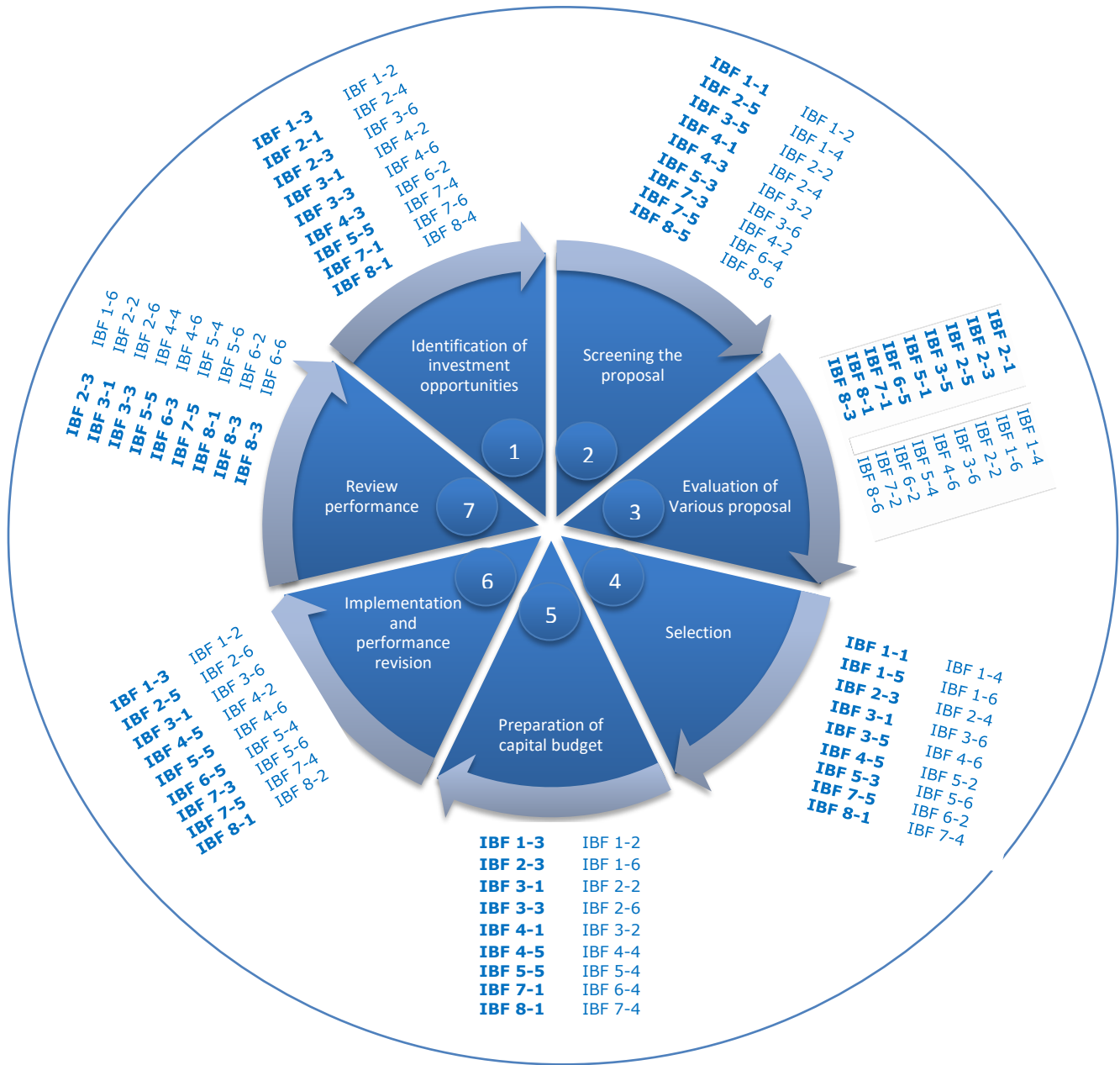
cooperative combination can efficiently support investing firm's assets by providing significant recommendations and procedural steps needed.

Renewal is a significant alternative option to replacement decisions. This term refers here to some processes that could be made such as rebuilding, renewing assets and updating computers and software. In some cases, renewing assets can be more beneficial than replacing them. The International Accounting Standard (IAS 38, Intangible Assets) clarifies that the cost of renewing an asset should be compared with the future benefits expected in order to determine whether the renewal decision has more benefits than replacing the asset or no (Iasplus.com, 2019).

#### 3.6.1.1.2 Capital Budgeting

This scientific process provides an analytical chain of investment proposals that have long-term returns. These proposed investments are normally evaluated by investment appraisal techniques introduced earlier. Patra (2006) presented this method in a similar way to strategic decision-making process. He focused on essential stages that can be called “integrated investment decisions”. The next Figure 3.7 shows these integrated steps, and the behavioural impact that can be occurred by the IBC model.

**Figure 3.7: integrated investment decisions with IBC model assumptions**



**Note:** this classification reflects the “researcher’s beliefs” and it is not necessarily to be compatible with other views

(Partly adapted from Patra, 2006)

Figure 3.8 shows proposed stages of investment process that normally apply in selecting the best investment alternative. It illustrates main seven stages followed by the behavioural assumptions

of the IBC model, which should be taken into consideration in any SID. Matching the sub-traits of the IBC model with the investment decisions' stages can be changed in accordance with individual evaluators (leaders, managers, financial analysts, psychologists and behaviourists), or organisational factors (e.g., decision-making procedures, participation flexibility, firms' policies, financial position of firms and more).

As it can be seen in the Figure 3.8, each stage has a linkage to unique behavioural components. For example, in the first stage, identification of investment opportunities could be positively or negatively affected by the sub-traits. It is important to indicate that this classification reflects the "researcher's beliefs" and it is not necessarily to be compatible with other views. As a complex interactive relationship, linking the assumed IBFs to the SID process absorbs many philosophical positions and theoretical insights.

**Table 3.5: A detailed example of the integrated investment decisions with IBC model assumptions in the first stage of decision-making steps**

identification of investment opportunities	Desirable Performance Enhancement	Undesirable Performance Impact
	<b>IBF 1-3</b> Cooperation (Agreeableness)	<b>IBF 1-2</b> Carelessness (Opposite Conscientiousness)
	<b>IBF 2-1</b> Stimuli Interpretation	<b>IBF 2-4</b> Unrealistic Expectations
	<b>IBF 2-3</b> Individual Awareness and Constancy	<b>IBF 3-6</b> Inaccuracy
	<b>IBF 3-1</b> Consistency of Performance	<b>IBF 4-2</b> Fear of Failure
	<b>IBF 3-3</b> Flexibility	<b>IBF 4-6</b> Performance Inconsistency
	<b>IBF 4-3</b> Expectancy	<b>IBF 6-2</b> Loss of Concentration
	<b>IBF 5-5</b> Background Knowledge	<b>IBF 7-4</b> Non-Financial Rewards
	<b>IBF 7-1</b> Participative Decision-Making	<b>IBF 7-6</b> Job Position Dissatisfaction
	<b>IBF 8-1</b> Participative Leadership	<b>IBF 8-4</b> Ineffective Leadership

This table represents an example of the previous figure which shows the proposed IBFs that can affect the first stage of SIDs. The initial preparation of identifying investment opportunities requires creating participation opportunities by the top management. As a result, this stage could be positively enhanced by the IBF 7-1, and IBF 8-1 (Merchant, 1981). Additionally, middle and lower management could provide an active participation to their employees if they have ability of stimuli interpretation, appropriate awareness level, consistent performance, flexibility and

reasonable level of knowledge. On the other hand, some undesirable characteristics such as carelessness, inaccuracy, fear of failure and dissatisfaction logically pose threats to the potential investment opportunities.

As a significant method, accounting information system should be designed in line with providing accurate financial information to be used by decision-makers without misunderstanding such as assets' costs, discount amounts, assets and liabilities codes and financial regulations. SIDs involve sensitive stages that need effective behaviour measurements. This necessity has been asserted by Vladu and Cuzdriorean (2013) who provided a proposed framework that measures the ethical reasoning and behavioural aspect regarding making accounting decisions. They emphasised that the lack of understanding the code of ethics and business values has a long-term impact on strategic decisions. In this respect, I would argue that unethical behaviour should be obviously presented to accountants and information providers within firms to avoid undesirable effects on decision-making processes. International Federation of Accountants IFAC (2016) explained in its version "Code of Ethics for Professional Accountants" that unethical behaviour might be created by accounting professionals, regulation and business legislation. As a consequence of these possible effects, I argue that understanding measurement methods such as the IBC model can considerably help the top management and professionals in formulating their regulation and legislation in a more secure way.

As stated earlier, philosophical stances and critical insights of researchers and behaviourists can be in different ways in setting and matching SID processes with the proposed behavioural factors. Despite this assumed diversity, there are no studies linked the eight IBFs to strategic decision-making, and filling this continuing gap which is the essence of this research (see literature review).

### **3.6.1.2 Multiple SIDs of the Dependent Variable**

Strategic investment decisions have a wide range of domains in contemporary business and management accounting field. This considerable variety has been created as a consequence of the continuing development of firms which seeks to exploit the strategic long-term opportunities. Although there are no specific standards to classify SIDs, some literary contributions attempted to develop these decisions to be consistent with the contemporary profession (Prochazka, 2017;

Papadakis and Barwise, 2012; Ward, 2012). In this research, the relative weight of the SIDs outweighs other decision domains, as they represent a more comprehensive domain, and include considerable operations such as expansion, replacement and renewal decisions mentioned earlier. Besides the SIDs, there are many different strategic decisions such as mergers and acquisitions, increasing production capacity/services provided, computerised production processes/service processes, developing new product lines, electronic commerce.

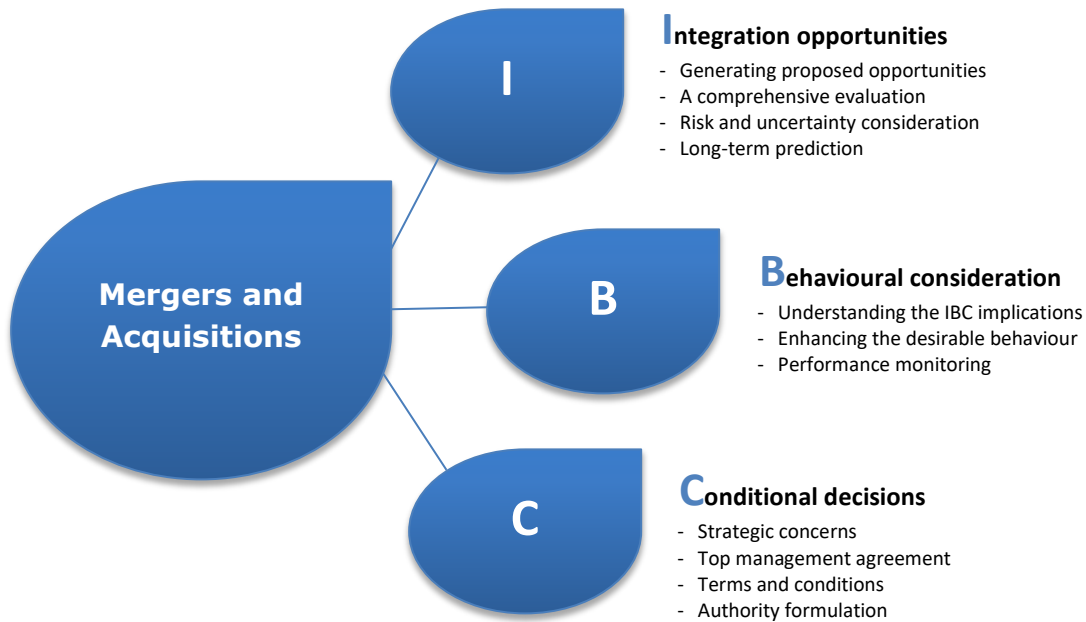
### **3.6.1.3 Mergers and Acquisitions**

Mergers and acquisitions have been integrated in the literature review due to the similarity of changing the entity's status. However, this change involves different formation. Merger is an operation that results in integrating two or more firms in one entity. Decisions of these integrations are not necessarily to be made on the same type of businesses. Decisions regarding acquisition involve purchasing another entity's assets and shares to be a part of the purchaser institution. This operation results in a managerial and financial control by purchasing company over the acquired company.

The Financial Accounting Standards Board (FASB) has clarified these types of decisions by issuing structural statements including (1) determining whether the combination is a merger or an acquisition, (2) which of the firms is the acquirer and (3) the required disclosure level in financial statements (Financial Accounting Standards Board, 2009). Undoubtedly, these decisions need adequate psychological and behavioural research and predictive view of the firm structure, evaluation, consumer interaction, rules and procedures of the combination. For example, Facebook's acquisition of WhatsApp (the growing mobile messaging service) required behavioural and psychological understanding of clients of these two leading companies in social media (Kaya and Bicen, 2016; Kimmel and Kestenbaum, 2014; Susilo, 2014).

The sensitivity of this type of decisions lies in the challenging evaluation of the institution, which will be merged or acquired. Logically, the evaluative process requires a reasonable level of information disclosure such as the financial statements, credit standing, assets and liabilities and more details. These crucial aspects form a significant part of the strategic decisions that will be made in this context. The Figure 3.9 illustrates the core aspects in making mergers and acquisitions' decisions.

**Figure 3.8: merger and acquisition domain**



**(Researcher's figure)**

Whether the SID is regarding to merger or acquisition, integrating opportunities need in both cases a set of processes as shown in Figure 3.9. Initially, the first stages of these decisions rely on information provided and generated opportunities. Accounting and managerial systems play a fundamental role in preparing relevant reports regarding these opportunities (Mancini et al., 2013). The initial evaluative stage comprehensively presents a valuable source to the managements to make objective decisions. Followed by risk and uncertainty consideration and long-term prediction needed. I argue that the behavioural issue at any level of decision needs a significant consideration of the possible and real implications. In this research, I recommend using the IBC model to help firms in understanding the underlying behavioural issues behind each decision. This leads to reaching a confident level to making final SIDs with strategic view. Enhanced by top management agreement, formulation firms' terms and conditions, determining the authorities, new positions, integrated financial statements and arrangements with existing and new stockholders within firms.

### **3.7 Conclusion**

The purpose of this chapter is to provide an explanatory framework of the relationship between research variables including a presentation of the interactive behaviour chain model and its interpretations. The conclusion drawn of this chapter entails a number of essential explanations and clarifications of the establishment of the IBC model and its features. This is the fundamental part of the independent variable of the research. The dependent part is represented in the second section of this chapter that focuses on the SIDs studied in this thesis. The study seeks to contribute in providing a more clear and reliable representation of the relationships between these variables. Specifically, by applying the IBC model that essentially measures the influence level of the IBFs on individuals' performance and subsequently the quality of decision-making process.

Based on the mainstream literature of the eight behavioural factors highlighted in this study, the theoretical framework aims to fill the gap in the current academic basis and to represent this contribution in theoretical and critical insights. Starting by establishing the IBC scientific approach, the chapter presents a comprehensive coverage of the model and how does it work. This chain is designed based on 8 main IBFs and 48 sub-factors in the positive and negative characteristic forms followed by designing the assessment process as the core part of the model. This chapter has also interpreted all the sub-factors and has provided explanations of the relative weight of measuring performance quality.

Linking the study variables is important in this chapter and this has been introduced in the second part of this chapter. It focuses on introducing the strategic investment decisions and capital decisions in general. The study argues that these types of decisions including expansion, replacement, and renewal investment decisions have a considerable impact on the financial funds and the future satisfactory returns compared to risk taken. The thesis summarised the research variables' relationships in an integrated form of the investment decisions with IBC model assumptions to show how these variables can be interacted depending on several determinants such as the behavioural and psychological factors and the mechanisms of SIDs within firms. To build a coherent research context, the next chapter introduces the research methodology and design to link the first two theoretical chapters with the applied study in an appropriate methodological context.

## **CHAPTER 4: RESEARCH DESIGN: METHODOLOGY AND RESEARCH STRUCTURE**

### **4.1 Introduction**

In the previous chapter, the theoretical background and critical insights of the research were introduced and discussed. In this chapter, introducing the methodological coherence is an important requirement for the solid research as it organises the whole thesis and research process (Davis, 2012). The research design in this chapter reflects the coherence and research elements' connections through presenting the whole stages of the research. The behavioural transformation challenge is explained in this chapter in terms of the complex behavioural challenges and how to simplify them into an understandable transformational framework. It also includes the research paradigms and the philosophical stance through explaining the ontology, epistemology and methodology paradigms, and the philosophical stance. The deductive approach of this thesis essentially formulates the set of research hypotheses at the beginning and shows how the chosen methods can be applied and used in order to test the hypotheses in the subsequent stages.

The quantitative approach is a fundamental part of this chapter as the study focuses on this method to investigate the relationship between the variables. Choosing this approach depends on several solid reasons explained in this chapter and followed by the mechanisms chosen to apply this method. The chosen mechanisms or data collection methods represent in adopting questionnaire instrument as an essential technique, which can be consistently integrated with the IBC model even in other similar studies. In this aspect, the chapter shows the main stages of designing the questionnaire and the adaptability and flexibility of the IBC technique that simplifies the design process. The chapter also explains the integration process of the research hypotheses and questionnaire based on this model. To ensure the appropriateness of the questionnaire design process, several core concepts have been considered in this context such as reliability and validity, errors check, planned analysis and content criteria.

### **4.2 Research Design**

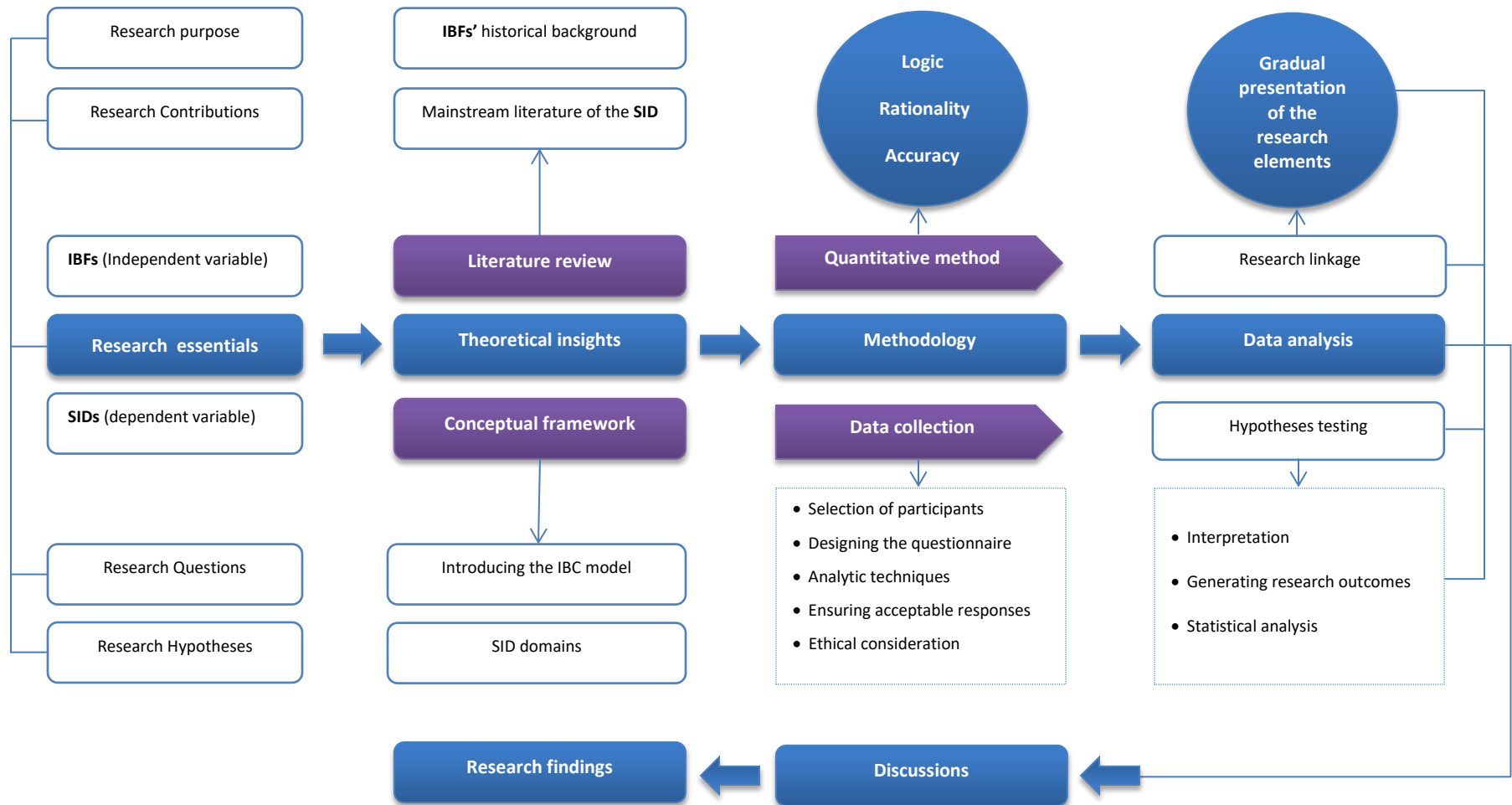
Research design is a reflection of the researcher's study plan that includes many academic elements, which contribute in directing the research in a specific path. These elements, as Creswell (2013) stated are typically reflected in qualitative, quantitative and mixed methods, which can be used as forms of inquiry. The significance of research design is to ensure that the



methods used in a research can answer the questions addressed in a logical and persuasive way (Nachmias and Nachmias, 2008). In the same context, the purpose of research design is to determine which form has to be followed in order to obtain the logical research outcomes. Many scientific forms have been adopted and developed in order to achieve different purposes such as exploratory (Stebbins, 2001), descriptive (Coldwell, 2004), explanation, prediction (Blaikie, 2009) and evaluation research (Ruben and Babbie, 2009).

The nature of the exploratory research makes this approach more consistent with the social sciences. A definition presented by Stebbins (2011) described this approach as a purposive process designed and used in the social sciences to explore the nature of psychological issues. Exploratory design is focused on recognising the nature of problem, thus formulating related hypotheses of research questions (Chisnall, 2005). It helps identifying the most appropriate way to design research elements and collect data required (Shields and Rangarajan, 2013). The research design of this thesis involves a set of interactive methods and approaches that aim to elicit information and the real impact of the main variables of this research. This structural objective is designed in a way that ensures obtaining effective outcomes as the Figure 4.1 shows.

**Figure 4.1: Research design and the main elements of the study**



**(Researcher's figure)**

The Figure 4.1 illustrates the research pathway, which is an integrated plan that combines several essential elements. The research mainly has two main variables represented in IBFs (independent variable), and the SIDs (dependent variable). The first phase involves the essentials of the thesis such as addressing the research problem, formulating the relevant hypotheses, research contribution and the purpose of the study. To provide a comprehensive theoretical framework, the mainstream literature and the conceptual background are presented to show what have been stated in the relevant insights, and to show the continuing gap in the area studied. Furthermore, establishing the interactive behaviour chain (IBC model) is an essential part of the theoretical framework, and for the subsequent chapters.

The theoretical framework paves the way for the methodology, which is based on the quantitative approach. This method represents a logical, rational and accurate approach for this study, as it will be introduced in the next parts of this chapter. In addition, data collection design will be presented in details to introduce selection of participants, designing the questionnaire, analytic techniques, ensuring acceptable responses and ethical consideration. Subsequently, data analysis will reflect the gathered information and provide them into descriptive and statistical forms. This analytical stage takes into account linking the research components as the interpretation of the information collected describe a comprehensive examination of research hypotheses, which are formulated to provide initial answer to the research questions. These stages then lead to obtaining a more clear vision that can be discussed in a subsequent stage. The integrated stages facilitate complementarity results that strengthen and develop the research findings (Onwuegbuzie et al., 2007).

#### **4.3 Behavioural Transformation Challenge**

Transforming behavioural implications into obvious facts and statistical analyses is a challenging issue that needs appropriate measurements to address these consequences. This challenge stems from the behavioural complexity, which has been defined from the organisational perspective as the ability of leaders and managers in engaging in a wide range of behavioural characteristics (Meindl et al., 1994). According to Lawrence, Lenk and Quinn (2009), individuals who have more complex behaviour are able to engage with a wide variety of the behavioural interpretations more than individuals with low complex levels. Zaccaro (2009) stated that there are four areas are related to complexity within firms, which are conceptual complexity, behavioural

complexity, strategic decision-making, and inspirational models. They recommend conducting further studies concerning understanding the complex relationship between leadership and strategic decision-making process in accordance with behavioural complexity to identify how leaders can maximise the benefits of the positive behavioural patterns.

In order to simplify the underlying impact of the IBFs as an independent variable in this study; the research creates the IBC model for this purpose as explained earlier. The IBC can transform the complex behavioural impact into more obvious interpretations, thus understandable outcomes. This research relies on applying the basis of this model in the methodological approach and reflecting the core concepts of this model in designing the questionnaire.

#### **4.4 Research Paradigms and the Philosophical Stance of the Research**

Identifying the core concepts of the research paradigm is an essential element of researchers (Ling, 2016). For the research purpose, focusing on the relevant paradigms provides a consideration of the relationships of essential elements such as research questions, conceptual framework and data collection processes (Popkewitz, 2014). In addition, it is a fundamental to ensuring a valuable research (Amaratunga and Baldry, 2001).

Designing the research in line with an appropriate paradigm is a critical and significant decision. The term “Paradigm” refers to a wide range of philosophical assumptions regarding the nature of the world (Ontology), and how individuals can understand it (epistemology) in shared assumptions formulated in a specific field (Maxwell, 2013). Mythology also is a fundamental philosophical assumption linked to these aspects, and it aims to organise the research and investigate the reality (Healy and Perry, 2000).

##### **4.4.1 Ontology and Epistemology**

Understanding the term ontology is a challenging issue during conducting a scientific research. This understanding clarifies the work basis and interpreting the findings reached (Crowther and Lancaster, 2012). According to Fellows and Liu (2015), ontology refers to the nature of being or existence, a set of assumptions in conceptual reality regarding the objects and events’ existence. Oxford dictionary (2017) defines ontology as a set of concepts and classes in a subject area, which describes their properties and the relationships between them. Academically, it focuses on how things can be investigated in research domain. Winter et al. (2006) describe ontology as an

understandable sense of human existence. The nature of ontology meaning puts this term at the top of the three main assumptions before the epistemology and methodology (Hammond and Wellington, 2012).

Epistemology can be defined as the science of knowledge derived from the philosophical perspective (Horrigan, 2007). In addition, Niiniluoto et al. (2004) define epistemology as the study of knowledge, which is based on normative or evaluative standards, criteria, knowledge sources, rationality, persuasion, and intelligence. Matthias and Edward (2010) state that epistemology is built on several domains such as the philosophical analysis of the knowledge and its relations to different concepts, beliefs and rationality, the source of knowledge and the concepts of knowledge.

#### **4.4.2 Methodology**

The paradigm of inquiry is a systematic investigation of phenomena derived from understanding the ontological, epistemological, and methodological assumptions. These assumptions help researchers to investigate the underlying facts of their research. It is essential to clarify the distinction between the terms methodology and methods. Methodology lies in research strategy, which outlines the approach that can be applied in order to conduct a research, while methods are related to means or tools of data collection (Howell, 2012). Methodological assumptions aim to identify, evaluate and rationalise appropriate methods in order to reach desirable outcomes (Wellington, 2000).

The philosophical position of research is built on a combination of ontological, epistemological, and methodological assumptions. The hierarchy of these assumptions stems from the nature of being and existence, nature or theory of knowledge and the theoretical and systematic analysis of the research.

#### **4.4.3 The Philosophical Stance of the Research**

Research paradigms traditionally consist of a number of realms; positivism, realism, critical theory, interpretivism or constructivism, and pragmatism. Each perspective is characterised by a unique view of the reality nature (ontology), what has been known regarding this reality (epistemology) and the way of obtaining the relevant knowledge regarding the perceived reality (Riazi, 2016). The following table shows a comparison of four prominent research philosophies.

**Table 4.1: comparison of four prominent research philosophies**

	<b>Positivism</b>	<b>Realism</b>	<b>Interpretivism</b>	<b>Pragmatism</b>
<b>Ontology: the researcher's view of the nature of reality or being</b>	External, objective and independent of social actors	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
<b>Epistemology: the researcher's view regarding what constitutes acceptable knowledge</b>	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data
<b>Axiology: the researcher's view of the role of values in research</b>	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
<b>Data collection techniques most often used</b>	Highly structured, large samples, measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative	Mixed or multiple method designs, quantitative and qualitative

(Thornhill et al., 2009)

Positivism has been described as an approach that aims to using scientific methods of natural knowledge in order to investigate individuals' behaviour in an objective manner (Delanty, 2005). Healy and Perry (2000) state that positivism relies on the quantitative method, whereas the other paradigms are essentially connected to the qualitative approach.

Critical theory paradigm is critical insights and thinking as some of the prominent theorists and philosophers define it such as Herbert Marcuse, Max Horkheimer (Fuchs, 2015). The basis of this approach is to enable researchers reflecting their views into their writing, enhancing the readers' awareness concerning language used and the critique presented (Ng, 2014). The purpose of this paradigm is to study the social context in a dialectical approach that absorbs different

perspectives regarding the exploitation, political economy, domination and ideologies (Fuchs, 2015).

Interpretivism or constructivism aims to interpret research basics into a solid qualitative philosophical framework. According to this approach, scholars assume that interpreting the reality can be reached by the social elements such as language, awareness and common sense (Myers, 2013). This approach is built on naturalistic methods such as conducting interviews and observational techniques. In addition, this approach can be also used in quantitative research as it implicitly interprets the relationships between research variables and phenomena by providing philosophical and critical insights.

The main variables of this research are the IBFs (independent variable), and the SIDs (dependent variable). Investigating this association essentially requires an appropriate methodological approach to measure the underlying impact of the behavioural factors on SIDs. The philosophical approaches of positivism and interpretivism paradigms are close to this study concerning the quantitative method used in examining this significant relationship, and the flexible interpretive approach of interpretivism.

#### **4.4.4 Deductive Research**

Research can be characterised in deduction or induction forms. The distinction between these two broad approaches depends on the nature of the research. In deductive research, the deductive reasoning works from general theories and then testing research hypotheses, observing phenomena and reaching the confirmation stage (Ruane, 2016; Nestor and Schutt, 2014). The inductive approach starts from probability, uncertainty and approximate reasoning approach, subsequently; it is reflected in thoughts that are more general and represented in a theoretical form (Feeney and Heit, 2007). Richard (2015) emphasised that in deductive research, formulating hypotheses is an indispensable aspect in the social sciences research. He stated that testing the research hypotheses is a reachable when the researcher understands how he can link the research questions with appropriate initial answers to these questions through relevant hypotheses. Deductive approach has been considered as an appropriate approach for quantitative method (Wardani and Kusuma, 2020).

Deductive research is an appropriate approach to this thesis due to the nature of this philosophy. Many researchers stated that this approach develops theories through relevant and logical hypotheses, and testing these proposed thoughts through empirical observation (Crowther and Lancaster, 2012; Lancaster, 2007). This perspective is consistent with this research, which aims to confirm and examine the hypotheses generated as a final stage (Bernard, 2011).

According to Gratton and Jones (2010), deductive research can be conducted through several stages, which are:

1. Identifying the theories used as relevant literature to the research.
2. Statements deducted from the theoretical background support formulating research hypotheses that identify the relationships between research variables.
3. Data collection stage, which is a significant process in testing research hypotheses.
4. Using research findings to confirm, modify or refute the theoretical assumptions and proposed answers of the research depending on hypotheses testing.

#### **4.5 Quantitative Research Method**

In social sciences, quantitative method is widely used due to the relevance of this technique to the systematic practical investigation of phenomena through statistical, analytical tools (Given, 2008). This approach is used in a wide range areas as an appropriate method to psychological, behavioural, sociological, political and business sciences (Suen and Ary, 2014; Daft and Samson, 2014). There is a considerable amount of criticism of which technique should be used under different conditions and research nature. In this context, a number of academics emphasised and justified that such method is an appropriate for studying the relationships between independent and dependent factors (Esser and Vliegthart, 2017' Jenkins-Smith et al., 2017).

This study can be categorised into behavioural research examination. In these types of research, measuring and observing the underlying behavioural implications can be examined through the quantitative approach which needs formulating appropriate hypotheses that provide initial perspectives of the research variables (IBFs and SIDs) (Suen and Ary, 2014).

Quantitative approach is normally applied to collect data through methodological tools such as questionnaires and surveys to be measured in statistical and analytical objective way. This examination is applied on particular group of people (population) in specific phenomenon



(Muijs, 2010). This thesis has two main variables; the IBFs (independent variable), and the SIDs (dependent variable). Quantitative method examines and measures the interrelationships between these variables within population. According to the research guides of University of Southern California, quantitative approach is reflected in numbers, logical and rational objective data gathered, which are considered as appropriate characteristics of this thesis (Research Guides, 2017).

In quantitative research, the significant characteristics of this method provide reliable and accurate analysis of studies (Van Raan, 2013). The main features of this approach are consistent with this thesis, especially in the nature of variables examination, hypotheses testing, data collection tools and statistical analyses (Muijs, 2010). Johnson and Onwuegbuzie (2004) summarised several characteristics of this method as it is shown in the Table 4.1.

**Table 4.2: The strengths and justification of choosing quantitative research**

<b>1</b>	Testing and validating already constructed theories regarding how and why phenomena occur
<b>2</b>	Testing hypotheses that are constructed through the data. It Can generalise research findings when the data are based on random samples of sufficient size.
<b>3</b>	Can generalise research findings when it has been replicated on many different populations and subpopulations.
<b>4</b>	Useful for obtaining data that allows quantitative predictions to be made.
<b>5</b>	The researcher may construct a situation that investigates the influence of many variables, allowing variables to be in cause-and-effect relationships.
<b>6</b>	Data collection using some quantitative methods is relatively quick.
<b>7</b>	Provides precise, quantitative and numerical data.
<b>8</b>	Data analysis is relatively less time consuming (using statistical software).
<b>9</b>	The research results are relatively independent of the researcher. For example, effect size and statistical significance.
<b>10</b>	It may have higher credibility with many people in power such as administrators, politicians and people who fund programs.
<b>11</b>	It is useful for studying large numbers of people.

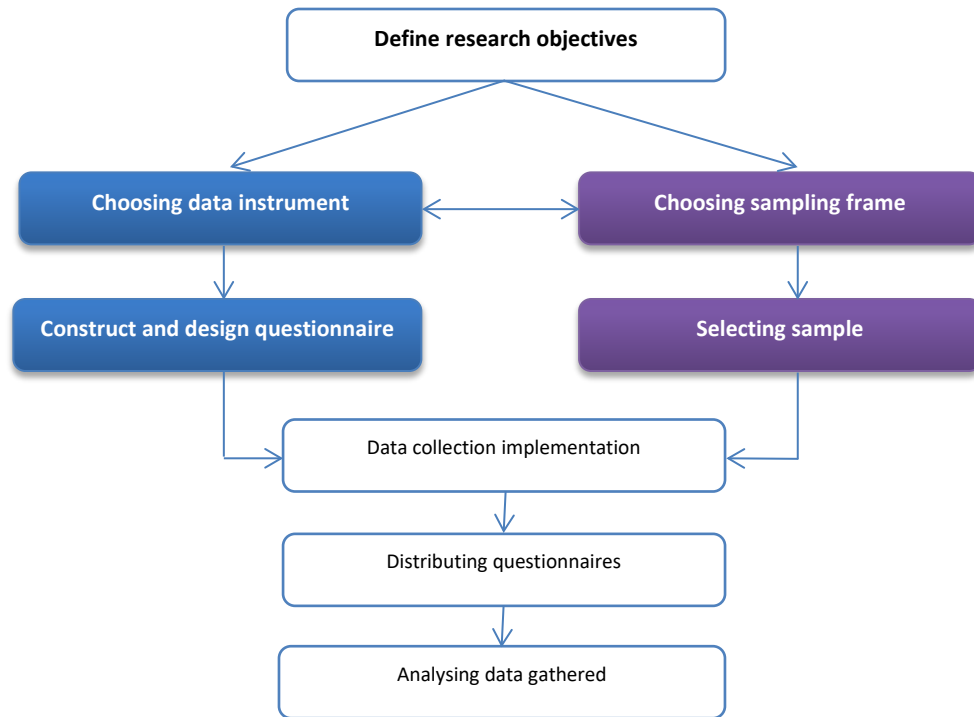
**(Adopted from Johnson and Onwuegbuzie, 2004, p.19)**

In addition to these characteristics, quantitative research identifies the potential validity threats of the proposed study by conducting experimental study (Creswell, 2013). In fact, before distributing questionnaires, this step could draw and provide significant feedback from the participants, thus the researcher can revise some questions, statements or measurements. The research guides of University of Southern California shows further characteristics of the quantitative research. For example, (1) all parts of a research can be carefully designed before collecting data, (2) data can be analysed and presented in statistics, tables, figures and many different non-textual forms and (3) research could generalise theories more widely, expect future consequences and examine the influential relationships.

#### **4.6 Data Collection Techniques**

In this significant stage, the researcher has to be aware and careful in choosing the most appropriate instrument for the study that meets the aim of the research (Monsen and Van Horn, 2007). As this thesis aims to elicit the information regarding the nature and extent impact of IBFs on the SIDs, selecting the research instrument should ensure the adequate and relevant instruments used to gather data required. Olsen (2011) reflects his thoughts about this process by indicating that the excellent scientific research should generate datasets, which is useful for scientific arguments. This proposed stage is traditionally designed within a comprehensive analytical framework. Groves et al. (2011) proposed relevant stages linked to data collection methods, which is shown in the Figure 4.2.

**Figure 4.2: Data collection process**



**(Adopted from Groves et al., 2011)**

The Figure 4.2 introduces traditional data collection process, and general mechanisms applied in quantitative research. I argue that coherence and cohesion are substantial elements of any successful research. This thesis links the research elements to be in a coherent format as shown in the research design (see Figure 4.1, research design and the main elements of the study). In data collection stage, the behavioural assumptions are reflected in the research questions, hypotheses and research objectives. This initial stage paves the way for choosing the most appropriate instrument, which is the questionnaire. The reason for choosing this tool lies in the questionnaire can be designed in flexible and effective ways that ensures gathering accurate, reliable and adequate information (McNabb, 2015).

The subsequent stage is distributing the questionnaires on the target sample frame in order to reflect the real information needed.

#### **4.7 Questionnaire Design**

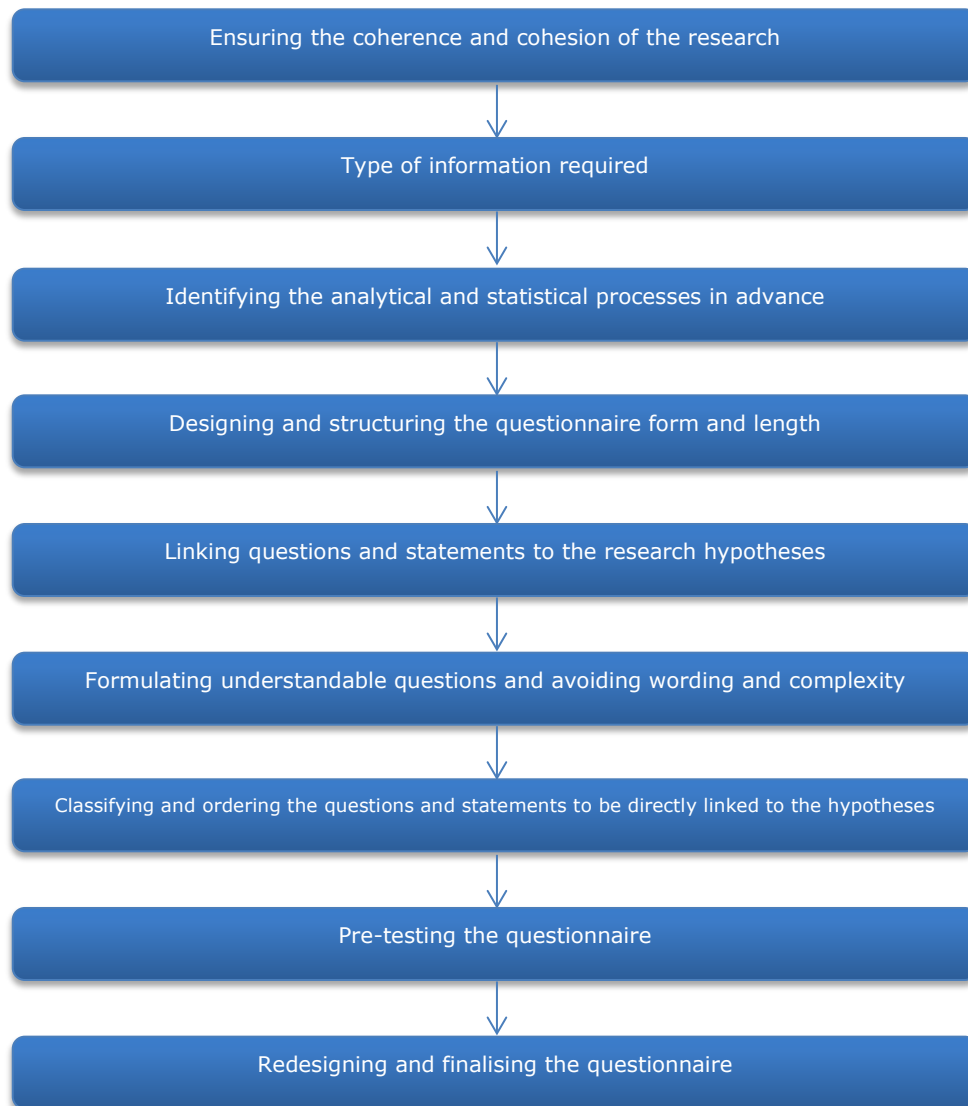
Designing the research in a logical order stems from presenting the relevant literature, addressing research questions, formulating the initial answers into proposed hypotheses and testing these

hypotheses (Gillham, 2008). In questionnaire design stage, the thesis sets out the association between the IBFs and SIDs, and reflects it into an appropriate form of data collection. To achieve a scientific, logical and accurate interpretation of this relationship, the research uses the questionnaire to reflect the main and detailed behavioural assumptions into this instrument. The questionnaire is communication reflector between the researcher and the respondents or subjects (Brace, 2008). In designing and developing questionnaire, the logical starting point should focus on linking the questions and statements of the questionnaire with the research aim, objectives and hypotheses (Gillham, 2008).

Questionnaires represent a significant part of the transformational aspect that reflects respondents' attitudes into numeric data forms. The rational formulation of questionnaires' statements should be derived from the research questions and proposed hypotheses to be logically assessed. These statements or questions should be carefully formulated in order to provide an accurate assessment framework based on the IBC model. Willis (2004) indicated that questionnaire designers emphasised that the questionnaire statements should be written more accurately than any other speech.

The fact that minor changes on the questions, statements or phrases could change a considerable meaning, thus inaccurate data gathered (Bradburn et al., 2004). Therefore, the questions are carefully designed to be consistent with research hypotheses, the behavioural assumptions of the IBC model and its assessment process (see chapter three). To ensure designing and distributing a consistent and reliable questionnaire, a set of stages should be taken into consideration as I argue that they are essential elements of the scientific behavioural and human sciences research. The Figure 4.3 shows these stages or elements.

**Figure 4.3: Questionnaire design elements**



**(Researcher's figure)**

I have incorporated these essential elements in designing the questionnaire to cover the comprehensive framework of the research objectives, questions and hypotheses. Questionnaire design elements are divided into 9 nine main components. Each aspect has to be carefully conducted to ensure reliable and accurate results. The coherence and cohesion of the research is a considerable demand of any persuasive speech that makes the research more consistent (Campbell, 2013; Smagorinsky, 2006). The process involves identifying the type of information required, and the potential descriptive structure and statistical packages that will be used.

Subsequently, designing the structure and questionnaire statement based on the hypotheses formulated. As the behavioural factors have a complex interpretation, the questionnaire is designed in a way that transforms the complexity to the simplicity as a significant requirement of designing any scientific questionnaire (Collinson, 2014; Giovannini, 2003).

Based on both the research hypotheses, and the IBFs and assumptions of the IBC, the questions are formulated in a way that enables the reader linking them easily and understand each part of the questionnaire. At the final stage of the design, the questionnaire pre-tested in order to validate the questionnaire and overcome the complex and time-consuming aspects before finalising it in an appropriate and understandable form (Gunkel, 2007).

#### **4.7.1 Length and Clarity of Questionnaire**

The questionnaire length has been highlighted in several studies in terms of its impacts on response rates. In this context, some studies state that the number of participants' responses decreases when the questionnaire design exceeds 12 pages (Dillman, 2011). On the other hand, some studies suggest that there is an effect on questionnaire response rates when the length is more than 4 pages (Yammarino et al., 1991). I argue that the length of questionnaire is a significant determinant of the response rates. This argument is built on the participants' feelings when they receive different questionnaires. The receiver here normally feels that the responsibility of completing a complex or long questionnaire would be increased, while the sample and reasonable questionnaire length could encourage the receiver in participating in such process.

I contend that the length, appearance and simplicity in designing the questionnaire are essential elements in enhancing the response rates. In this aspect, I agree with Monette et al. (2013), who emphasised that the response rates can be determined by the length of mailed questionnaires, participants' interest of the topic, participants' intelligence and their literacy in a specific area. Another significant factor in this issue is how long it takes to fill out the questionnaire. Wilson (2013) stated that there are no strict guidelines regarding the time should be spent in filling out the questionnaire. I argue that the reasons for that stem from the core knowledge, the length and study depth, and research methodologies that have different backgrounds and objectives. As a result, each research has unique requirements; however, some logical suggestions of the mainstream literature should be taken into consideration in questionnaire length issue to avoid the decrease of response rates.

The questionnaire designed in this study is 9 pages long, and it is proposed to be filled out from 20 to 25 minutes. Although the length is a significant factor of the time consuming in filling out the questionnaire, it can be argued that the clarity and complexity level of questionnaire contents are fundamental determinants in this context. The current questionnaire is carefully designed to achieve the research objectives that aim to examining the research's hypotheses, and in a way that ensures the simplicity of presenting the research statements.

As the most participants of this study have similar background combined for accounting, business, management and economics areas, I would argue that the organisational behavioural knowledge poses a significant challenge for both the researcher and the population of the study. This challenging issue led to simplifying the research statements concerning the behavioural terminologies and psychological context. In seeking to better understanding of what is the real relationship between the IBFs and SIDs, the statements were designed to presenting two main behavioural features; the desirable and undesirable assumed impact of the IBFs. The clarity extent is technically measured by the pilot questionnaire which is distributed to obtain valuable feedback in which areas of the questionnaire's statements need to be changed or edited. To achieve a rational and appropriate presentation of the questionnaire, the research's statements should be amended to be in line with the pilot findings and feedback received (Benson and Filippaios, 2016). In this process, the validity and reliability also have to be checked before implementing the feedback received (Ganguly et al., 2016).

#### **4.7.2 Instructions**

To provide clear and understandable contents of the questionnaire, the instructions were provided at the beginning of the questionnaire to help participants understand how to fill out the questionnaire confidently. Starting with clear instruction and introductory comments are significant requirements in this instrument (Babbie, 2015). For this reason, the research includes two main instructional parts that cover the entire questionnaire. Firstly, the cover page that implicitly includes some instructions of how to contact the researcher if there is any confusion occurred during the filling process. Secondly, the short instructions that guide the participants in answering and ticking the research statements' answers where appropriate. As the questionnaire depends essentially on the Likert scale, the instructions of the second section of the questionnaire are not complicated.

#### **4.7.3 Anonymity and Confidentiality of information**

The participants of this research have the right to know that their answers, behavioural attitudes and information of accounting issues will be treated in a responsible manner. This means that all information provided in the questionnaire is under the anonymity conditions and participants should know that their information are confidential. In this context, it is important to know the distinction between anonymity and confidentiality. Anonymity refers to the impossibility of knowing the private information of the participants such as their names, emails and address (irb.vt.edu, 2017). Confidentiality means that data collected from participants will be not linked to individual and it is not made public (Monette et al., 2013). In other words, anonymity exists when the researcher cannot connect the participants' answers to individuals who provided the responses, but in the confidentiality cases, the researcher can link these variables and know the participants identity without providing and sharing any information about them for confidential purposes (Edwards et al., 2007).

In this research, the questionnaire instrument shows clearly that all the information provided will be treated confidentially. Researchers must clarify to the participants that their confidentiality is preserved as many participants seek a safe participation and to be in line with the ethical consideration (Cowburn et al., 2016).

#### **4.7.4 Structure of Research's Questions and Statements**

Representing the research framework and objectives in the questionnaire as a complementary part should be conducted in an appropriate formulation. The general information and Research statements (individual behavioural factors and strategic investment decisions) were designed to be in line with the mainstream concepts and leading research recommendations concerning this issue. These recommendations emphasise that questions that formulate in a poorly phrased way, wrong questions and in a wrong order may lead to obtaining worse answers than it is proposed (Brace, 2008). In additions, research statements should not be formulated in complicated and wording ways as the simplicity and clarity will not be achieved in this case (Mangal and Mangal, 2013).

This questionnaire consists of two main sections; the general information that include general multiple choice questions, and the research statements that reflect the core assumed relationship between the research's variables using rating scale statement integrated in the IBC model. The



first general part is to enhance the study framework and provide a more comprehensive coverage of the research population. The second section is the heart of the research variables' examination. It transforms the interrelations of the IBFs and SIDs into a measurable section that includes all the assumed IBFs proposed in the IBC model and their influence levels on the individuals' performance thus the quality of SIDs.

#### **4.7.5 Questionnaire's Statements and Research Hypotheses**

In order to examine the research hypotheses, the questionnaire statements are formulated in accordance with the Interactive Behaviour Chain and to be analysed through descriptive analysis and statistical analysis through Chi-square that. According to McHugh (2013), Chi-square is one of the most useful statistics for testing hypotheses. McHug stated that the appropriateness of using of this technique stems from meeting the main requirements of this technique which are the assumptions, justifications and performing significance test.

The formulation of the IBC assumptions is inspired of the assessment process framework of the IBC model that can be integrated in a wide range of fields as it is mentioned earlier in the chapter 3. In this study, the research takes into consideration the bias issue of the participants' responses. The mechanisms applied in this questionnaire are designed in reliable ways depending on the eight essential behavioural factors. In more clear words, the research statements include positive and negative assumed features of the IBFs. The research refers to these features as desirable and undesirable behavioural determinants.

The combination between these different factors is presented as it is shown in the IBC assumed sub-factors to be clearer to the researcher and readers, and they are designed to be randomly mixed for the participants as they do not realise the original classifications of the IBC assumptions. This representation is to ensure that the research statements are in a mixed form to avoid the biased responses. In the academic sense, the participants of many social sciences' studies are not always accurate in their answers as many of them have biased perspective "a tendency of giving desirable answer" (Coon and Mitterer, 2016). In addition, in the social desirability context, the research statements should not be formulated in a wordy way that elicits the response from the participants (Sekaran and Bougie, 2016).

The questionnaire has been carefully created in a valid, reliable and measurable design form that ensures a successful examination process of the research hypotheses. As it can be noticed from the introduction chapter, the research hypotheses were formulated to be initial answers of the study and in accordance with the research objectives and the IBC technique. The adaptability of IBC model paves the way to the research hypotheses to be easily integrated into the statements of the questionnaire.

The similarity of integrating the Likert scale in both research hypotheses and the IBC model plays a significant role in simplifying the relationship between these two elements. As a result, applying data analysis of research statements leads to examining the 8 hypotheses and the 48 sub-factors of the IBC behavioural assumptions. This extensive research examination shows detailed information about each IBF and its sub-factors through the whole participants' answers. This information is used for hypotheses testing purposes and confirming the adaptability of the IBC technique to be applied in further behavioural studies in the future.

#### **4.7.6 Response Rates**

Ensuring the success in obtaining the achievable response rates and the quality of data received is a significant part of designing and distributing the questionnaire. In order to achieve a reasonable number of responses, the questionnaire was designed in a way that provides many essential techniques to encourage participants answering all the questionnaire's statements.

The first impression for individuals in receiving questionnaire is focusing on the cover letter. An essential part of designing the cover letter is indicating and clarifying the purpose of the research and its importance (Connaway, and Powell, 2010). Another significant element is to clarify that how this study can be an additional contribution to the targeted firms and how it can be useful for their businesses (Leon, 2003). In this letter, the researcher should tell the respondents that their participation is a fundamental part of achieving the study objectives by convincing them to provide rational and unbiased answers (Parasuraman et al., 2006).

The structure of the questionnaire can also be a significant determinant in encouraging individuals to providing the required response rates. This study contends that the questionnaire structure plays a key role in increasing the response rates by positioning the research aim and making the overall structure in a sample and clear way (Smith, 2017). In this aspect, further

points have been stated by Azzara (2010) that should be taken into consideration in structuring the questionnaire such as using consistent instructions that guide them providing the answers being sought and considering the length of questionnaire instrument.

#### **4.8 The Adaptability and Flexibility of the IBC Technique**

The IBC model as stated earlier is based on a wide range of behavioural factors (IBFs) that have their unique assumptions in work environment. The nature of this approach enables many scientific fields adapt this technique to be integrated in the questionnaires in examining to what extent the performance level can be affected by the IBFs within firms. For example, this approach can be used in accounting, management, economics, psychology, human behaviour and more. The possibility of adapting the IBC model in different studies can be achieved, and some changes of the IBFs' assumptions can be conducted.

An essential and significant part of any questionnaire designed is to be structurally linked to the research hypotheses (Remenyi, 2012; Gunkel, 2007). The hypotheses formulated in this research based on the proposed behavioural assumptions of the IBC model interpreted by the researcher. Furthermore, they were formulated to provide an initial answer to the relationship between the IBFs and investment decision-making process. This linkage simplifies and puts the research in an organised and logical structure. IBC approach is a responsive technique to the eight research hypotheses as the next part shows.

##### **4.8.1 The Integration of Research Hypotheses and Questionnaire Based on the IBC Model**

Eight Hypotheses were tested through several stages. In terms of integrating these hypotheses with relevant and, valid questions and statement, the questionnaire is designed by including the IBF assumptions formulated in the Table 3-1, assessment process of the IBFs (As it can be seen in the third chapter, 3.3.1). This process allows the researcher; (1) linking the research hypotheses with the questions, (2) providing the IBF interpretation to be clear and more understandable, (3) enabling the relevant statistical packages analyse and test the hypotheses based on Likert scale measurement and (4) transforming the complex individual behavioural concepts into more simplified framework.

To show this integrated process, the Table 4.3 presents how the questionnaire statements are adaptable with the research hypotheses.

**Table 4.3: Questionnaire design appropriateness (personality factor as an example)**

H 1	Personality traits positively affect individuals' performance in a high level when firms enhance some sub-traits such as creativity and innovation, cooperation and assertiveness, and avoid carelessness, impulsivity and bias.											
Key Response	Desirable Performance Enhancement						Undesirable Performance Impact					
	Attitude	Positive		Neutral	Negative		Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1	Degree	1	2	3	4	5
	Assumptions						Assumptions					
IBF 1	Hypothesis 1 (1-1) Creativity and Innovation (openness)						Hypothesis 1 (1-4)Carelessness (Opposite Conscientiousness)					
	Assumed statement should be inserted here that reflects the positive proposed relationship between this behavioural characteristic and strategic investment decisions.						Assumed statement should be formulated here that reflects the negative assumed relationship between this undesirable pattern and SIDs.					
IBF 1	Hypothesis 1 (1-2)Cooperation (Agreeableness)						Hypothesis 1 (1-5)Impulsivity (Neuroticism)					
	Cooperative pattern + SIDs						Impulsive personality + SIDs					
IBF 1	Hypothesis 1 (1-3) Assertiveness (Extraversion)						Hypothesis 1 (1-6)Bias					
	Assertive pattern + SIDs						Biased personality + SIDs					

Based on the first hypothesis of the research, the statements of examining this hypothesis (from 1-1 to 1-6) should be formulated in a way that ensures providing appropriate, objective and logical connection between the independent and dependent variables. This formulation is applied in the rest of research hypotheses and can be applied in different further studies, which conduct for different purposes concerning the behavioural impact on individuals' performance. Minor changes might be applied in integrating the IBC philosophy with other behavioural issues due to the flexibility and adaptability of this approach.

Formulating questionnaire statements is one of the most critical stages in questionnaire development process. The questionnaire structure consists of nine main sections that include the general information and other eight core sections regarding the IBFs' assumptions. The first section covers some general information of respondents that pave the way to the rest of questions and provide a more comprehensive framework. They were designed to add a valuable basis of

the research by clarifying some relevant types of information such as age, position, experience and related questions.

The questions were formulated to be as simple as possible due to some behavioural questions' similarity such as attitudes and beliefs (Bryman, 2015). In addition, transforming the complex questions into simple and understandable questions are essential requirement of the scientific research (Kumar and Meenakshi, 2011; Bailey, 2008).

#### **4.8.2 Scale**

This thesis uses Likert scale as one of the most widely used techniques in measuring individuals' attitudes towards any phenomenon (Ary et al., 2013). This rating scale was presented by Likert in his prominent study; A technique for the Measurement of Attitudes (Likert, 1932). This scale provides the opportunity to respondents to express their attitudes through rating scale that measures the extent of respondent's agreement in different behavioural, social and business issues (McNabb, 2008; DiIorio, 2006). Several statistical studies have confirmed that the flexibility of the wide range options in Likert scale provide higher reliability than other categorical answers using Yes or No options (Madu, 2003).

The agreement and disagreement levels show five to seven rating responses that can be selected by participants depending on their perspectives (Kline, 2013). In this research, Likert scale is integrated in a dual response process of the IBC model as shown in the 3-3-1-1 part of this thesis (See the Figure 3.3 for more details). This process considers that in the desirable behavioural assumptions, the strongly agree option reflects 5 in the rating scale, while strongly disagree is resulted only in 1. In contrast, in the undesirable behavioural factors, the option 1 represents the strong agreement, while the option 5 reflects the strong disagreement. The reason for that lies in the opposite trends of the desirable and undesirable behavioural assumptions need opposite rating scores to evaluate the performance level in the different rates.

In addition to this essential scale, the dichotomous scale which relies on two possible answers is applied in some general questions that have Yes or No answers. Also, the nominal scale is considered in designing some questions that have more than two possible answers such as the age category and individuals' work positions.

#### **4.8.3 Reliability and Validity, Errors Check and Planned Analysis**

A number of essential issues should be considered in designing a questionnaire such as ensuring reliable contents of the questionnaire, checking for any possible errors and planning data analysing in advance.

Reliable questionnaire refers to consistency, credibility and stability of research findings (Li et al., 2013). In designing questionnaire's statements, reliability should be tested to ensure the best fit with the research (Hanna and Dempster, 2016). Several integrated elements are considered concerning reliability in designing the questionnaire such as ensuring the internal consistency. Internal consistency of the research relies on ensuring that the statements formulated have distinctive features and they are not repeated (Salkind, 2010). This procedural design helps the researcher to analyse each section in high accurate results due to the differentiations of each IBF addressed.

Validity refers to the accuracy and trustfulness of the data produced by the research instrument (Questionnaire). It is a well-founded measurement which likely corresponds accurately to the real world. In this context, the research questionnaire's statements were carefully designed and formulated in accordance with the research objectives and hypotheses. In addition, the questionnaire was designed a way that ensures covering the 8 IBFs and 48 sub-factors and the Likert scale was integrated in the questionnaire as a valid scale that can be statistically and accurately analysed including the 48 sub-factors. This validation was proven and accomplished through a comprehensive methodology design that has been performed taking into consideration the pre-testing and pre-analysing of the pilot study to be conducted with the highest possible accuracy.

Error check is an additional process that has to be precisely performed by the researcher by ensuring that all the questions are presented in a logical way. Error check measurement provides a revision of the possible errors represented in respondent bias and variable errors (variance) in repeating the same statements (Kasprzyk, 2005). The bias of responses occurs normally due to the difference between respondent's answer and the real information. This could be occurred when the participant states some information, which entails different characteristics with the real stance due to the impulsivity or the carelessness.

In this research, measuring the influence level of the IBFs on SIDs is measured through the IBC model that determines the individuals' performance based on eight IBFs. The bias measurement here lies in formulating different behavioural assumptions for each behavioural element. This advantage helps the researcher obtain reliable and accurate data by presenting main six characteristics or behavioural assumptions of each IBF. For example, in IBF 1, the personality impact is examined by reflecting the six sub-traits into the questionnaire statement involving creativity and innovation (openness), cooperation (agreeableness), assertiveness (extraversion), carelessness (opposite conscientiousness), impulsivity (neuroticism) and bias. If the biased answer occurs in one of the positive or negative patterns, that means the error rate will be 2 %:

$$\frac{1}{8 \text{ IBFs} * 6 \text{ sub-traits}} = 2 \%$$

Although this percentage reflects a slight variance, the researcher formulated these sub-traits by ensuring the simplicity and avoiding the complexity in the questionnaire statements in order to avoid such possible errors.

In questionnaire design stage, several processes have taken place over designing it that aim to ensure the compatibility of the questionnaire and the assumed graphical and statistical analyses. Analysing the questionnaire consists of a number of analytical processes which aim to summarise, organise and transform data (IBFs and SIDs) into reliable and accurate information. The questions and statements were designed in a way that ensures building a solid questionnaire form and designed in line with the research objectives and hypotheses. The planned analysis of this thesis at questionnaire designing stage entailed several processes. The most significant stages are:

#### **4.8.3.1 Comprehensive Review**

With the purpose of conducting a valuable and reliable research, the researcher did a quick review on all the responses and results that have been obtained. The purpose of this stage is to confirm that each questionnaire has been filled out appropriately and it can be tested as the nature of questionnaire design is preferred to be all completed. The reason for that is if the respondent does not answer all the questions or choose some of the relative weight of the statements, the performance level based on the IBC model will be affected.

#### **4.8.3.2 Analysis Preparation**

In this stage, data collected were turned into actionable information. The proposed analytical framework in this stage was formulated based on pre-designed tools that provide precise and logical analysis. These tools present the graphical analyses and statistical forms. The graphical presentation aims to show the trends of the research results in obvious forms such as bar charts and tables. Another significant part of the analytical framework is using a powered statistical package, which is the Statistical Package for the Social Sciences (SPSS). This package provides a more complex statistical analysis that presents useful presentation of the research results and hypotheses testing (Wagner, 2016; Burns and Burns, 2008).

Applying SPSS analysis involved processing the missing values that occur due to incomplete questionnaires. According to the IBM (2017), the missing values of dataset have an impact on the accuracy of the results. Also, if there is a deviation of missing values and non-missing values, the results will be unreliable and confusing. As a result, the research depended only on the completed questionnaire to avoid any confusion might be occur.

#### **4.8.4 Content Criteria**

Research questionnaire is developed based on several features that characterise it and make it scientifically distinctive. These integrated criteria are:

Reliability and Credibility:

- The theoretical background inspired
- Theories, approaches and models integrated in the IBC model
- Behaviour conceptions interpreted in the behavioural assumptions of the IBC model
- Methodological approach appropriateness

Originality:

- Providing unique subjective concepts related to the behavioural impact
- Producing a new adaptive model
- Providing assumptions' interpretations of 48 behavioural sup-traits that can be scientifically examined in different issues and conditions

Usefulness:



- The pre-organised questionnaire scientifically and objectively can achieve the planned objectives that based on providing reliable and accurate examinations of the association between the IBFs and SIDs
- The quantitative data gathered by this design can be used to compare with other population or sample that represent similar research
- Creating new model integrated in questionnaire design could pave the way for developing this model and enhancing it after its examination

Adaptability:

- The IBC technique guarantees the flexible and adaptive data analysis systems due to the integrated sub-systems such as Likert scale and the Assessment Process of the IBC
- The two main domains in this design (desirable performance enhancement and undesirable performance impact) can be applied in many other behavioural issues in business area due to the flexibility of this integrated approach

#### **4.9 The Population of the Research**

This research is applied in the Libyan service companies in Tripoli. According to the Administrative Control Authority, these companies have relative regular financial and administrative reports and represent one of the most significant sectors in Libya (Aca.gov.ly, 2018). Choosing the Libyan service companies is based on a number of criteria that ensure gathering the required data and applying the research on a significant sector. They were selected on three rationales. Firstly, the availability of applying such research, where the IBFs investigated within the chosen firms represent a significant category of the Libyan human resources and they are reachable. The companies are located in Tripoli, the capital city. Secondly, they have regular connections and procedures with the formal authorities such as Administrative Control Authority and Libyan Tax Authority (Aca.gov.ly, 2018; Finance.gov.ly, 2018). Thirdly, the variety of the firms selected enhances reflecting different dimensional perspectives of the research issue as they have different structure and systems of the SIDs.

According to the Libyan Audit Bureau, the Libyan service companies represent a significant part of the Libyan economy after the oil and natural gas sector (Libyan Audit Bureau, 2018). In their annual report of 2017-2018, the Libyan Audit Bureau has introduced the economic features of

the Libyan sectors including the registered companies. They classify the service companies with the production companies as the following:

**Table 4.4: The number of registered companies in the Libyan Audit Bureau in 2018**

Sector	Number of registered companies
<b>Energy</b>	15
<b>Investment</b>	9
<b>Banks and insurance</b>	18
<b>Production and services</b>	184
<b>Total</b>	226

**(Libyan Audit Bureau, 2018)**

The Libyan Audit Bureau has indicated that the production and service companies characterise a significant relative weight of the overall registered companies as they represent 81% of the total companies. To classify the relative weight of the total companies' assets, the energy, banks and insurance sectors have a significant weight comparing to the Libyan service companies. In this respect, the Libyan economic ministry seeks to develop the service sector in the coming years instead of focusing on the production sector. These policies derived from the necessity of finding a balanced framework, which enhances the growing endeavours of developing and investing in the service companies. These endeavours are additional support to research setting selection as they have a reasonable diversity in terms of the number of firms and the different work nature.

The research sought to explore and investigate the association between the research variables in large contexts to reflect how the IBFs of the chosen category can affect the SIDs. Therefore, helping or hindering the effectiveness of this sensitive process. It also sought to involve a reasonable number of participants in this relationship to reflect the complexity and richness of the IBFs' characteristics into a credible basis.

The population of the Libyan service companies chosen are as the following:

**Table 4.5: The study population of the Libyan service companies**

<b>No</b>	<b>Companies</b>	<b>Number of population</b>
<b>1</b>	Libyan Post Telecommunications and Information Technology	74
<b>2</b>	Libyana Mobile Phone	82
<b>3</b>	Almadar Aljadid	62
<b>4</b>	Libyan Airlines	48
<b>5</b>	General Electric Company	112
<b>6</b>	General Company for Water and Wastewater (GCWW)	51
<b>7</b>	Price Stability Fund (PSF)	73
<b>8</b>	Libya Insurance Company	36
<b>9</b>	United Insurance Company	27
<b>10</b>	National Investment Company	31
<b>11</b>	Arab Union Contracting Company	19
	<b>Total</b>	<b>615</b>

#### **4.10 Research Sample**

Representing a research population is a significant stage of any study that investigates a large category of population. In order to determine a reliable and sufficient sample size, using a trusted sampling technique is important to guarantee a sufficient representation of population. Omair (2014) pointed out that the selection of a representative sample is a significant part of quantitative research. In this context, he introduced an important clarification of the core meanings of four terms in sampling processes as follows:

**Table 4.6: Sampling framework from target population to sample**

<b>Target population</b>	This is a larger population - the results from a representative sample can be generalised to this level.
<b>Study population</b>	This is the accessible part of the target population from where the sample is selected.
<b>Sampling frame</b>	This is a list of all the members in the study population (may not be available in all cases).
<b>Sample</b>	Members of the study population who are selected for the study should be representative of the study and target population.

**(Omair, 2014)**

The target population of the current study is represented in all the Chairmen, Chief Executive Officers (CEOs), Chief Operating Officers (COOs), Chief Financial Officers (CFOs) and the accountants of the Libyan service companies. Study population of this research are the list of companies presented in the Table 4.5. They were carefully selected to meet the accessibility criteria of the research which are based on:

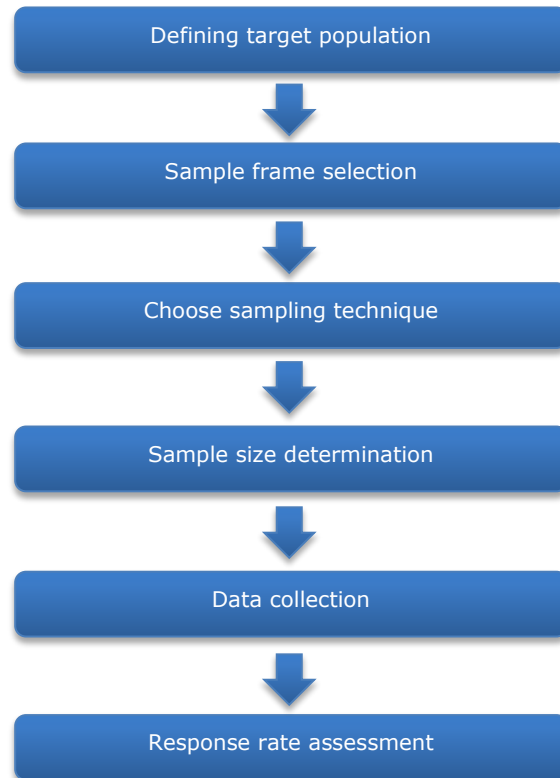
- 1- To be listed as a Libyan service company in the Libyan Audit Bureau and Administrative Control Authority.
- 2- To be accessible and reachable by the researcher.
- 3- The possibility of gathering data from the company.
- 4- The possibility of distributing questionnaires to the research population.

These criteria focus on the accessibility as the study population should be accessible and reachable. The sample of the research is determined and selected from the sample frame that includes all the available and reachable participants of the study population. Determining the sample of this research will be presented in the next part.

#### **4.11 Determining the Research Sample**

According to Taherdoost (2016), determining the sample size can be conducted through several stages as the following:

**Figure 4.4: Sampling stages**



**(Taherdoost, 2016)**

As the Table 4.5 shows, the population of the Libyan service companies is 615 which represent all the population of this research. The selection of sample frame is the subsequent stage where the research determines the accessible and reachable part of the target population. Choosing the sampling technique is a critical stage that requires accurate determination. The current research uses the Cochran's formula for sample size determination as it is widely used in social science research as it accurately determines the representative sample (Singh and Masuku, 2014; Neuman, 2013). Cochran's formula will be shown in the next part. The other stages focus on collecting data and assessing the participants' responses.

#### **4.11.1 Cochran's Formula for Sample Size Determination**

In 1977, Cochran developed a formula that helps researchers calculate the sample size and represents research population (Sarmah et al., 2013). Cochran stated that if the population size is

finite, the sample size can be slightly reduced and represents research population. The formula proposed by Cochran is as follows:

Formula 1: 
$$n = \frac{n_0}{1 + \frac{(n_0-1)}{N}}$$

Where:

$n_0$  is the sample size calculated from the formula 2.

$N$  is the population size.

To calculate the sample size of the research,  $n_0$  should be calculated first according to the formula 2 which is:

Formula 2: 
$$n_0 = \frac{z^2 pq}{e^2}$$

Where:

$z$  is the critical value selected of desired confidence level

$p$  is the estimated proportion of an attribute that is present in the population

$q = 1-p$

$e$  is the desired level of precision

When calculating the sample size of the research population where the degree of variability is not known, the following values are taken.  $p = 0.05$ , and the taking 95% confidence level with  $\pm 5\%$  precision. As a result, the sample size is:

$p = 0.5$  and  $q = 1-0.5 = 0.5$ ,  $e = 0.05$  and  $z = 1.96$

To apply these values in the formula 2, the formula will be:

$$n_0 = \frac{z^2 pq}{e^2} = n_0 = \frac{(1.96)^2 (0.05)(0.05)}{(0.5)^2} = 384.16 \approx 384$$

After finding the  $n_0$ , the first formula can calculate the sample size of this research where the population of this research is 615. Thus, the formula will be as the following:

$$n = \frac{n_0}{1 + \frac{(n_0-1)}{N}} = n = \frac{384}{1 + \frac{(384-1)}{615}} \approx 236$$

It is a result of  $384 \div (1 + (384 - 1) \div 615) \approx 236$

#### 4.11.2 Criteria of Participants' Selection

Choosing the best setting in carrying out a research requires considerable thoughts to ensure the validity and reliability (Evans and Rooney, 2013). The critical selection of the research participants is based on several criteria as the Table 4.7 shows.

**Table 4.7: Criteria of selecting the research participants**

No	Criteria	Additional explanation
1	<b>Diversity</b>	The nature of the Libyan service companies supports the diversity of companies. The firms chosen work in different areas including telecommunications, airlines, electric, insurance, investment and constructions. This standard helps gathering data form different workplaces, employees, systems and investment decisions to provide a more comprehensive framework of the research issue.
2	<b>Responsibility</b>	As the research focuses on the Chairmen, Chief Executive Officers (CEOs), Chief Operating Officer (COOs), Chief Financial Officer (CFOs) and the accountants of the Libyan service companies to be the participants in this study, it focuses also on the responsible duties of different organisational positions regarding the participation in SIDs.
3	<b>Impact</b>	Investigating the influential impact of the IBFs on SIDs is derived from the human behaviour of the individuals under investigation. In this context, reflecting individuals' practices within the firms would help the research gathering the real implications from diverse perspectives.
4	<b>Participation in strategic investment decisions</b>	Participants of this research are selected based on their significant positions in terms of the participation in SIDs. The different work systems and policies would produce different levels and decision-making authorities within the firms.
5	<b>Availability and accessibility</b>	Availability and accessibility of conducting and distributing the research questionnaires are crucial as they represent the main sources of research data. Logically, distributing the questionnaires to the accountants is normally easier than conducting it with the top management leaders such as the Chairmen, Chief Executive Officers (CEOs), Chief Operating Officer (COOs) and Chief Financial Officer (CFOs).

<b>6</b>	<b>Relevance</b>	The research assumes that all the participants are implicitly, partly or fully participated in SIDs and therefore they have relevant duties and responsibilities in these processes.
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#### 4.12 Pre-Testing the Questionnaire

The pilot-testing stage is a significant technique to ensure that wording, language and the questionnaire's contents are appropriate (Chapman et al., 2006). In terms of the reliability and validity of the research statements, Cargan (2007) pointed out that carrying out a pre-testing stage would be useful to revise any issues before distributing the questionnaires. He suggested a number of procedures that should be taken into consideration in such stage represented in:

- 1- Select a group of individuals who represent a similar setting to the real target population to obtain meaningful results.
- 2- Ensuring that all the questionnaire's statements of the research issues are covered.
- 3- Testing the reliability through checking the format of questionnaire statements and whether they are clear to the participants or they need some editing to be more appropriate.

In order to finalising and providing a final revision of the questionnaire, 15 questionnaires have been initially distributed to participants at similar positions to the real population chosen. The questionnaire is designed in a way that investigates the main 8 IBFs and their 48 sup-factors. In this aspect, the general impression of the desirable and undesirable statements was positive as the most statements were clear and understandable according to the participants.

Although some participants have limited knowledge regarding the behavioural factors and sub-factors, the researcher attempted to simplify and present the questionnaire's statement in a clear and comprehensible manner. The preparation and revision stages represent a critical challenge to achieving valid and reliable contents to providing appropriate information to participants to be in line with research hypotheses. As a result, the process of revising the research statements in the pre-testing stage is a significant requirement for this research.

A total of 15 questionnaires were sent out and 13 (86.66%) received back, after following up the distribution stage. The most common comments introduced by the participants were concentrated in the following statements:



**Table 4.8: The most common comments introduced by the participates**

No	Statements	Question Number
1	IBF 2-1 Stimuli Interpretation	7
2	IBF 2-4 Unrealistic Expectations	10
3	IBF 4-1 Reinforcement	19
4	IBF 4-4 Pain-Avoidance	22
5	IBF 4-5 Intrinsic and Extrinsic Rewards	23
6	IBF 6-3 Cognition Enhancement	33
7	IBF 7-4 Non-Financial Rewards	44

As the Table 4.8 shows, the most common comments of the participants were concentrated in the 7 main statements shown including the desirable and undesirable behaviour sub-factors. After receiving the participants' comments regarding the complexity, vagueness and some concepts, the statements have been paraphrased in a way that ensures the obviousness and simplicity.

#### **4.13 Distribution of the Questionnaire**

The researcher cover page of the questionnaire shows the following:

- Researcher information such as name, course, department and the university
- The title of the research
- A brief explanation of main variables of the research and their relationship
- The purpose of the research
- The anonymity and confidentiality
- The possibility of sending research findings and summary after the completion of the research
- Contact details of the researcher

The 11 Libyan service companies have been contacted before distributing the questionnaires. The coordination between the researcher and the companies in distributing the questionnaire on research participants was through two ways. First, through the meeting arrangements and contacts between the researcher and the authorised directors who are responsible for dealing with such procedures and providing permissions. Second, meetings and contacts have been arranged between the researcher and authorised directors through the Administrative Control Authority (ACA), the body responsible for achieving effective administrative control on the local Libyan

companies working in the public service sector. In fact, the coordination provided by the ACA allowed me to distribute my questionnaires easily and smoothly as the ACA supports the educational research and reports that would be positively reflected on the Libyan companies (aca.gov.ly, 2018).

The arrangements between the researcher and responsible directors and coordinators for each company were positively conducted before and during each process concerning distributing and collecting the questionnaires. The researcher asked the contact information for each responsible director or coordinator in each company in order to following up the questionnaire completion process.

#### **4.14 Following-up Stage**

Based on the two previous stages represented in determining the sample size and questionnaire distribution processes, following up the participant with their completion processes is the final stage before analysing data gathered. The research sample size was statistically determined by Cochran's formula for sample size determination to be 236, the number that reliably represents the population of the study (see Determining the Research Sample). This stage started after the distribution process and it is based on a number of procedures as follows:

- Contact information request for each responsible director or coordinator in each company
- Contacting the responsible directors and coordinators regarding collecting the questionnaires after a week from the questionnaire distribution process
- Contacting the directors and coordinators as a final reminder of collecting the rest of the questionnaires after two weeks from the distribution process and a week from the first reminder

Following-up stage involved collecting the 236 questionnaires through the previous procedures. Through this stage, the completed questionnaires were 220 that represent 93.22% of the overall questionnaires ( $220 \div 236$ ) which represents reliable and trustworthy percentage (Bailey, 2008).

##### **4.14.1 Response Rates of Questionnaires**

In following-up stage, 236 questionnaires were sent out on 11 Libyan service companies through three main stages represented in initial, first following-up and second following-up stages. Before sending out the questionnaires, the sample that has been statistically shown in the

previous part is calculated according to the relative weight of each company. The research argues that this distribution provides a logical calculation as each number reflects the subsample derived from the population of the companies and the overall sample size. For example, when calculating the subsample of Libyan Post Telecommunications and Information Technology, as the population in this company is 74, the subsample is drawn as the following formula:

$$(sample\ size) \times \frac{(the\ population\ of\ each\ company)}{(the\ overall\ population)} = 236 \times \frac{74}{615} = 28$$

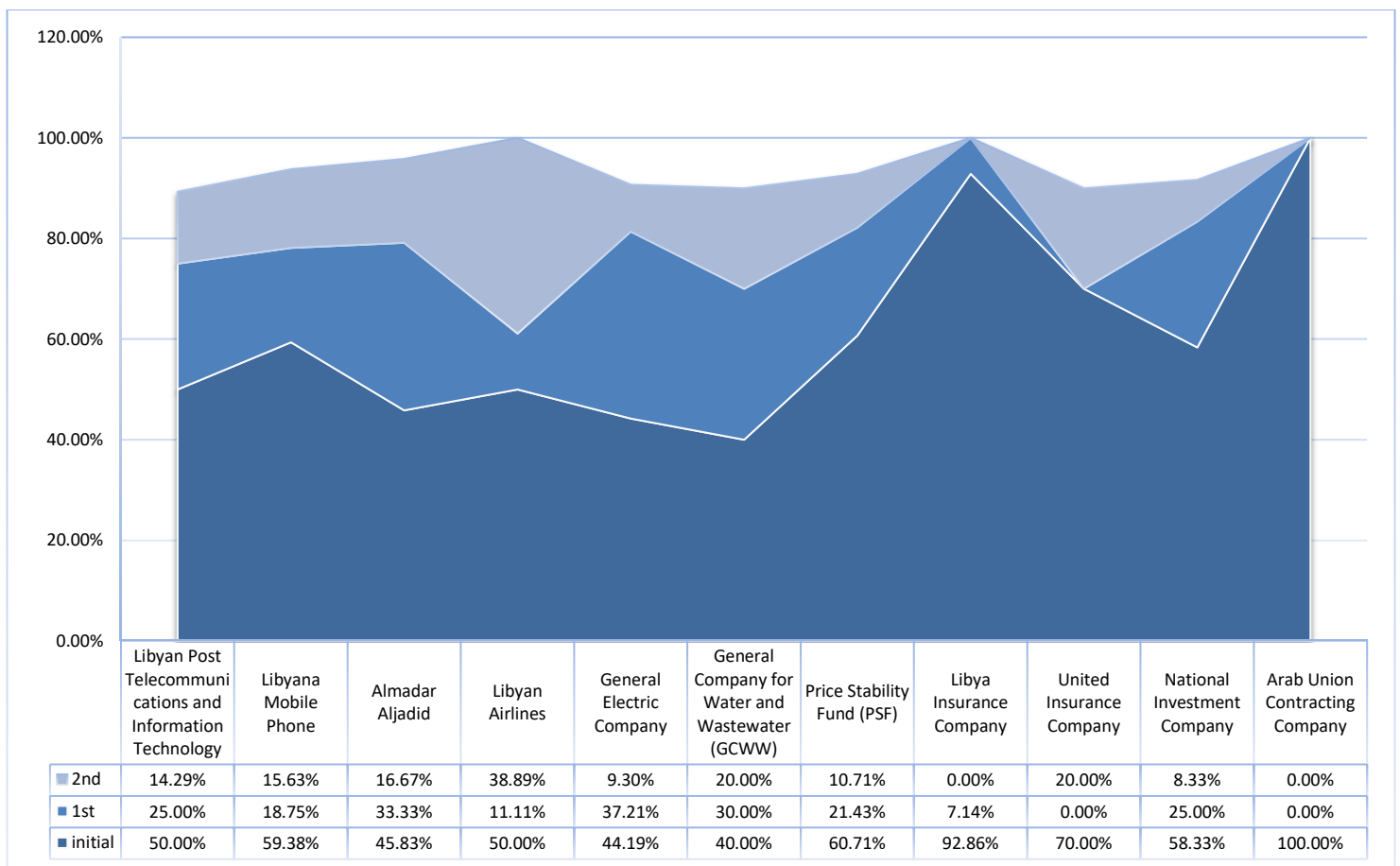
The total of these sub-samples equals the overall sample calculated earlier of 236 questionnaires. In initial stage, which represents the first response, the researcher has collected the first set of questionnaires that have been filled out from 11 companies. As the Table 4.9 shows, in the initial response stage, a total of 131 (55.51%) questionnaires have been collected which positively represent how the participants have been engaged with the questionnaires. The most responsive companies in this stage were Arab Union Contracting Company, Libya Insurance Company and United Insurance Company as their responses were 100%, 92.86% and 70% respectively. In the two following-ups stages, the rest of questionnaires have been gathered with different percentages to reach 55 questionnaires (23.31%) for the first following up and 34 questionnaires (14.41%) for the second. The total response rate was positive as it reached 220 completed questionnaires with 93.22% of the overall sample. In this context, three Libyan companies provided full responses when they reached 100% which are Libyan Airlines, Libya Insurance Company and Arab Union Contracting Company.

**Table 4.9: Sample relative weights and response rates of questionnaires**

No	Company	Population	Sample	Sent	Initial response		First follow-up		Second follow-up		Total responses	
<b>1</b>	Libyan Post Telecommunications and Information Technology	74	$236 * 74 \div 615$	28	14	50.00%	7	25.00%	4	14.29%	25	89.29%
<b>2</b>	Libyana Mobile Phone	82	$236 * 82 \div 615$	32	19	59.38%	6	18.75%	5	15.63%	30	93.75%
<b>3</b>	Almadar Aljadid	62	$236 * 62 \div 615$	24	11	45.83%	8	33.33%	4	16.67%	23	95.83%
<b>4</b>	Libyan Airlines	48	$236 * 48 \div 615$	18	9	50.00%	2	11.11%	7	38.89%	18	100.00%
<b>5</b>	General Electric Company	112	$236 * 112 \div 615$	43	19	44.19%	16	37.21%	4	9.30%	39	90.70%
<b>6</b>	General Company for Water and Wastewater (GCWW)	51	$236 * 51 \div 615$	20	8	40.00%	6	30.00%	4	20.00%	18	90.00%
<b>7</b>	Price Stability Fund (PSF)	73	$236 * 73 \div 615$	28	17	60.71%	6	21.43%	3	10.71%	26	92.86%
<b>8</b>	Libya Insurance Company	36	$236 * 36 \div 615$	14	13	92.86%	1	7.14%	0	0.00%	14	100.00%
<b>9</b>	United Insurance Company	27	$236 * 27 \div 615$	10	7	70.00%	0	0.00%	2	20.00%	9	90.00%
<b>10</b>	National Investment Company	31	$236 * 31 \div 615$	12	7	58.33%	3	25.00%	1	8.33%	11	91.67%
<b>11</b>	Arab Union Contracting Company	19	$236 * 19 \div 615$	7	7	100.00%	0	0.00%	0	0.00%	7	100.00%
<b>Total</b>		<b>615</b>	<b><math>236 * 615 \div 615</math></b>	<b>236</b>	<b>131</b>	<b>55.51%</b>	<b>55</b>	<b>23.31%</b>	<b>34</b>	<b>14.41%</b>	<b>220</b>	<b>93.22%</b>

The total collected questionnaires reflect high representativeness rate upon the sample. Rubin and Babbie (2016) stated that the response rate is considered in very good category when the response exceeds 75% of the overall sample (93.22% in this research). The researcher took several stages to maximise the response rates as it can be noticed in the gradual increase of the responses shown in the following figure. In the Figure 4.5, the dark blue area reflects the initial stage that shows the response rate, followed by the first following-up stage in the blue area, and then the light blue that represents the second following-up stage. The percentage in the vertical axis determines the overall proportion of the three stages being calculated as a cumulative total.

**Figure 4.5: Response rates of the 11 Libyan service companies**



**(Researcher's figure)**

#### 4.15 Ethical Consideration

Research ethical issues have been discussed for a long time as a significant requirement in the social sciences (Hammersley and Traianou, 2012). According to the regulations of research ethics of Anglia Ruskin University (2017), several reasons have been introduced concerning the necessity of this issue. They are represented in (1) helping researchers think about their research pathway more carefully, (2) ensuring the rights of people who participate in any research questionnaire (3) protecting researchers' rights in carrying out their studies and (4) to fulfil the requirement of the external bodies in conducting a research outside the UK. Ethical consideration entails the responsibility of both researchers and organisations in complying with the ethical standards in many studied issues such as investment decisions (Ceridwen, 2003). Recently, before collecting data stage, the ethical consideration has been developed by professional committees that aim to formulate appropriate standards (Miller et al., 2012). In order to clarify the main issues of the research ethics, the following table shows the key principles that have to be taken into account in business research:

**Table 4.10: The key principles of business research ethics**

No	Key principle	Relevant clarifications
1	<b>Ethics committees</b>	<p>Codes of practice provided by associations and universities normally organise what the researchers should do to protect their research and the people participated in their studies. Ethics committees usually ask students to submit research information sheet that includes the relevant issues that characterise the study. At Anglia Ruskin University, the following forms and regulations should be taken into consideration for business conducted research:</p> <ul style="list-style-type: none"> <li>- Code of practice for applying for ethical approval at Anglia Ruskin University (Scott, 2016).</li> <li>- Research Ethics Policy (Anglia Ruskin University, 2017a).</li> <li>- Data Protection Policy (Anglia Ruskin University, 2016).</li> <li>- Research Ethics Application Form (Anglia Ruskin University, 2017b).</li> <li>- Legislation relating to research ethics (Scott, 2016).</li> </ul>
2	<b>Avoiding participants' harm</b>	<p>Harm is a significant point that could pose threats to participants in some aspects such as:</p> <ul style="list-style-type: none"> <li>- Physical effect</li> <li>- Stressful implications</li> <li>- The possibility of influencing individuals' careers in the future due to</li> </ul>

	<p>the sensitive information provided (Bryman and Bell, 2015).</p> <p>- Emotional harm of making data gathered available to public (Doloriart and Sambrook, 2009).</p>
<p><b>3</b></p> <p><b>Avoiding non-participants' harm</b></p>	<p>This kind of harm is related to third parties who could be influenced by the research results generated. The findings or recommendations formulated in research should be reasonable, logical and accurate to avoid harming other parties such as educational institutions, researchers, firms and other bodies.</p>
<p><b>4</b></p> <p><b>Confidentiality and anonymity</b></p>	<p>The researcher must provide confidentiality explanations as well as clarifying the anonymity aspect to the participants. These ethical components should be clearly stated whether in the consent form or at the beginning of the questionnaire. In the business environment, there should be an explicit recognition of the confidentiality and anonymity to be introduced by the researcher and acknowledges the firms/participants that the study comply with a recognised ethics committee institution (Miller et al., 2012).</p>

This research complies with the Research Ethical Policy of Anglia Ruskin University to meet the ethical requirements. At the beginning of data collection stage, the participants were asked to provide their answers objectively and read the statement carefully before participating in this study. The significance of this clarification is to ensure that they are agree and fully understood the purpose associated with the questionnaires. The participants of this study were informed about the protection of the privacy and confidentiality policy. In this aspect, the researcher clarified that all the information collected will be only used for the research purpose, and will remain confidential. In addition, the anonymity of the participants in the Libyan service companies will be ensured.

In this study, the ethical consideration is ensured in order to protect the participants' rights, and to meet the requirements of scientific research ethics. In more details, participant information sheets were given to all contributors of this study that briefly shows the research aims, variables relationships, the contributions that the research aims to make, and the instructions to be taken into account when completing the questionnaire. Furthermore, the questionnaire describes how the researcher will deal with the information provided. Several essential issues are confirmed to the participants that guarantee anonymity, confidentiality and privacy. The participants were

asked to answer the questionnaire honestly and carefully due to the significance of their attitudes in this study.

For providing further explanation assistance, contact details are presented at the beginning of the questionnaire including the researcher's university email address and mobile number. This assistance is provided to encourage the targeted individuals to ask and discuss any further issues concerning the questionnaire's questions and statements. According to the code of practice for applying for ethical approval at Anglia Ruskin University guideline, the separate consent form is implied by returning the filled questionnaire by participants.

#### **4.16 Conclusion**

As a general research strategy that outlines the main elements of the research, research methodology chapter has provided the research structure and design and how the main elements of this thesis are linked in contextual and coherent framework. This chapter represents the essence of this thesis by showing how the behavioural transformation challenge that can be controlled by establishing new behavioural models that can be integrated into accounting systems and research methods. To deeply understand the nature of the research, the chapter has presented the prominent paradigms in the methodological literature including ontology, epistemology and other paradigms. The essence of the research philosophical stance is explained of how this research involves and adopts the relevant paradigms.

Introducing the research approach is essential in this chapter. In this regard, explaining the rationale of choosing the quantitative method was discussed concerning the compatibility of the IBC model in how it can be easily designed and integrated into the quantitative methods. More specific, integrating the IBC model with the research questionnaire as the research instrument was explained in its stages and the mechanisms of such integration. To show the questionnaire design in an understandable context, the chapter showed the design criteria that were taken into consideration such as the length and clarity of questionnaire, the adaptability and flexibility of the IBC technique, the instructions provided, and the structure of research questions and statements in the demographic and research statements. To plan the next stage of the research, the chapter has focused on analysis preparation, content criteria, and reliability, validity and errors check. The population of the research was introduced regarding the Libyan service companies. The sample that represents the population was also determined by the Cochran's



formula. Furthermore, pre-testing the questionnaire, distribution process, following-up the distribution process and response rates were introduced in this chapter with the ethical consideration aspect. From this basis, the next chapter will provide data analysis and hypotheses testing to show the participants' attitudes and responses regarding the research relationships in descriptive and statistical analyses.

## **CHAPTER 5: DATA ANALYSIS AND HYPOTHESES TESTING**

### **5.1 Introduction**

This chapter presents the key analyses of data derived from the practical part which has been conducted in the context of the Libyan service companies. This part is essentially linked to the previous chapters that present the association between the IBFs and SIDs to be examined based on the IBC model and its interpretations. It is a complementary chapter that shows a representation of the practical study that took place in the 11 Libyan service companies. As the methodological chapter shows, this research applies the quantitative approach to gather and analyse the research data. It explores the descriptive analyses and statistics in order to provide a comprehensive analytical framework that can be reliably presented to test the research hypotheses.

This chapter will provide a deep and various analysing framework though showing the core results of data collection stage being conducted within the Libyan service companies. This data will be analysed and shown in a number of analytical techniques including graphs, tables and percentages and descriptive statistics. The research argues that these analytical techniques can robustly test and show the core reflections of the respondents' attitudes regarding each IBF and the 48 sub-factors being formulated and hypothesised.

In order to explore the agreement and disagreement extent of the participants' responses, the chapter seeks not only to show the results of these answers, but also aims to provide the real insights of phenomena under study. Therefore, making a significant contribution to knowledge can be reliably achieved through the comprehensive research elements including analytical part of this chapter.

The chapter will show the general data analyses of the participants' responses by focusing on the statements of the 8 IBFs. It will show the grand total of each IBF's degree starting from the personality factor and ending with administrative leadership factor. The analysis will accurately calculate the average of each IBF's degree as well as the percentage of the 8 IBFs to the highest possible degree. Descriptive analysis will be then presented to show the demographic questions and the eight main parts of the research. The Results of Pearson Chi-Square Test will be shown in statistical representation.

## 5.2 Data Analysis of the Responses

This part aims to clarify the average and percentage of all the IBFs covered in this research by analysing the participants' responses of the of questionnaire's statements. As it can be seen from both the IBC model and the design of the questionnaire, each IBF has 6 statements (3 desirable and 3 undesirable statements). The highest degree that can be reached in each IBF is 30 (6 statements \* 5 which is the highest agreement degree in the Likert scale used in this research). The following analysis shows the average responses for each IBF and the percentage of the whole responses to the highest possible degree.

### 5.2.1 Statements of the Personality

**Table 5.1: Statement of the personality factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
1	<b>IBF 1-1</b> Creativity and Innovation (openness)  Creative and innovative personality has a high ability in determining the appropriate options of investment decisions as it links these options with intelligent solutions and work development.	2	<b>IBF 1-2</b> Carelessness (Opposite Conscientiousness)  Individuals who have careless personalities usually do not pay enough attention to their managers, which could be reflected in a negative decision-making participation.
3	<b>IBF 1-3</b> Cooperation (Agreeableness)  In gathering information stage of strategic investment decision, individuals' cooperation plays an indispensable role in providing the required data and information.	4	<b>IBF 1-4</b> Impulsivity (Neuroticism)  Defining possible projects and formulating strategic opportunities can be negatively affected by impulsive behaviour.
5	<b>IBF 1-5</b> Assertiveness (Extraversion)  Using discounted cash flows (DCF) technique and some capital techniques to evaluate the alternatives proposed need assertiveness in the evaluation and assessment processes.	6	<b>IBF 1-6</b> Bias  Individual inclination for some types of capital investment decisions poses threats in choosing the most appropriate projects.

The responses' rates have been calculated from all the questionnaires distributed and received (220 questionnaires) related to the personality determinant, and the results can be summarised as follows:

### 5.2.2 The Grand Total of Personality's Degree

This total includes all the degrees of the 6 statements formulated about the personality that have been collected from 220 questionnaires. The overall statements answered regarding the IBF 1 are 1320 statements (6 statements \* 220 questionnaires). In data extraction stage, the 220 questionnaires have been divided into 11 sets as it can be seen in the appendices (See Appendix 5). Each set includes 20 questionnaires (This division is only for the clarification and simplifying the data presentation only). The grand total of the personality factor is represented in the following table:

**Table 5.2: The grand total of personality's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	442	434	440	423	472	430	441	458	437	444	444	<b>4865</b>

### 5.2.3 The Average of Personality Statements' Degrees

This number is presented to show the average of participants' responses of each IBF including all the 220 questionnaires. It can be calculated by dividing (the grand total of each IBF 4865) by 1320 statements of the personality presented into 220 questionnaires as follows:

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{4865}{1320} = 3.68560606 \approx 3.7$$

### 5.2.4 The Percentage of the IBF 1 Average to the Highest Possible Degree

This percentage is calculated by dividing the average of each IBF statements' degrees by 5 which is the highest possible degree as follows:

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.68560606}{5} = 0.73712121 \approx 74\%$$

This percentage can also be calculated by dividing the grand total of each IBF (4865 for IBF 1) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4865}{6600} = 0.73712121 \approx 74\%$$

As it is mentioned in the chapter 3, the assumptions of the influential classifications of the IBC in this research are determined and divided into 5 main categories as the following:

**Table 5.3: The relative weight and average response of IBFs' effect on performance level**

Performance level	The relative weight	Average response
<b>Very High</b>	80% or more	4 or more
<b>High</b>	60% to 79%	3 to 3.95
<b>Medium</b>	50% to 59%	2.5 to 2.95
<b>Low</b>	30% to 49%	1.5 to 2.45
<b>Very Low</b>	29% or less	1.45 or less

The assessment outcomes of the IBC are based on showing the results that reflect the positive (60% to 79% (high), and 80% or more (very high)) outcomes, the medium influence (50% and 59%), and the negative or undesirable outcomes represented in (30% to 49% (low), and 29% or less (very low)).

According to the participations' responses, the performance level outcomes or the average of personality statements' degrees of the IBF 1 is 3.7 (74%) which reflects the (high) performance degree as it falls into the range 60% to 79% (high). This indicator supports the hypothetical association between the research variables regarding the hypothesis 1 which assumes that personality traits positively affect individuals' performance in a high level when firms enhance some sub-factors such as creativity and innovation, cooperation and assertiveness, and avoid carelessness, impulsivity and bias.

### 5.2.5 Statements of the Perception

**Table 5.4: Statement of the perception factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
7	<b>IBF 2-1</b> Stimuli Interpretation  Effective interpretation of the information behind each investment alternative leads to more objective results, and helps decision-makers in selecting the suitable project.	8	<b>IBF 2-2</b> Misinterpretation  Providing incorrect information of any step of decision-making could be occurred by some unqualified individuals that leads to undesirable results.
9	<b>IBF 2-3</b> Individual Awareness and Constancy  The high ability of understanding the environmental	10	<b>IBF 2-4</b> Unrealistic Expectations  The unrealistic expectations of the possible investment

requirements of the proposed investment projects is a fundamental issue that helps firms being more aware of such projects.

decisions reflect an initial failure in choosing the generated alternatives.

#### 11 **IBF 2-5** Task Interpretation

In the auditing and evaluating project stage, task interpretation and understanding the assigned work are essential requirements in making effective decisions.

#### 12 **IBF 2-6** Different Management Styles

Working in different systems or changeable procedures raises a difficulty of realising and understanding the assigned tasks for decision-makers.

### 5.2.6 The Grand Total of Perception's Degrees

The grand total of the perception factor is shown in the following table:

**Table 5.5: The grand total of perception's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	393	386	379	359	383	365	364	376	377	376	394	<b>4152</b>

### 5.2.7 The Average of Perception Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{4152}{1320} = 3.14545455 \approx 3.1$$

### 5.2.8 The Percentage of the IBF 2 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.14545455}{5} = 0.62909091 \approx 63\%$$

This percentage is calculated by dividing the grand total of each IBF (4152 for IBF 2) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4152}{6600} = 0.62909091 \approx 63\%$$

The results of the IBF 2 show that the average of perception statements' degrees is 3.1 (63%) which falls into the high level (from 60% to 79%), and therefore it supports the second hypothesis which indicates that individuals' perception leads to a higher positive level of performance when firms enhance some sub-factors such as stimuli interpretation, individual awareness and constancy and task interpretation, and avoid misinterpretation, unrealistic expectations and different management styles. Although there is no any IBF falls into the (low) or (very low) influence level, the percentage of this factor is considered as the lowest percentage in the 8 IBFs.

## 5.2.9 Statements of the Ability and Skills

**Table 5.6: Statement of the ability and skills factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
13	<b>IBF 3-1</b> Consistency of Performance  Consistent performance to be in line with the principles, standards and regulations of firm results in high decision quality.	14	<b>IBF 3-2</b> Ineffective Communication  Ineffective individuals' communication with others in irrational, illogical and unclear way poses difficulties in many investment procedures such as supporting decisions and funding the proposed projects.
15	<b>IBF 3-3</b> Flexibility  Flexibility of decision-makers helps firms in responding intelligently with all possible investment options and avoiding biased behaviour.	16	<b>IBF 3-4</b> Lack in Problem Solving  The inability of problem solving could negatively affect investment projects when decision-makers fail in finding appropriate solution of some related problems.
17	<b>IBF 3-5</b> Quick Response  Some investment opportunities need quick responses by decision-making team as some alternative need taking immediate appropriate actions.	18	<b>IBF 3-6</b> Inaccuracy  Inaccurate data provided by individuals can be considerably reflected in a number of unrealistic information, thus inaccurate investment appraisal results.

## 5.2.10 The Grand Total of Ability and Skills' Degrees

The grand total of the ability and skills factor is represented in the following table:

**Table 5.7: The grand total of ability and skills' degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	443	439	426	445	440	446	459	460	467	465	479	<b>4969</b>

## 5.2.11 The Average of Ability and Skills Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{4969}{1320} = 3.76439394 \approx 3.8$$

## 5.2.12 The Percentage of the IBF 3 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.76439394}{5} = 0.75287879 \approx 75\%$$

This percentage is calculated by dividing the grand total of each IBF (4969 for IBF 3) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4969}{6600} \quad 0.75287879 \approx 75\%$$

The results reached of the IBF 3 reflect that the average of ability and skills statements' degrees is slightly high as it is classified in the category high (from 60% to 79%) with an average 3.8 and a percentage 75%. These indicators support the third hypothesis which assumes that the ability and skills factor leads to a higher positive level of performance when firms enhance some sub-factors such as consistency of performance, flexibility and quick response, and avoid the ineffective communication, lack in problem-solving and inaccuracy.

### 5.2.13 Statements of the Motivation

**Table 5.8: Statement of the motivation factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
19	<b>IBF 4-1</b> Reinforcement  Using rewards to encourage individuals to desirable behaviour is a significant technique that leads to positive performance outcomes.	20	<b>IBF 4-2</b> Fear of Failure  Fear of being failed in reaching specific achievements has undesirable outcomes of individuals' performance.
21	<b>IBF 4-3</b> Expectancy  Expansion, replacement and renewal investment decisions need estimated indicators and standard costing analysis, thus a high ability in expectancy that helps decision-makers to evaluate investment projects.	22	<b>IBF 4-4</b> Pain-Avoidance  The desire of avoiding painful situations when individuals expect negative outcomes of their performance can negatively lead to helplessness and depression of decision-makers and make them pessimistic.
23	<b>IBF 4-5</b> Intrinsic and Extrinsic Rewards  Physical and non-physical rewards significantly encourage decision-making participants to increasing their performance in all the stages of investment decisions.	24	<b>IBF 4-6</b> Performance Inconsistency  Inconsistent performance of estimating life-cycle costing, target costing and value-chain costing of investment projects leads to inaccurate and unreliable information.

### 5.2.14 The Grand Total of Motivation's Degrees

The grand total of the motivation factor is represented in the following table:

**Table 5.9: The grand total of motivation's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	443	472	433	460	448	444	479	462	461	462	489	<b>5053</b>



### 5.2.15 The Average of Motivation Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{5053}{1320} = 3.8280303 \approx 3.8$$

### 5.2.16 The Percentage of the IBF 4 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.8280303}{5} = 0.76560606 \approx 77\%$$

This percentage can also be calculated by dividing the grand total of each IBF (5053 for IBF 4) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{5053}{6600} \quad 0.76560606 \approx 77\%$$

In the IBF 4, the average of motivation statements' degrees is slightly increased comparing to the IBF 3 and it falls into the category (high) as it reaches an average of 3.8 and a percentage of 77%. As a result, the results support the fourth hypothesis that suggested that motivation leads to a higher positive level of performance when firms enhance some sub-factors such as reinforcement, expectancy and intrinsic and extrinsic rewards, and avoid the fear of failure, pain-avoidance and performance inconsistency.

### 5.2.17 Statements of the Attitudes

**Table 5.10: Statement of the attitudes factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
25	<b>IBF 5-1</b> Positive Emotional Attitudes  The positive emotional attitudes of staff create strong relationships between individuals and work loyalty.	26	<b>IBF 5-2</b> Aggressive Expression  Uncooperative work and aggressive communication between financial and managerial staff can negatively affect the quality of decisions.
27	<b>IBF 5-3</b> The Possibility of Change  The flexible personality helps others in preparing the essential requirements of strategic projects such as strategic costing, strategic pricing.	28	<b>IBF 5-4</b> Disrespect to Others' Emotions  The lack of respect to the participants of investment decision leads to impolite and offensive behaviour which consequently represents in undesirable performance.
29	<b>IBF 5-5</b> Background Knowledge  The appropriate financial background of analysing the proposed projects such as profitability analysis and financial funding is required for decision-makers.	30	<b>IBF 5-6</b> No Ownership in Mistakes Committed  Individuals who do not take ownership of committing mistakes are likely to hinder the quality of investment decisions as this sensitive process needs a reasonable level of transparency.

### 5.2.18 The Grand Total of Attitudes' Degrees

The grand total of the attitudes factor is represented in the following table:

**Table 5.11: The grand total of attitudes' degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	420	375	378	368	364	375	372	366	366	407	350	<b>4141</b>

### 5.2.19 The Average of Attitudes Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{4141}{1320} = 3.13712121 \approx 3.1$$

### 5.2.20 The Percentage of the IBF 5 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.13712121}{5} = 0.62742424 \approx 63\%$$

This percentage can also be calculated by dividing the grand total of each IBF (4141 for IBF 5) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4141}{6600} \quad 0.62742424 \approx 63\%$$

The results of the IBF 5 confirm that the influential level of this factor is in the high level as the average of attitudes statements' degree is 3.1, and the percentage is 63%. These indications reflect a high impact of the IBF 5, and therefore it supports the fifth hypothesis which assumes that attitudes lead to a higher positive level of performance when firms enhance some sub-factors such as positive emotional attitudes, the possibility of change and background knowledge, and avoid the aggressive expression, disrespect to others' emotions and no ownership in mistakes committed.

### 5.2.21 Statements of the Work Stress

**Table 5.12: Statement of the work stress factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
31	<b>IBF 6-1</b> Increased Creativity	32	<b>IBF 6-2</b> Loss of Concentration
	In merger and acquisition decisions, increasing the creative work and adopting new analysis techniques would be a significant contribution to decision-makers.		Loss concentration is a determinant of inaccurate investment analysis and inappropriate decision preparation.
33	<b>IBF 6-3</b> Cognition Enhancement	34	<b>IBF 6-4</b> Less Productivity
	High cognitive ability helps in generating new useful investment appraisal techniques and strengthens the mental power and the effectiveness of individuals.		Less productivity is a general problem that affects all investment decision stages.
35	<b>IBF 6-5</b> Task Completion Desire	36	<b>IBF 6-6</b> Increased Complaints
	Qualified staff usually have a desire in completing their analysing tasks on time.		Individuals' dissatisfaction increase resulted from their work conditions or not involving them in decision-making process would raise their complaints and then hinder their performance level.

### 5.2.22 The Grand Total of Work Stress's Degrees

The grand total of the work stress factor is represented in the following table:

**Table 5.13: The grand total of work stress's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	411	421	387	405	348	414	445	409	421	412	457	<b>4530</b>

### 5.2.23 The Average of Work Stress Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{4530}{1320} = 3.43181818 \approx 3.4$$

### 5.2.24 The Percentage of the IBF 6 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.43181818}{5} = 0.68636364 \approx 69\%$$

This percentage can also be calculated by dividing the grand total of each IBF (4530 for IBF 6) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4530}{6600} \quad 0.68636364 \approx 69\%$$

The results of work stress factor show that average of work stress statements' degrees is 3.4 (69%) which is categorised in the high classification. These indicators support the sixth hypothesis which hypothesizes that work stress leads to a higher positive level of performance when firms enhance some sub-factors such as increased creativity, cognition enhancement and task completion desire, and avoid the loss of concentration, less productivity and increased complaints.

### 5.2.25 Statements of the Job Satisfaction

**Table 5.14: Statement of the job satisfaction factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
37	<b>IBF 7-1</b> Participative Decision-Making  Participating in determining the project outline, selecting the best options for the firm and making suitable decisions is a fundamental requirement for successful investment decisions.	38	<b>IBF 7-2</b> Intensive Work Standards  In some stressful and intensive work procedures, the level of staffs' performance might be decreased if the work standards are in high levels.
39	<b>IBF 7-3</b> Encouraging Environment  The positive surrounding environment, providing applicable accounting software and useful operational systems help employees and decision-makers in making more efficient decisions.	40	<b>IBF 7-4</b> Non-Financial Rewards  Working without receiving additional bonuses or rewards makes employees less productive in providing the efficient accounting support to decision-makers.
41	<b>IBF 7-5</b> Job Loyalty  Job loyalty supports employees in being more careful in conducting the investment appraisal methods.	42	<b>IBF 7-6</b> Job Position Dissatisfaction  In investment decision-making process, the diversity of decision-makers' positions makes the employees in lower positions dissatisfied because they feel that their voice is less important.

### 5.2.26 The Grand Total of Job Satisfaction's Degrees

The grand total of the job satisfaction factor is represented in the following table:

**Table 5.15: The grand total of job satisfaction's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	406	434	420	406	406	398	421	339	441	400	404	<b>4475</b>

### 5.2.27 The Average of Job Satisfaction Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number o each IBF's statements}} = \frac{4475}{1320} = 3.39015152 \approx 3.4$$

### 5.2.28 The Percentage of the IBF 7 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{3.39015152}{5} = 0.6780303 \approx 68\%$$

This percentage can also be calculated by dividing the grand total of each IBF (4475 for IBF 7) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{4475}{6600} \quad 0.6780303 \approx 68\%$$

From the results of job satisfaction factor, it can be noticed that the average of job satisfaction statements' degrees is 3.4 which equivalents 68% and it falls into the category high. This confirms that the IBF 7 supports the seventh hypothesis which assumes that job satisfaction leads to a higher positive level of performance when firms enhance some sub-factors such as participative decision-making, encouraging environment and job loyalty, and avoid the intensive work standards, non-financial rewards and job position dissatisfaction.

### 5.2.29 Statements of the Administrative Leadership

**Table 5.16: Statement of the administrative leadership factor**

No	Desirable Performance Enhancement	No	Undesirable Performance Impact
43	<b>IBF 8-1</b> Participative Leadership  Leaders who allow subordinates in participating in some functions such as goal setting and decision-making are likely to be more successful than the other leadership styles.	44	<b>IBF 8-2</b> Irresponsible Leadership  Irresponsible leadership makes the subordinates less confident in participating in decision-making process.
45	<b>IBF 8-3</b> Inspirational Leadership  The ability of leaders in creating a positive sense for individuals and inspiring them in their assigned work can be reflected in positive decision-making participation.	46	<b>IBF 8-4</b> Ineffective Leadership  Inability of persuading subordinates with logic or rational decisions makes leaders ineffective in evaluating the proposed investment projects.
47	<b>IBF 8-5</b> Motivational Leadership  Motivating employees is a significant issue in devoting more efforts in gathering sufficient investment information.	48	<b>IBF 8-6</b> Poor Communication  Poor communication between leaders and their subordinates hinders many substantial decision procedures that need clarification and clear communication.

### 5.2.30 The Grand Total of Administrative Leadership's Degrees

The grand total of the administrative leadership factor is represented in the following table:

**Table 5.17: The grand total of administrative leadership's degrees**

Sets	1	2	3	4	5	6	7	8	9	10	11	Grand total
Total	474	474	465	462	463	481	482	494	534	501	492	<b>5322</b>

### 5.2.31 The Average of Administrative Leadership Statements' Degrees

$$\frac{\text{Grand total}}{\text{Number of each IBF's statements}} = \frac{5322}{1320} = 4.03181818 \approx 4.0$$

### 5.2.32 The Percentage of the IBF 8 Average to the Highest Possible Degree

$$\frac{\text{the average of each IBF statements' degrees}}{\text{the highest possible degree}} = \frac{4.03181818}{5} = 0.80636364 \approx 81\%$$

This percentage can also be calculated by dividing the grand total of each IBF (5322 for IBF 8) by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

$$= \frac{5322}{6600} \quad 0.80636364 \approx 81\%$$

As it can be seen from the results, administrative leadership factor represents the highest influential level of the 8 IBFs. It reaches an average of 4 and a percentage of 81% which is considered as a very high impact (80% or more). The results derived from this factor is definitely support the hypothesis ninth of the IBFs which hypothesizes that administrative leadership leads to a higher positive level of performance when firms enhance some sub-factors such as participative leadership, inspirational leadership and motivational leadership, and avoid the irresponsible leadership, ineffective leadership and poor communication.

### 5.2.33 The Grand Total of the IBFs

The table shows the totals of each IBF as mentioned above in the previous tables, and the grand total of the IBFs. This total reflects all the responses' degrees of the 220 questionnaires distributed including 48 statement for each questionnaire.

**Table 5.18: the grand total of the IBFs**

IBFs	<b>IBF 1</b>	<b>IBF 2</b>	<b>IBF 3</b>	<b>IBF 4</b>	<b>IBF 5</b>	<b>IBF 6</b>	<b>IBF 7</b>	<b>IBF 8</b>	Grand total of the IBFs
Total of each IBF	4865	4152	4969	5053	4141	4530	4475	5322	<b>37507</b>

### 5.2.34 The General Average and Percentage of All Responses' Degrees

The general average of all these responses can be calculated by dividing the total responses' degrees of the IBFs of all the participants (37507) by the total statements which are 10560 (220 questionnaires \* 48 statements = 10560). Therefore, the general average of all these responses can be calculated by:

$$\frac{\text{The total responses' degrees of the IBFs of all the participants}}{\text{The total statements}} = \frac{37507}{10560} = 3.55179924$$

The general percentage of all responses' degrees is:

$$\frac{\text{The general average of the IBFs}}{\text{The highest possible degree}} = \frac{3.55179924}{5} = 0.71035985 \approx 71\%$$

The general average and percentage of all responses' degrees reflect where the relative weight falls under the category (High) which includes the degrees between 3.25 to 3.95 and the percentages between 60% to 79% as it can be seen in the following table.

**Table 5.19: The general influential level of the IBFs on SIDs in the Libyan service companies**

Performance level	The relative weight	Average response	The general average and percentage of all responses' degrees
<b>Very High</b>	80% or more	4 or more	
High	<b>60% to 79%</b>	<b>3 to 3.95</b>	The general influential level of the IBFs on SIDs in the Libyan service companies
	<b>71%</b>	<b>3.55</b>	
<b>Medium</b>	50% to 59%	2.5 to 2.95	
<b>Low</b>	30% to 49%	1.5 to 2.45	
<b>Very Low</b>	29% or less	1.45 or less	

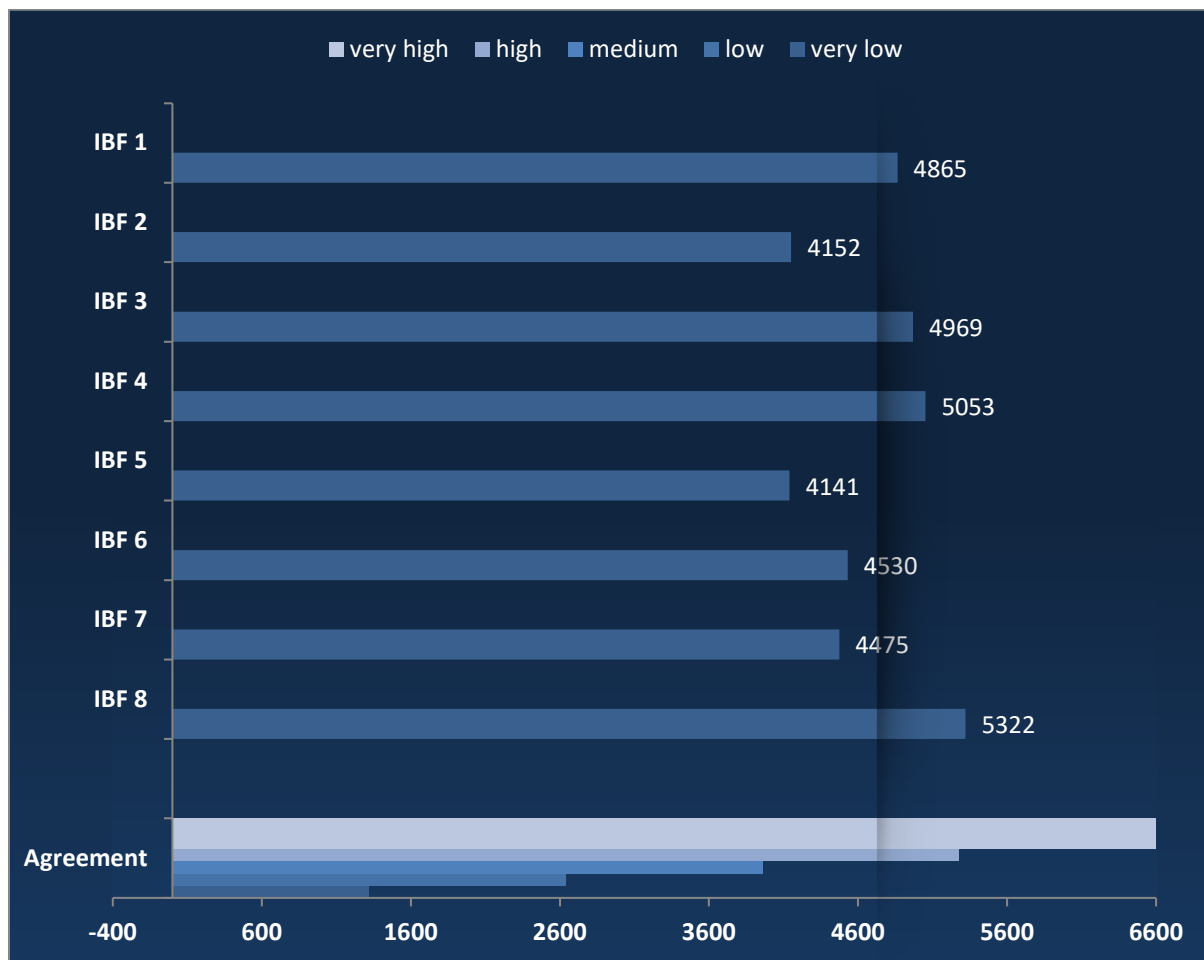
The influential level of each IBF can be calculated by dividing the grand total of each IBF by 6600 which is the highest number that can be reached (1320 statements \* 5 the highest degree).

As the general percentage of all responses' degrees is:

$$\frac{\text{The general average of the IBFs}}{\text{The highest possible degree}} = \frac{3.55179924}{5} = 0.71035985 \approx 71\%$$

This percentage equivalents 4686 (71% \* 6600), as shown in the Figure 5.1.

**Figure 5.1: The general percentage of all responses' degrees**



(Researcher's figure)



These results represent the overall trends derived from the descriptive analysis. They reflect the general attitudes of participants towards the research relationships and provide the final investigation that can be accurately interpreted in hypotheses testing. To provide a reminder of the research responses that represent the resource of these results, as mentioned earlier in the methodology and research design chapter, the total questionnaires distributed and the total responses were as the following Table shows.

**Table 5.20: The total questionnaires and responses of the research**

Sent	Total responses	
28	25	89.29%
32	30	93.75%
24	23	95.83%
18	18	100.00%
43	39	90.70%
20	18	90.00%
28	26	92.86%
14	14	100.00%
10	9	90.00%
12	11	91.67%
7	7	100.00%
<b>236</b>	<b>220</b>	<b>93.22%</b>

### 5.3 Descriptive Analysis of the Demographic Questions

The demographic information paves the way to the core hypotheses investigation and testing processes which will be statistically introduced in the next part. It has been clearly and concisely defined into various demographic variables. The demographic questions have been formulated to be consistent with commonly used definitions and taxonomies. The common advantage of the data gathered regarding the demographic information is that all the possible options have been answered which means that the research sample has provided relevant and varied information in this research and from different experiences.

**Table 5.21: Q1 What is your gender?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
Male	165	75.0	75.0	75.0
Female	45	20.5	20.5	95.5
Prefer not to say	10	4.5	4.5	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

The Table 5.21 presents the number of males and females participated in the practical study in the Libyan service companies. It shows that males represent the majority of participants with 165 participants 75%, while females were only 45 female with 20.5%. 10 participants preferred not to say in their answers who represent only 4.5%. These percentages reflect the nature of labour in the Libyan service company who meet the research participants criteria as a higher number of males were positioned into these careers than females.

**Table 5.22: Q2 What is your age?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
18 to 24 years	39	17.7	17.7	17.7
25 to 34 years	45	20.5	20.5	38.2
35 to 44 years	63	28.6	28.6	66.8
45 to 54 years	47	21.4	21.4	88.2
55 to 64 years	20	9.1	9.1	97.3
Age 65 or older	6	2.7	2.7	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

The age profile of the contributors of this research ranged from the category 18 to 24 years to the 65 or older. The biggest category in this investigation was the group from 35 to 44 years that represents 28.6% of the overall results. Followed by the similar categories that ranged from 25 to 34, and from 45 to 54 years. Although some participants have exceeded the 65 years old, they still work in different positions. This diversity enriches the research behavioural investigation as it involves a wide range of individuals, experiences and positions.

**Table 5.23: Q3 What is the highest degree you have completed?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
High School level	22	10.0	10.0	10.0
Bachelor Degree	139	63.2	63.2	73.2
Master's degree	35	15.9	15.9	89.1
PhD degree	9	4.1	4.1	93.2
Other Professional qualifications	15	6.8	6.8	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

Table 5.23 describes the highest academic degree completed by the participants. The majority of the respondents have bachelor degree qualifications, and they represent 139 out of 220 participants (63.2%), which is a high percentage comparing with other educational degrees. The rest of qualifications were concentrated on master's degree 35, high school level 22, other professional qualifications 15 and PhD degree 9 respectively.

**Table 5.24: Q4 Which of the following most closely matches your job title?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
Accountant	100	45.5	45.5	45.5
Management accountant	29	13.2	13.2	58.6
Cost accountant	13	5.9	5.9	64.5
Chief Executive Officer (CEO)	6	2.7	2.7	67.3
Chief Operating Officer (COO)	2	.9	.9	68.2
Chief Financial Officer (CFO)	25	11.4	11.4	79.5
Head of a department	38	17.3	17.3	96.8
Director	7	3.2	3.2	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

In relation to the position that the participants held, the most common position was accountant where the participants were 100 with 45.5% of the overall contributors. The researcher attempted to enrich the study by distributing the questionnaires on various positions to obtain more comprehensive perspectives and interpretations of the IBFs. In this aspect, the questionnaires were answered by all the positions chosen in the target population as stated in the research design and methodology chapter. The other recorded positions were represented by 38 Head of a

department, 29 management accountants, 25 Chief Financial Officers (CFOs), 13 cost accountants, 7 directors, 6 Chief Executive Officers (CEOs) and 2 Chief Operating Officers (COOs).

**Table 5.25: Q5 and Q6 How long have you been in this position? And how long the overall period is?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5 years	75	34.1	34.1	34.1
5 to 10 years	49	22.3	22.3	56.4
11 to 15 years	56	25.5	25.5	81.8
16 to 20 years	20	9.1	9.1	90.9
21 to 25 years	9	4.1	4.1	95.0
More than 25 years	11	5.0	5.0	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	
<b>If you have worked for the company in more than one position, how long the overall period is? "including the original position"</b>				
Answers	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5 years	74	33.6	33.6	33.6
5 to 10 years	47	21.4	21.4	55.0
11 to 15 years	52	23.6	23.6	78.6
16 to 20 years	26	11.8	11.8	90.5
21 to 25 years	10	4.5	4.5	95.0
More than 25 years	11	5.0	5.0	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

In terms of periods that the participants spent in their positions and the overall periods, the Table 5.25 shows a gradual decrease in the long periods comparing to the short categories. It illustrates that the most common answer of the target population participated in the research was concentrated in the first category. 75 respondents indicated that they spent less than 5 years in the original position, while 74 participants stated that this period was the overall period in different positions held. That means that some participants have changed their jobs within the same firm. The diversity of individuals' experience as shown in the Table 5.25 enhances the research aims regarding eliciting information from different occupational background and positions as it can be seen in all the six categories.

**Table 5.26: Q7 Have you attended any training sessions of human resources or any course related to the organisational behaviour?**

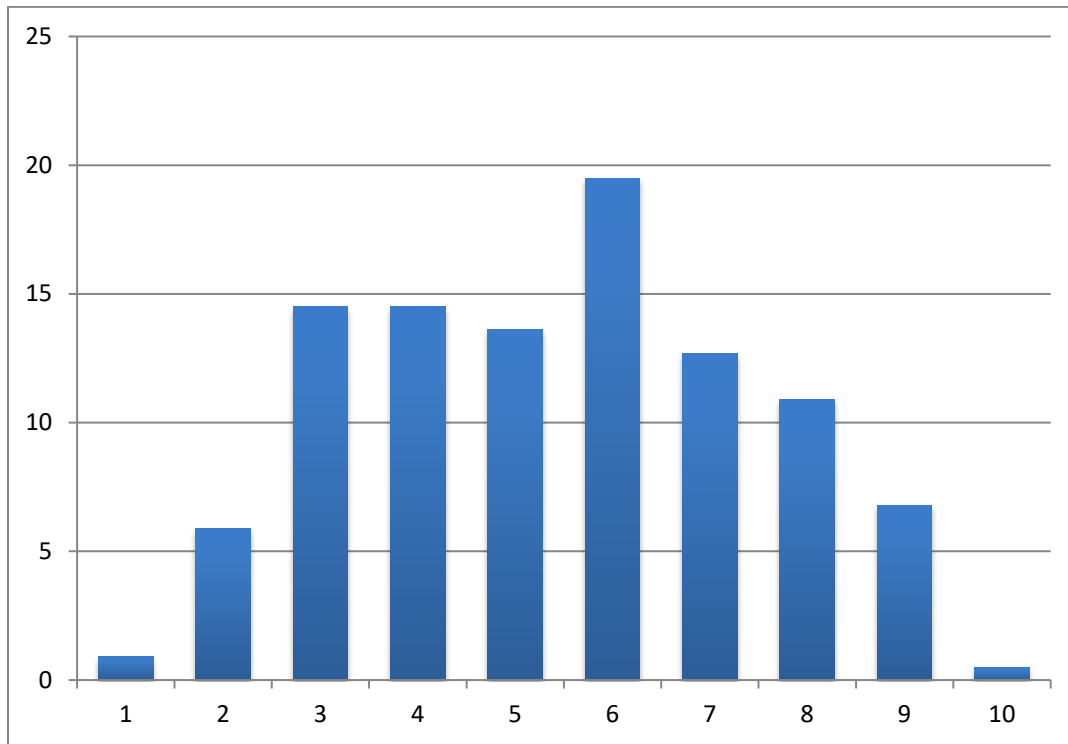
Answers	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	48	21.8	21.8	21.8
No	172	78.2	78.2	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

The majority of the respondents (172 participants) have not attended behavioural and human resources training sessions. The number of individuals who reported their attendances was 48 participants who reflect 21.8% of the overall respondents. Although the percentage of attendance was slightly in a low level, the advantages of participating in such trainings would be positively reflected in individuals' behaviours and attitudes as the attendees can reflect their perceived behavioural advantages into their work environment as well as on SID processes.

**Table 5.27: Q8 How do you consider your participation and authority level in investment decision-making process?**

Answers	Frequency	Percent	Valid Percent	Cumulative Percent
1	2	.9	.9	.9
2	13	5.9	5.9	6.8
3	32	14.5	14.5	21.4
4	32	14.5	14.5	35.9
5	30	13.6	13.6	49.5
6	43	19.5	19.5	69.1
7	28	12.7	12.7	81.8
8	24	10.9	10.9	92.7
9	15	6.8	6.8	99.5
10	1	.5	.5	100.0
<b>Total</b>	<b>220</b>	<b>100.0</b>	<b>100.0</b>	

**Figure 5.2: Authority level in investment decision-making process**



**(Researcher's figure)**

This question provides an introductory self-evaluative view of how individuals consider themselves in participation process of SIDs. The Table 5.27 and Figure 5.2 show the authority level of respondents in participation process in SIDs. Participants were asked to rate their existing knowledge and experience in their authority level from 1 to 10. The largest proportion of their records was reported in number 6 as 43 respondents chose this level (19.5%). There is no common feature or specific level reflects their authority level, however the numbers from 3 to 7 were the most common answers provided. These indicators reflect that the majority of participants have reasonable levels of participation, despite the variety of firms, SIDs and decision-making procedures within the 11 Libyan service companies.

#### **5.4 The Results of Pearson Chi-Square Test**

Chi-Square test or  $\chi^2$  is a test which is normally used to examine and investigate the association between two nominal or ordinal variables. Pearson Chi-Square test has been extensively used in testing for association between categorical responses (Shih and Fay, 2017). Chi-Square is an

appropriate testing technique for the current study due to the nature of the research that aims to examine individuals' attitudes towards the association between IBFs and SIDs. Chi-square test as an effective statistical test is used in this study to compare observed results with expected results. The nature of the current study requires a determination of the difference between observed data and expected data assumed and the association between the research variables. Therefore, the chi-square test is an appropriate choice for understanding and interpreting the association between the categorical variables of the study. It is used for testing the degree of variance, testing for independence and goodness of fit (Jawlik, 2016). The test of independence is generally conducted in investigating the association between two variables which is similar to the correlation test. The data gathered in the questionnaires as observed frequencies are linked with the expected statistics. The residual value represents and reflects level of significance. The distribution of Chi-Square is used to run a statistical test of independence to extract the proposition that determines whether there is a significant relationship or no based on the research respondents' attitudes. This test uses a contingency table to analyse the data that has been collected. The contingency table or two-way table arranges data based on two variables. The categories of the first variable appear in the rows, while the categories of the second variable appear in columns.

The significance value (Asymptotic Significance, or p value) is examined by showing whether the results for Pearson Chi-Square are less than 0.05 ( $p \leq 0.05$ ), where the results in this case reflect a significant relationship or more than 0.05 ( $p > 0.05$ ) where there is no significant relationship (Lampard and Pole, 2015). It is important in this introductory explanation to clarify that the confidence level is designated to be 95% as this level is the most commonly used level in reflecting the confidence level, however other levels can be also used such as 90% and 99% (Zar, 1999).

#### **5.4.1 Calculation of Chi-Square**

The Chi-Square can be calculated by the following equation:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where:

$\chi^2$  = Chi-Square

$O$  = Observed frequencies

$E$  = Expected frequencies

The next part provides individual descriptive and statistical analysis of all the main IBFs and the 48 sub-factors depending on the data that has been collected.

**Table 5.28: Chi-Square test of the Personality (IBF 1)**

IBF 1-1 Creativity and Innovation (openness)			
	Observed N	Expected N	Residual
Less than 3	64	90.0	-26.0-
Greater than 3	116	90.0	26.0
Total	180		
IBF 1-3 Cooperation (Agreeableness)			
	Observed N	Expected N	Residual
Less than 3	43	98.0	-55.0-
Greater than 3	153	98.0	55.0
Total	196		
IBF 1-5 Assertiveness (Extraversion)			
	Observed N	Expected N	Residual
Less than 3	61	86.5	-25.5-
Greater than 3	112	86.5	25.5
Total	173		
IBF 1-2 Carelessness (Opposite Conscientiousness)			
	Observed N	Expected N	Residual
Less than 3	11	98.5	-87.5-
Greater than 3	186	98.5	87.5
Total	197		
IBF 1-4 Impulsivity (Neuroticism)			
	Observed N	Expected N	Residual
Less than 3	43	93.5	-50.5-
Greater than 3	144	93.5	50.5
Total	187		
IBF 1-6 Bias			
	Observed N	Expected N	Residual
Less than 3	67	89.0	-22.0-
Greater than 3	111	89.0	22.0
Total	178		

Table 5.28 shows the numbers of observed frequency, expected frequency and the residual (or fitting deviation). The observed values represent how many participants have chosen the answers (Strongly disagree (1) or Disagree (2)) in the questionnaire statements in the (Less than 3). It also shows the responses that exceed the neutral choice (Agree (4) or Strongly agree (5)) that reflect the high and very high influential levels between the research variables in the (Greater than 3). To link these rating weights with the influential assumptions made, the “Table 3.2: The relative weight of performance outcomes” shows these rating answers in details. Expected frequencies refer to the probability count which is derived from the contingency table calculations.

Calculating the expected frequencies is derived from the formula:

$$E_{ij} = \frac{R_i C_j}{n}$$



Where

$E_{ij}$  = The expected frequency for cell in (row  $i$ ) and (column  $j$ ).

$R_i$  = total observed number in  $i$ th row, derived from the frequencies in row  $i$

$C_j$  = total observed number in  $j$ th column, derived from the frequencies in column  $j$

$n$  Table grand total

The residual reveals and reflects the marginal value between the observed and expected frequencies.

From these results, it can be seen that in the desirable personality characteristics statements, the agreement level of cooperative personality was the highest IBF, and it shows 153 agreement responses, which means that respondents who support this influential assumption represent 69% of the sample (153/220). This percentage confirms the high level of influence according to the assumptions shown earlier in the chapter 2 (Table 3.2: The relative weight of performance outcomes). The participants who support this assumption confirm that in gathering information stage of strategic investment decision, individuals' cooperation plays an indispensable role in providing the required data and information. Creative and assertive traits were supported by 116 and 112 participants respectively. On the other hand, in the undesirable behavioural assumptions, careless personality was supported by 186 agreement responses, with only 11 disagreement answers. The majority of participants (186/220 = 84%) consider that individuals who have careless personalities usually do not pay enough attention to their managers, which could be reflected in a negative decision-making participation. In addition, impulsive and biased personality traits were chosen as undesirable traits by 144 and 111 participants. The overall response trends show that the high and very high influential levels outweigh the low and very low impact in the 6 sup hypotheses.

**Table 5.29: Chi-Square statistical results of the Personality (IBF 1)**

Personality			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 1-1 Creativity and Innovation (openness)	15.022 <sup>a</sup>	1	.000
IBF 1-2 Carelessness (Opposite Conscientiousness)	155.457 <sup>b</sup>	1	.000

IBF 1-3 Cooperation (Agreeableness)	61.735 <sup>c</sup>	1	.000
IBF 1-4 Impulsivity (Neuroticism)	54.551 <sup>d</sup>	1	.000
IBF 1-5 Assertiveness (Extraversion)	15.035 <sup>e</sup>	1	.000
IBF 1-6 Bias	10.876 <sup>f</sup>	1	.001
<b>The main factor IBF 1</b>		<b>1</b>	<b>.000</b>

Chi-Square test was conducted to examine the significance in participants' choices. This test takes into consideration the accuracy in processing all the answers in the rating scale used in this study. Table 5.29 reveals the Chi-Square statistical results of the personality in the 6 statements introduced to the participants. It shows that the values of the 6 sub-factors were significant ( $p < 0.05$ ). The first 5 personality traits were .000, while the last sub-factor was .001.

The results show that the Pearson Chi-Square statistic  $\chi^2$  refers to the critical values that have been extracted from the Chi-Square distribution which are 15.022<sup>a</sup>, 155.457<sup>b</sup>, 61.735<sup>c</sup>, 61.735<sup>c</sup>, 54.551<sup>d</sup>, 15.035<sup>e</sup> and 10.876<sup>f</sup>, with degree of freedom 1, corresponding to ( $p < 0.05$ ). As a result, the data supports the first research hypothesis and confirms the association between the high influential levels of the personality factor on SIDs. This hypothesis assumes that personality traits positively affect individuals' performance in a high level when firms enhance some sub-factors such as creativity and innovation, cooperation and assertiveness, and avoid carelessness, impulsivity and bias.

**Table 5.30: Chi-Square test of the Perception (IBF 2)**

IBF 2-1 Stimuli Interpretation			
	Observed N	Expected N	Residual
Less than 3	98	91.5	6.5
Greater than 3	85	91.5	-6.5-
Total	183		
IBF 2-3 Individual Awareness and Constancy			
	Observed N	Expected N	Residual
Less than 3	103	92.0	11.0
Greater than 3	81	92.0	-11.0-
Total	184		
IBF 2-5 Task Interpretation			
	Observed N	Expected N	Residual
Less than 3	89	91.0	-2.0-
Greater than 3	93	91.0	2.0
Total	182		

IBF 2-2 Misinterpretation			
	Observed N	Expected N	Residual
Less than 3	90	85.5	4.5
Greater than 3	81	85.5	-4.5-
Total	171		
IBF 2-4 Unrealistic Expectations			
	Observed N	Expected N	Residual
Less than 3	99	92.5	6.5
Greater than 3	86	92.5	-6.5-
Total	185		
IBF 2-6 Different Management Styles			
	Observed N	Expected N	Residual
Less than 3	10	96.0	-86.0-
Greater than 3	182	96.0	86.0
Total	192		

The Chi-Square test emphasises a relative similarity of participants' choices of the two desirable and undesirable behaviour factors of perception. Although the neutral choices were slightly high for the 6 statements (37, 36, 38, 49, 35 and 28), the agreement and disagreement options were relatively similar. Neutral choices can be calculated by the following formula:

*Neutral choice = the total number of answers – the total of agreement and disagreement choices*

For example, the first sub IBF in the IBF 2 is:

$$\text{Neutral choice} = 220 - 183 = 37$$

The precise descriptive results that appear in a table 5.30 reflect that the questionable assumptions of stimuli interpretation, individual awareness and constancy, task interpretation, misinterpretation and unrealistic expectations were answered in a critical manner. Remarkably, in the different management styles factor, the majority of participants (182 answers) have chosen the agreement options, whereas only 10 respondents selected the disagreement choices. They clearly support the statement “Working on different systems or changeable procedures raises a difficulty of realising and understanding the assigned tasks for decision-makers”.

**Table 5.31: Chi-Square statistical results of the Perception (IBF 2)**

Perception			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 2-1 Stimuli Interpretation	.923 <sup>g</sup>	1	.337
IBF 2-2 Misinterpretation	.474 <sup>h</sup>	1	.491
IBF 2-3 Individual Awareness and Constancy	2.630 <sup>i</sup>	1	.105
IBF 2-4 Unrealistic Expectations	.914 <sup>j</sup>	1	.339
IBF 2-5 Task Interpretation	.088 <sup>k</sup>	1	.767
IBF 2-6 Different Management Styles	154.083 <sup>l</sup>	1	.000
<b>The main factor IBF 2</b>		<b>1</b>	<b>.003</b>

The diversity of responses in these assumptions resulted in different levels of asymptotic significance. As a result of the relative similarity in agreement and disagreement choices, the asymptotic significance or p values were between .0105 in the IBF 2-3 individual awareness and constancy and .767 in the IBF 2-5 task interpretation sub-factors. The only assumption that strongly supports the second hypothesis is the last IBF 2-6 (.000 significance level). Despite the

diversity of significance, the overall p value has reflected that there was significant evidence of an association of  $\chi^2$  (1),  $p < 0.003$ . Therefore, it supports the second hypothesis that proposes that individuals' perception leads to a higher positive level of performance when firms enhance some sub-factors such as stimuli interpretation, individual awareness and constancy and task interpretation, and avoid misinterpretation, unrealistic expectations and different management styles.

**Table 5.32: Chi-Square test of the Ability and Skills (IBF 3)**

IBF 3-1 Consistency of Performance			
	Observed N	Expected N	Residual
Less than 3	87	91.0	-4.0-
Greater than 3	95	91.0	4.0
Total	182		
IBF 3-3 Flexibility			
	Observed N	Expected N	Residual
Less than 3	34	84.0	-50.0-
Greater than 3	134	84.0	50.0
Total	168		
IBF 3-5 Quick Response			
	Observed N	Expected N	Residual
Less than 3	14	96.0	-82.0-
Greater than 3	178	96.0	82.0
Total	192		

IBF 3-2 Ineffective Communication			
	Observed N	Expected N	Residual
Less than 3	47	92.0	-45.0-
Greater than 3	137	92.0	45.0
Total	184		
IBF 3-4 Lack in Problem Solving			
	Observed N	Expected N	Residual
Less than 3	3	101.0	-98.0-
Greater than 3	199	101.0	98.0
Total	202		
IBF 3-6 Inaccuracy			
	Observed N	Expected N	Residual
Less than 3	69	83.5	-14.5-
Greater than 3	98	83.5	14.5
Total	167		

The Pearson's Chi-Squared test was carried out to examine the research assumptions regarding individuals' ability and skills. It is obvious that participants' selections were not equally distributed among the 6 statements of this factor except the IBF 3-1 consistency of performance that includes 87 disagreement and 95 agreement answers with only 8 different answers. The IBF 3-5 quick response has been positively supported by 178 selections versus only 14 disagreement choices. In the undesirable assumptions, the agreement selections outweigh the disagreement levels in the all 3 statements. Considerably, the IBF 3-4 lack in problem solving reached 199 supported responses with only 3 disagreement selections. This supporting statement assumes that the inability of problem solving could negatively affect investment projects when decision-makers fail in finding appropriate solution of some related problems. Also, the IBF 3-2 ineffective communication has clearly confirms that the ineffective individuals' communication with others in irrational, illogical and unclear way poses difficulties

in many investment procedures such as supporting decisions and funding the proposed projects as it reached 137 supported selections, with only 47 disagreement answers.

**Table 5.33: Chi-Square statistical results of the Ability and Skills (IBF 3)**

<b>Ability and Skills</b>			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 3-1 Consistency of Performance	.352 <sup>k</sup>	1	.553
IBF 3-2 Ineffective Communication	44.022 <sup>i</sup>	1	.000
IBF 3-3 Flexibility	59.524 <sup>m</sup>	1	.000
IBF 3-4 Lack in Problem Solving	190.178 <sup>n</sup>	1	.000
IBF 3-5 Quick Response	140.083 <sup>l</sup>	1	.000
IBF 3-6 Inaccuracy	5.036 <sup>o</sup>	1	.025
<b>The main factor IBF 3</b>		<b>1</b>	<b>.000</b>

The table 5.33 illustrates the statistical results derived from testing the ability and skills factor, and it shows statistically significance in the sub-factors from 3-2 to 3-6. The probability values were significant for them as the test reported .000 for 3-2, 3-3, 3-4 and 3-5, and it showed .025 for 3-6, as well as for the overall value ( $p < 0.05$ ) and it was .000. This strongly supports the third hypothesis which assumes that ability and skills leads to a higher positive level of performance when firms enhance some sub-factors such as consistency of performance, flexibility and quick response, and avoid the ineffective communication, lack in problem-solving and inaccuracy.

**Table 5.34: Chi-Square test of the Motivation (IBF 4)**

<b>IBF 4-1 Reinforcement</b>			
	Observed N	Expected N	Residual
Less than 3	17	99.5	-82.5-
Greater than 3	182	99.5	82.5
Total	199		
<b>IBF 4-3 Expectancy</b>			
	Observed N	Expected N	Residual
Less than 3	38	91.5	-53.5-
Greater than 3	145	91.5	53.5
Total	183		
<b>IBF 4-5 Intrinsic and Extrinsic Rewards</b>			
	Observed N	Expected N	Residual
Less than 3	7	100.5	-93.5-
Greater than 3	194	100.5	93.5
Total	201		

<b>IBF 4-2 Fear of Failure</b>			
	Observed N	Expected N	Residual
Less than 3	60	89.0	-29.0-
Greater than 3	118	89.0	29.0
Total	178		
<b>IBF 4-4 Pain-Avoidance</b>			
	Observed N	Expected N	Residual
Less than 3	52	92.0	-40.0-
Greater than 3	132	92.0	40.0
Total	184		
<b>IBF 4-6 Performance Inconsistency</b>			
	Observed N	Expected N	Residual
Less than 3	71	88.5	-17.5-
Greater than 3	106	88.5	17.5
Total	177		

The above results show that the category (greater than 3) has been widely chosen in the 6 desirable and undesirable statements of the motivation factor. In the positive assumed behaviour, the relative weight of the answers led to considerable difference between the selection areas. As it can be seen that the differences among the two first statements were 165 answers (182-17) and 107 answers (145-38). The majority of participants agreed that the physical and non-physical rewards significantly encourage decision-making participants to increasing their performance in all the stages of investment decisions. The difference level of this statement was 187 answers (194 -7). On the contrary, although the agreement selections of the undesirable behaviours outweigh the disagreement choices, the difference levels were not as much as the positive assumed statements. In this context, the differences were 58 (118-60), 80 (132-52) and 35 (106-71). Generally, the assumptions of the motivational factor reached a wide agreement including the 6 statements.

**Table 5.35: Chi-Square statistical results of the Motivation (IBF 4)**

<b>Motivation</b>			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 4-1 Reinforcement	136.809 <sup>p</sup>	1	.000
IBF 4-2 Fear of Failure	18.899 <sup>f</sup>	1	.000
IBF 4-3 Expectancy	62.563 <sup>g</sup>	1	.000
IBF 4-4 Pain-Avoidance	34.783 <sup>i</sup>	1	.000
IBF 4-5 Intrinsic and Extrinsic Rewards	173.975 <sup>q</sup>	1	.000
IBF 4-6 Performance Inconsistency	6.921 <sup>r</sup>	1	.009
<b>The main factor IBF 4</b>		<b>1</b>	<b>.000</b>

In similar statistical trends to the personality factor, the asymptotic significance levels of motivation were in a high level of confidence ( $p < 0.05$ ) as the first 5 statements reported .000 and only .009 of the IBF 4-6 performance inconsistency. As the probability values were significant for the main and sub-factors, the test statistically support the fourth hypothesis that assumes that motivation leads to a higher positive level of performance when firms enhance some sub-factors such as reinforcement, expectancy and intrinsic and extrinsic rewards, and avoid the fear of failure, pain-avoidance and performance inconsistency.

**Table 5.36: Chi-Square test of the Attitudes (IBF 5)**

IBF 5-1 Positive Emotional Attitudes			
	Observed N	Expected N	Residual
Less than 3	81	86.0	-5.0-
Greater than 3	91	86.0	5.0
Total	172		
IBF 5-3 The Possibility of Change			
	Observed N	Expected N	Residual
Less than 3	72	86.0	-14.0-
Greater than 3	100	86.0	14.0
Total	172		
IBF 5-5 Background Knowledge			
	Observed N	Expected N	Residual
Less than 3	73	89.0	-16.0-
Greater than 3	105	89.0	16.0
Total	178		
IBF 5-2 Aggressive Expression			
	Observed N	Expected N	Residual
Less than 3	77	91.0	-14.0-
Greater than 3	105	91.0	14.0
Total	182		
IBF 5-4 Disrespect to Others' Emotions			
	Observed N	Expected N	Residual
Less than 3	82	89.0	-7.0-
Greater than 3	96	89.0	7.0
Total	178		
IBF 5-6 No Ownership in Mistakes Committed			
	Observed N	Expected N	Residual
Less than 3	77	80.0	-3.0-
Greater than 3	83	80.0	3.0
Total	160		

The responses in this behavioural factor were not equally distributed among the selections of answers as it can be seen in the Table 5.36. There is a slight difference in all the 6 statements between the agreement and disagreement choices. The table reveals that the totals of observed frequencies were not in a high level as other IBFs. This means that the neutral choice was in a high selection level. To calculate that, the neutral selections among the 6 statements were 48 (220- 172), 48 (220- 172), 42 (220- 178), 38 (220- 182), 42 (220- 178) and 60 (220- 160). This reflects how the attitudinal statements are not crucial enough, which leads to selecting the undecided category or neutral as it is shown in the rating scale. The highest undecided sub-factor was the IBF 5-6 of no ownership in mistakes committed, which states that individuals who do not take ownership of committing mistakes are likely to hinder the quality of investment decisions as this sensitive process needs a reasonable level of transparency. With a lower difference, the IBF 5-1 positive emotional attitudes and IBF 5-3 the possibility of change have reached 48 neutral answers.

**Table 5.37: Chi-Square statistical results of the Attitudes (IBF 5)**

Attitudes			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 5-1 Positive Emotional Attitudes	.581 <sup>s</sup>	1	.446
IBF 5-2 Aggressive Expression	4.308 <sup>k</sup>	1	.038
IBF 5-3 The Possibility of Change	4.558 <sup>s</sup>	1	.033
IBF 5-4 Disrespect to Others' Emotions	1.101 <sup>f</sup>	1	.294
IBF 5-5 Background Knowledge	5.753 <sup>f</sup>	1	.016
IBF 5-6 No Ownership in Mistakes Committed	.225 <sup>t</sup>	1	.635

<b>The main factor IBF 5</b>		<b>1</b>	<b>.001</b>
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Table 5.37 presents how the respondents' selection can be statistically analysed. It indicates that this IBF is the only factor that does not include any .000 value of the asymptotic significance comparing to the 8 main IBFs. This confirms the relative similarity of answers. This diversity does not mean that there is no significance as the all the first 5 sub-factors have significant values ( $p < 0.05$ ), except the 6<sup>th</sup> statements that exceeds this value and reached .635. The overall asymptotic significance in this behavioural factor is .001 which also supports the fifth hypothesis, which proposes that attitudes lead to a higher positive level of performance when firms enhance some sub-factors such as positive emotional attitudes, the possibility of change and background knowledge, and avoid the aggressive expression, disrespect to others' emotions and no ownership in mistakes committed.

**Table 5.38: Chi-Square test of the Work Stress (IBF 6)**

<b>IBF 6-1 Increased Creativity</b>			
	Observed N	Expected N	Residual
Less than 3	76	89.5	-13.5-
Greater than 3	103	89.5	13.5
Total	179		
<b>IBF 6-3 Cognition Enhancement</b>			
	Observed N	Expected N	Residual
Less than 3	42	90.5	-48.5-
Greater than 3	139	90.5	48.5
Total	181		
<b>IBF 6-5 Task Completion Desire</b>			
	Observed N	Expected N	Residual
Less than 3	72	90.0	-18.0-
Greater than 3	108	90.0	18.0
Total	180		
<b>IBF 6-2 Loss of Concentration</b>			
	Observed N	Expected N	Residual
Less than 3	57	94.0	-37.0-
Greater than 3	131	94.0	37.0
Total	188		
<b>IBF 6-4 Less Productivity</b>			
	Observed N	Expected N	Residual
Less than 3	56	89.5	-33.5-
Greater than 3	123	89.5	33.5
Total	179		
<b>IBF 6-6 Increased Complaints</b>			
	Observed N	Expected N	Residual
Less than 3	78	88.0	-10.0-
Greater than 3	98	88.0	10.0
Total	176		

The trends of work stress statements show that a reasonable number of answers were selected in favour of the agreement choices as they outweigh the disagreement choices in the 6 statements. The IBF 6-3 cognition enhancement was obviously supported by 139 answers that states high cognitive ability helps in generating new useful investment appraisal techniques and strengthens the mental power and the effectiveness of individuals. This indication is followed by the IBF 6-5 task completion desire and IBF 6-1 increased creativity factors with 108 and 103 respectively. On the other hand, the IBF 6-2 loss of concentration has reached the highest agreement



selections of the undesirable behaviours with 131 agreement answers. The IBF 6-4 less productivity was also in a high level of 131 selections, while the IBF 6-6 increased complaints was in the lowest selection level with only 98 selections. The last sub-factor was not confidently supported which assumes that individuals' dissatisfaction increase resulted from their work conditions or not involving them in decision-making process would raise their complaints and then hinder their performance level.

**Table 5.39: Chi-Square statistical results of the Work Stress (IBF 6)**

<b>Work Stress</b>			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 6-1 Increased Creativity	4.073 <sup>u</sup>	1	.044
IBF 6-2 Loss of Concentration	29.128 <sup>v</sup>	1	.000
IBF 6-3 Cognition Enhancement	51.983 <sup>w</sup>	1	.000
IBF 6-4 Less Productivity	25.078 <sup>u</sup>	1	.000
IBF 6-5 Task Completion Desire	7.200 <sup>a</sup>	1	.007
IBF 6-6 Increased Complaints	2.273 <sup>x</sup>	1	.132
<b>The main factor IBF 6</b>		<b>1</b>	<b>.000</b>

The Table 5.39 confirms the significant association between research sub variables. It shows the 6 results of asymptotic significance where the probability is ( $p < 0.05$ ). It indicates the significant relationship of the IBF 6-1 increased creativity (.044), IBF 6-2 loss of concentration (.000), IBF 6-3 cognition enhancement (.000), IBF 6-4 less productivity (.000), IBF 6-5 task completion desire (.007) and IBF 6-6 increased complaints (.132). The overall asymptotic significance or probability value was .000 which confidently supports the sixth hypothesis that assumes that work stress leads to a higher positive level of performance when firms enhance some sub-factors such as increased creativity, cognition enhancement and task completion desire, and avoid the loss of concentration, less productivity and increased complaints.

**Table 5.40: Chi-Square test of the Job Satisfaction (IBF 7)**

<b>IBF 7-1 Participative Decision-Making</b>			
	Observed N	Expected N	Residual
Less than 3	90	90.5	-.5-
Greater than 3	91	90.5	.5
Total	181		

<b>IBF 7-2 Intensive Work Standards</b>			
	Observed N	Expected N	Residual
Less than 3	66	93.5	-27.5-
Greater than 3	121	93.5	27.5
Total	187		

IBF 7-3 Encouraging Environment			
	Observed N	Expected N	Residual
Less than 3	45	92.5	-47.5-
Greater than 3	140	92.5	47.5
Total	185		
IBF 7-5 Job Loyalty			
	Observed N	Expected N	Residual
Less than 3	63	94.0	-31.0-
Greater than 3	125	94.0	31.0
Total	188		

IBF 7-4 Non-Financial Rewards			
	Observed N	Expected N	Residual
Less than 3	70	93.5	-23.5-
Greater than 3	117	93.5	23.5
Total	187		
IBF 7-6 Job Position Dissatisfaction			
	Observed N	Expected N	Residual
Less than 3	68	84.0	-16.0-
Greater than 3	100	84.0	16.0
Total	168		

Job satisfaction results show that the agreement and disagreement answers of the first sub-factor IBF 7-1 participative decision-making were almost the same as they reported 90 less than 3 and 91 greater than 3. The answers distribution was equally divided into the rating scale of this statement that assumes that participating in determining the project outline, selecting the best options for the firm and making suitable decisions is a fundamental requirement for successful investment decisions. With a reasonable confidence, the statements IBF 7-3 encouraging environment and IBF 7-5 job loyalty have been answered in favour of the agreement choices with 140 and 125 answers. In the undesirable assumed behaviours, although the 3 statements have been clearly supported by the agreement selections, the differences were not as much as the IBF 7-3 and IBF 7-5. The residual numbers of these 3 statements were 27.5, 23.5 and 16.0.

**Table 5.41: Chi-Square statistical results of the Job Satisfaction (IBF 7)**

Job Satisfaction			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 7-1 Participative Decision-Making	.006 <sup>w</sup>	1	.941
IBF 7-2 Intensive Work Standards	16.176 <sup>d</sup>	1	.000
IBF 7-3 Encouraging Environment	48.784 <sup>j</sup>	1	.000
IBF 7-4 Non-Financial Rewards	11.813 <sup>d</sup>	1	.001
IBF 7-5 Job Loyalty	20.447 <sup>v</sup>	1	.000
IBF 7-6 Job Position Dissatisfaction	6.095 <sup>m</sup>	1	.014
<b>The main factor IBF 7</b>		<b>1</b>	<b>.000</b>

As stated earlier, the answers of the first sub-factor were almost the same. As a result, the asymptotic significance of this statement was .941 which is the highest number of all the 48 sub-factors of this research that assumes that there is no association between the sub-variables formulated. Despite this result, the statistical results of the rest 5 sub-factors support the

association between research variables as the asymptotic significance were ( $p < 0.05$ ) for all of them. The general statistical indicator was .000 that supports the seventh hypothesis which states that job satisfaction leads to a higher positive level of performance when firms enhance some sub-factors such as participative decision-making, encouraging environment and job loyalty, and avoid the intensive work standards, non-financial rewards and job position dissatisfaction.

**Table 5.42: Chi-Square test of the Administrative Leadership (IBF 8)**

<b>IBF 8-1 Participative Leadership</b>			
	Observed N	Expected N	Residual
Less than 3	15	101.5	-86.5-
Greater than 3	188	101.5	86.5
Total	203		
<b>IBF 8-3 Inspirational Leadership</b>			
	Observed N	Expected N	Residual
Less than 3	11	102.5	-91.5-
Greater than 3	194	102.5	91.5
Total	205		
<b>IBF 8-5 Motivational Leadership</b>			
	Observed N	Expected N	Residual
Less than 3	49	90.0	-41.0-
Greater than 3	131	90.0	41.0
Total	180		

<b>IBF 8-2 Irresponsible Leadership</b>			
	Observed N	Expected N	Residual
Less than 3	41	88.0	-47.0-
Greater than 3	135	88.0	47.0
Total	176		
<b>IBF 8-4 Ineffective Leadership</b>			
	Observed N	Expected N	Residual
Less than 3	50	95.5	-45.5-
Greater than 3	141	95.5	45.5
Total	191		
<b>IBF 8-6 Poor Communication</b>			
	Observed N	Expected N	Residual
Less than 3	7	96.0	-89.0-
Greater than 3	185	96.0	89.0
Total	192		

With obvious selection differences, the statements of the last IBFs have been answered in favour of the agreement attitudes for the all the 6 statements. For example, in the IBF 8-3 inspirational leadership, the respondents have chosen 194 answers ( $194 \div 220 = 88\%$ ), while only 11 answered ( $11 \div 220 = 5\%$ ) were selected in favour of the disagreement attitude. They majority of the participants agreed that the ability of leaders in creating a positive sense for individuals and inspiring them in their assigned work can be reflected in positive decision-making participation. Another significant difference has been indicated in the Table 5.42 in the undesirable behaviours which was in the IBF 8-6 poor communication that reached 185 agreement responses ( $185 \div 220 = 84\%$ ), versus only 7 disagreement selections ( $7 \div 220 = 3\%$ ).

**Table 5.43: Chi-Square statistical results of the Administrative Leadership (IBF 8)**

<b>Administrative Leadership</b>			
Sub-factor	Chi-Square	df	Asymp. Sig.
IBF 8-1 Participative Leadership	147.433 <sup>y</sup>	1	.000
IBF 8-2 Irresponsible Leadership	50.205 <sup>x</sup>	1	.000
IBF 8-3 Inspirational Leadership	163.361 <sup>z</sup>	1	.000
IBF 8-4 Ineffective Leadership	43.356 <sup>aa</sup>	1	.000
IBF 8-5 Motivational Leadership	37.356 <sup>a</sup>	1	.000
IBF 8-6 Poor Communication	165.021 <sup>l</sup>	1	.000
<b>The main factor IBF 8</b>		<b>1</b>	<b>.000</b>

It can be confidently stated that the hypothesis of administrative leadership has been enormously supported by the majority of participants in this research. The results were as the research expected and proposed in the research hypothesis. The asymptotic significance of all the 6 statements were .000 and that has been reflected in the overall trend. These supportive attitudes confirms the eighth hypothesis which assumes that administrative leadership leads to a higher positive level of performance when firms enhance some sub-factors such as participative leadership, inspirational leadership and motivational leadership, and avoid the irresponsible leadership, ineffective leadership and poor communication.

## 5.5 Conclusion

To reflect the previous methodological efforts and explanations into the practical study that was carried out on the Libyan service companies, the data analysis chapter provides an analytical framework of the association between IBFs and SIDs using a number of different techniques. The chapter has reflected all the responses of research participants into final investigation processes through sorting, processing and generating the data collected in tables, percentages and statistical analyses.

A number of descriptive and statistical analyses were used to demonstrate the impact of the IBFs into measurable context. The statements of the 8 IBFs were analysed using the grand total of each behavioural determinant, the average of each IBF. In addition, the results of Pearson Chi-Square test were shown in tables covering all the 8 factors. The data is introduced in descriptive and statistical context to pave the way to the next chapter that logically interpret and discuss the

key findings with an interpretive framework of all 8 research hypotheses to confirm whether the hypotheses are accepted or rejected.

## **CHAPTER 6: DISCUSSIONS OF RESEARCH FINDINGS**

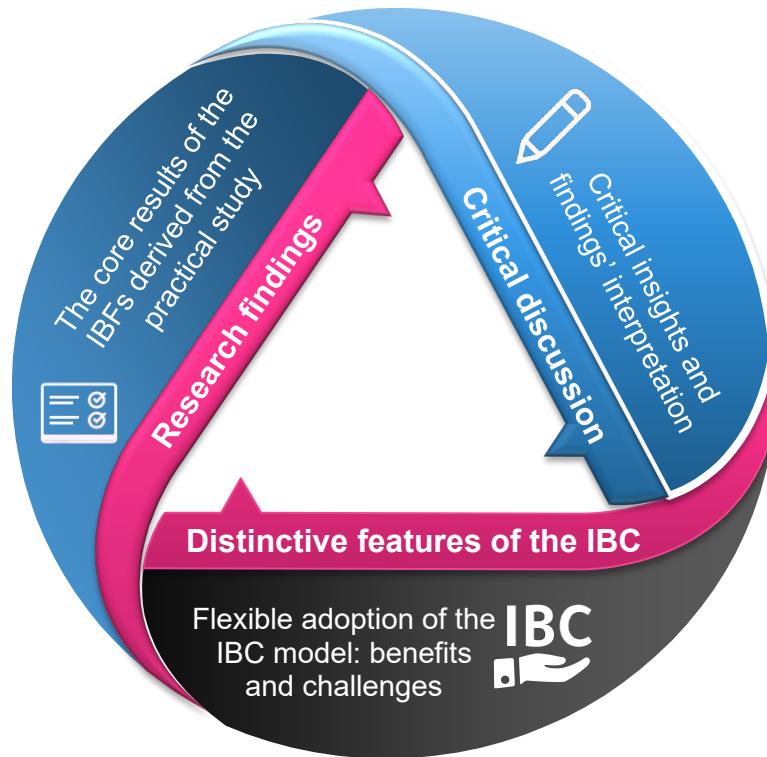
### **6.1 Introduction**

The gradual exploration and investigation of the main relationships of the research have been introduced through the previous chapters to provide a coherent and logical linkage to the behavioural issue and its desirable and undesirable implications. This chapter is an extension of what has already been done in this research including the theoretical insights, establishing the IBC model and its interpretations, designing the data collection instrument in line with the IBC model and research hypotheses, and the data gathered from the practical part of this research. The quantitative approach was introduced and used in the methodology chapter as a reliable and accurate method. It principally adopted as a trustworthy approach for providing richer information used in deep analyses (Katsirikou, 2013). Based on the research hypotheses, it was anticipated that the findings derived from the practical study would determine which IBFs were perceived to be supported by the participants' attitudes. Introducing, discussing and interpreting the results will be a complementary part of this thesis to show the conceptualised hypothetical relationships between the IBFs and SIDs. In order to achieve that, detailed interpretations will be provided taking into consideration all the main IBFs and implicitly 48 sub-factors.

The research settings chosen in this research represent a significant category in Libyan companies. The results derived from the questionnaire distribution illustrate the underlying impact of the IBFs on SIDs based on the participants' responses. These influences will be introduced in a discussion and interpretive framework in this chapter based on the responses collected. The discussion of this chapter is a complementary framework of the previous chapter (Data Analysis and Hypotheses Testing) that shows the results of the quantitative approach and data collected.

This chapter will be split into three parts; the first part focuses on the research findings, while the second provides the core discussion insights derived from the results, and the third part concentrates on the advantages of establishing and applying the distinctive features of the IBC as an interdisciplinary model. The core elements of this chapter are represented in the following figure.

**Figure 6.1: The main parts of discussion of research findings chapter**



**(Researcher's figure)**

## **6.2 Research Findings: The Core Results of the IBFs Derived from the Practical Study**

The study has eight distinct research findings reflected in the eight hypotheses of this research. This part additionally introduces the core findings made from the practical investigation. As the first hypothesis was focused on personality (IBF1), the hypothesis assumed that the personality characteristics of individuals have a positive high impact on their performance when firms enhance and support some determinants such as individuals' performance in a high level when firms enhance some sub-factors such as creativity and innovation, cooperation and assertiveness, and avoid assumed undesirable sub-factors represented in carelessness, impulsivity and bias characteristics. The following table shows the responses that have been received from the participants regarding the personality factor. It introduces the frequency of each option chosen of Likert scale that matches the respondents' attitudes. Also, the relative weight of each option is presented in percentages as well as the cumulative percent.

**Table 6.1: Response features and relative weights of Personality**

IBF 1-1 Creativity and Innovation (openness)					IBF 1-2 Carelessness (Opposite Conscientiousness)				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str dis	26	11.8	11.8	11.8	Str dis	1	.5	.5	.5
Disagree	38	17.3	17.3	29.1	Disagree	10	4.5	4.5	5.0
Neutral	40	18.2	18.2	47.3	Neutral	23	10.5	10.5	15.5
Agree	60	27.3	27.3	74.5	Agree	59	26.8	26.8	42.3
Str agr	56	25.5	25.5	100.0	Str agr	127	57.7	57.7	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 1-3 Cooperation (Agreeableness)					IBF 1-4 Impulsivity (Neuroticism)				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str dis	13	5.9	5.9	5.9	Str dis	24	10.9	10.9	10.9
Disagree	30	13.6	13.6	19.5	Disagree	19	8.6	8.6	19.5
Neutral	24	10.9	10.9	30.5	Neutral	33	15.0	15.0	34.5
Agree	60	27.3	27.3	57.7	Agree	50	22.7	22.7	57.3
Str agr	93	42.3	42.3	100.0	Str agr	94	42.7	42.7	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 1-5 Assertiveness (Extraversion)					IBF 1-6 Bias				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str dis	30	13.6	13.6	13.6	Str dis	30	13.6	13.6	13.6
Disagree	31	14.1	14.1	27.7	Disagree	37	16.8	16.8	30.5
Neutral	47	21.4	21.4	49.1	Neutral	42	19.1	19.1	49.5
Agree	47	21.4	21.4	70.5	Agree	50	22.7	22.7	72.3
Str agr	65	29.5	29.5	100.0	Str agr	61	27.7	27.7	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

The table indicates that the agreement level of the IBF 1-1 was the highest option with 27.3%, while the strong agreement of the IBF 1-2 clearly exceeded the other options as it reached 57.7% which represents a high concentrated choice. Similarly, cooperative personality has recorded 42.3% of the strong agreement level, with almost the same percentage and choice was selected in the IBF 1-4 with 42.7%. Again, the strong agreement clearly outweighed the rest of choices, whereas a slight excess of the strong agreement option was recorded in the IBF 1-6. With some similar responses of the strong disagreement of all the sub-factors, 0.5% has been recorded in the carelessness personality which supports the assumptions of the personality trait. Similarly, the strong disagreement is indicated in the cooperative personality with 13 choices (5.9%).



**Table 6.2: Response features and relative weights of Perception**

IBF 2-1 Stimuli Interpretation					IBF 2-2 Misinterpretation				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Str disagree</b>	44	20.0	20.0	20.0	<b>Str disagree</b>	41	18.6	18.6	18.6
<b>Disagree</b>	54	24.5	24.5	44.5	<b>Disagree</b>	49	22.3	22.3	40.9
<b>Neutral</b>	37	16.8	16.8	61.4	<b>Neutral</b>	49	22.3	22.3	63.2
<b>Agree</b>	45	20.5	20.5	81.8	<b>Agree</b>	44	20.0	20.0	83.2
<b>Str agree</b>	40	18.2	18.2	100.0	<b>Str agree</b>	37	16.8	16.8	100.0
<b>Total</b>	220	100.0	100.0		<b>Total</b>	220	100.0	100.0	
IBF 2-3 Individual Awareness and Constancy					IBF 2-4 Unrealistic Expectations				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Str disagree</b>	53	24.1	24.1	24.1	<b>Str disagree</b>	49	22.3	22.3	22.3
<b>Disagree</b>	50	22.7	22.7	46.8	<b>Disagree</b>	50	22.7	22.7	45.0
<b>Neutral</b>	36	16.4	16.4	63.2	<b>Neutral</b>	35	15.9	15.9	60.9
<b>Agree</b>	42	19.1	19.1	82.3	<b>Agree</b>	44	20.0	20.0	80.9
<b>Str agree</b>	39	17.7	17.7	100.0	<b>Str agree</b>	42	19.1	19.1	100.0
<b>Total</b>	220	100.0	100.0		<b>Total</b>	220	100.0	100.0	
IBF 2-5 Task Interpretation					IBF 2-6 Different Management Styles				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Str disagree</b>	42	19.1	19.1	19.1	<b>Str disagree</b>	2	.9	.9	.9
<b>Disagree</b>	47	21.4	21.4	40.5	<b>Disagree</b>	8	3.6	3.6	4.5
<b>Neutral</b>	38	17.3	17.3	57.7	<b>Neutral</b>	28	12.7	12.7	17.3
<b>Agree</b>	54	24.5	24.5	82.3	<b>Agree</b>	75	34.1	34.1	51.4
<b>Str agree</b>	39	17.7	17.7	100.0	<b>Str agree</b>	107	48.6	48.6	100.0
<b>Total</b>	220	100.0	100.0		<b>Total</b>	220	100.0	100.0	

The overall expression of participants concerning the perception factor was slightly different to personality. There was a relative balance between participants' choices, especially in the statements (stimuli interpretation, misinterpretation, individual awareness and constancy, unrealistic expectation and task interpretation). The final statement was the only option that clearly supports the hypotheses as it indicated that 107 respondents have selected the strong agreement option (48.6%), while only 0.9% of participants have the opposite strong choice. The complexity of the behavioural and psychological factors might be the underlying reason for this difference occurred between the last assumption and the rest of statements as it is related to management styles that reflect more obvious knowledge for each participant.

**Table 6.3: Response features and relative weights of Ability and Skills**

IBF 3-1 Consistency of Performance					IBF 3-2 Ineffective Communication				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	49	22.3	22.3	22.3	Str disagree	22	10.0	10.0	10.0
Disagree	38	17.3	17.3	39.5	Disagree	25	11.4	11.4	21.4
Neutral	38	17.3	17.3	56.8	Neutral	36	16.4	16.4	37.7
Agree	38	17.3	17.3	74.1	Agree	47	21.4	21.4	59.1
Str agree	57	25.9	25.9	100.0	Str agree	90	40.9	40.9	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 3-3 Flexibility					IBF 3-4 Lack in Problem Solving				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	10	4.5	4.5	4.5	Str disagree	0	0	0	0
Disagree	24	10.9	10.9	15.5	Disagree	3	1.4	1.4	1.4
Neutral	52	23.6	23.6	39.1	Neutral	18	8.2	8.2	9.5
Agree	37	16.8	16.8	55.9	Agree	68	30.9	30.9	40.5
Str agree	97	44.1	44.1	100.0	Str agree	131	59.5	59.5	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 3-5 Quick Response					IBF 3-6 Inaccuracy				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	2	.9	.9	.9	Str disagree	37	16.8	16.8	16.8
Disagree	12	5.5	5.5	6.4	Disagree	32	14.5	14.5	31.4
Neutral	28	12.7	12.7	19.1	Neutral	53	24.1	24.1	55.5
Agree	62	28.2	28.2	47.3	Agree	47	21.4	21.4	76.8
Str agree	116	52.7	52.7	100.0	Str agree	51	23.2	23.2	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

The most common features of participants' attitudes of ability and skills were reported in the strong agreement option as they were 25.9%, 40.9%, 44.1%, 59.5%, 52.7% and 23.2% respectively. These responses reflect how the sample reacted with relevant issues related to all individuals within the firms that have been chosen. The lack in problem solving as a negative behaviour has been clearly supported by 131 participants. In addition, in the desirable behaviour assumptions, the necessity of quick response has been widely chosen by the participants through 116 choices. Interestingly, the strong disagreement of the fourth statement (the lack of problem solving) has not been selected by any participant due to the relative clarity of statement.

**Table 6.4: Response features and relative weights of Motivation**

IBF 4-1 Reinforcement					IBF 4-2 Fear of Failure				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	7	3.2	3.2	3.2	Str disagree	26	11.8	11.8	11.8
Disagree	10	4.5	4.5	7.7	Disagree	34	15.5	15.5	27.3
Neutral	21	9.5	9.5	17.3	Neutral	42	19.1	19.1	46.4
Agree	66	30.0	30.0	47.3	Agree	44	20.0	20.0	66.4
Str agree	116	52.7	52.7	100.0	Str agree	74	33.6	33.6	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 4-3 Expectancy					IBF 4-4 Pain-Avoidance				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	11	5.0	5.0	5.0	Str disagree	20	9.1	9.1	9.1
Disagree	27	12.3	12.3	17.3	Disagree	32	14.5	14.5	23.6
Neutral	37	16.8	16.8	34.1	Neutral	36	16.4	16.4	40.0
Agree	59	26.8	26.8	60.9	Agree	44	20.0	20.0	60.0
Str agree	86	39.1	39.1	100.0	Str agree	88	40.0	40.0	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 4-5 Intrinsic and Extrinsic Rewards					IBF 4-6 Performance Inconsistency				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	1	.5	.5	.5	Str disagree	34	15.5	15.5	15.5
Disagree	6	2.7	2.7	3.2	Disagree	37	16.8	16.8	32.3
Neutral	19	8.6	8.6	11.8	Neutral	43	19.5	19.5	51.8
Agree	58	26.4	26.4	38.2	Agree	46	20.9	20.9	72.7
Str agree	136	61.8	61.8	100.0	Str agree	60	27.3	27.3	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

Participants were asked to choose their agreement level of motivational factor in its assumed desirable and undesirable sub-factors. The answers received were fairly consistent as the strong agreement option was the highest option chosen by the participants. In the assumed positive part, the strong agreement percentages were 52.7% for reinforcement, 39.1% for expectancy and 61.8% for intrinsic and extrinsic rewards. On the other part, the percentages were 33.6% for fear of failure, 40% for pain-avoidance and 27.3% for performance inconsistency. The highest correlation between motivation and SIDs is shown IBF 4-5 with 61.8% as it can be observed from the Table 6-4. Also, strong disagreement of the same sub-factor was represented only in 1 answer which strongly enhances the research assumptions.

**Table 6.5: Response features and relative weights of Attitudes**

IBF 5-1 Positive Emotional Attitudes					IBF 5-2 Aggressive Expression				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	47	21.4	21.4	21.4	Str disagree	38	17.3	17.3	17.3
Disagree	34	15.5	15.5	36.8	Disagree	39	17.7	17.7	35.0
Neutral	48	21.8	21.8	58.6	Neutral	38	17.3	17.3	52.3
Agree	43	19.5	19.5	78.2	Agree	45	20.5	20.5	72.7
Str agree	48	21.8	21.8	100.0	Str agree	60	27.3	27.3	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 5-3 The Possibility of Change					IBF 5-4 Disrespect to Others' Emotions				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	37	16.8	16.8	16.8	Str disagree	40	18.2	18.2	18.2
Disagree	35	15.9	15.9	32.7	Disagree	42	19.1	19.1	37.3
Neutral	48	21.8	21.8	54.5	Neutral	42	19.1	19.1	56.4
Agree	50	22.7	22.7	77.3	Agree	44	20.0	20.0	76.4
Str agree	50	22.7	22.7	100.0	Str agree	52	23.6	23.6	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 5-5 Background Knowledge					IBF 5-6 No Ownership in Mistakes Committed				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	35	15.9	15.9	15.9	Str disagree	42	19.1	19.1	19.1
Disagree	38	17.3	17.3	33.2	Disagree	35	15.9	15.9	35.0
Neutral	42	19.1	19.1	52.3	Neutral	60	27.3	27.3	62.3
Agree	53	24.1	24.1	76.4	Agree	43	19.5	19.5	81.8
Str agree	52	23.6	23.6	100.0	Str agree	40	18.2	18.2	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

Most participants positively interacted with assumed 5<sup>th</sup> hypothesis as their overall response was concentrated in the agreement and strong agreement levels. However, the neutral option was fairly chosen in the positive emotional attitude, the possibility of change and no ownership in mistakes committed. Generally, responses reflect reasonable percentages of the strong disagreement and disagreement comparing to some previous IBFs. For example, the lowest response of strong disagree was represented in 5-5 with 15.9%, while in disagree option was 15.5% in the positive emotional attitudes. This diversity of responses indicates how the respondents feel towards the attitudes factors as a complex behavioural determinant.

**Table 6.6: Response features and relative weights of Work Stress**

IBF 6-1 Increased Creativity					IBF 6-2 Loss of Concentration				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	35	15.9	15.9	15.9	Str disagree	23	10.5	10.5	10.5
Disagree	41	18.6	18.6	34.5	Disagree	34	15.5	15.5	25.9
Neutral	41	18.6	18.6	53.2	Neutral	32	14.5	14.5	40.5
Agree	45	20.5	20.5	73.6	Agree	55	25.0	25.0	65.5
Str agree	58	26.4	26.4	100.0	Str agree	76	34.5	34.5	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 6-3 Cognition Enhancement					IBF 6-4 Less Productivity				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	15	6.8	6.8	6.8	Str disagree	24	10.9	10.9	10.9
Disagree	27	12.3	12.3	19.1	Disagree	32	14.5	14.5	25.5
Neutral	39	17.7	17.7	36.8	Neutral	41	18.6	18.6	44.1
Agree	46	20.9	20.9	57.7	Agree	54	24.5	24.5	68.6
Str agree	93	42.3	42.3	100.0	Str agree	69	31.4	31.4	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 6-5 Task Completion Desire					IBF 6-6 Increased Complaints				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	35	15.9	15.9	15.9	Str disagree	34	15.5	15.5	15.5
Disagree	37	16.8	16.8	32.7	Disagree	44	20.0	20.0	35.5
Neutral	40	18.2	18.2	50.9	Neutral	44	20.0	20.0	55.5
Agree	42	19.1	19.1	70.0	Agree	45	20.5	20.5	75.9
Str agree	66	30.0	30.0	100.0	Str agree	53	24.1	24.1	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

Most respondents agreed that increased creativity, cognition enhancement and task completion desire have positive implications on SIDs as the research assumes. However, the response distribution of the IBF 6-6 “increased complaints” was fairly selected especially in the disagree, neutral and agree options as they were almost the same of 20%, 20% and 20.5%. The highest agreement levels of these statements were represented in cognition enhancement with 42.3% and loss of concentration with 34.5%, while the lowest percentages of the strong disagreement were indicated in loss of concentration and less productivity with 10.5% and 10.9% respectively.

**Table 6.7: Response features and relative weights of Job Satisfaction**

IBF 7-1 Participative Decision-Making					IBF 7-2 Intensive Work Standards				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	46	20.9	20.9	20.9	Str disagree	27	12.3	12.3	12.3
Disagree	44	20.0	20.0	40.9	Disagree	39	17.7	17.7	30.0
Neutral	39	17.7	17.7	58.6	Neutral	33	15.0	15.0	45.0
Agree	46	20.9	20.9	79.5	Agree	52	23.6	23.6	68.6
Str agree	45	20.5	20.5	100.0	Str agree	69	31.4	31.4	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 7-3 Encouraging Environment					IBF 7-4 Non-Financial Rewards				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	19	8.6	8.6	8.6	Str disagree	20	9.1	9.1	9.1
Disagree	26	11.8	11.8	20.5	Disagree	50	22.7	22.7	31.8
Neutral	35	15.9	15.9	36.4	Neutral	33	15.0	15.0	46.8
Agree	60	27.3	27.3	63.6	Agree	47	21.4	21.4	68.2
Str agree	80	36.4	36.4	100.0	Str agree	70	31.8	31.8	100.0

Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 7-5 Job Loyalty					IBF 7-6 Job Position Dissatisfaction				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	20	9.1	9.1	9.1	Str disagree	36	16.4	16.4	16.4
Disagree	43	19.5	19.5	28.6	Disagree	32	14.5	14.5	30.9
Neutral	32	14.5	14.5	43.2	Neutral	52	23.6	23.6	54.5
Agree	51	23.2	23.2	66.4	Agree	47	21.4	21.4	75.9
Str agree	74	33.6	33.6	100.0	Str agree	53	24.1	24.1	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

Participants were asked to evaluate these statements regarding job satisfaction and their responses have been gradually tended to the agreement options. The only balanced statement was the 7-1 “participative decision-making” where the responses have been similarly distributed between the five choices. The encouraging environment and job loyalty statements were positively supported by the responses as they reached 36.4% and 33.6% of strong agreement. In the same statements along with the non-financial rewards, the strong disagreement reached its highest levels as recorded only 8.6%. 9.1% and 9.1 respectively. The overall attitudinal choices support the 7<sup>th</sup> research hypothesis.

**Table 6.8: Response features and relative weights of Administrative Leadership**

IBF 8-1 Participative Leadership					IBF 8-2 Irresponsible Leadership				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	2	.9	.9	.9	Str disagree	16	7.3	7.3	7.3
Disagree	13	5.9	5.9	6.8	Disagree	25	11.4	11.4	18.6
Neutral	17	7.7	7.7	14.5	Neutral	44	20.0	20.0	38.6
Agree	64	29.1	29.1	43.6	Agree	48	21.8	21.8	60.5
Str agree	124	56.4	56.4	100.0	Str agree	87	39.5	39.5	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 8-3 Inspirational Leadership					IBF 8-4 Ineffective Leadership				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	0	0	0	0	Str disagree	17	7.7	7.7	7.7
Disagree	11	5.0	5.0	5.0	Disagree	33	15.0	15.0	22.7
Neutral	15	6.8	6.8	11.8	Neutral	29	13.2	13.2	35.9
Agree	71	32.3	32.3	44.1	Agree	45	20.5	20.5	56.4
Str agree	123	55.9	55.9	100.0	Str agree	96	43.6	43.6	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	
IBF 8-5 Motivational Leadership					IBF 8-6 Poor Communication				
	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Str disagree	19	8.6	8.6	8.6	Str disagree	0	0	0	0
Disagree	30	13.6	13.6	22.3	Disagree	7	3.2	3.2	3.2
Neutral	40	18.2	18.2	40.5	Neutral	28	12.7	12.7	15.9
Agree	61	27.7	27.7	68.2	Agree	70	31.8	31.8	47.7
Str agree	70	31.8	31.8	100.0	Str agree	115	52.3	52.3	100.0
Total	220	100.0	100.0		Total	220	100.0	100.0	

In the final IBF, general considerable support was recorded in the six statements of administrative leadership. The positive leadership characteristics were supported by high strong

agreement levels in the first two statements “participative and inspirational leadership” as they reached 56.4% and 55.9%. The strong disagreement was in the lowest rate in the inspirational leadership and poor communication statements with no choices 0%. The ineffective leadership and poor communication were also supported by the respondents as they showed 43.6% and 52.3% respectively. Overall, the responses appeared reflect how positively the participants interact with the 8<sup>th</sup> hypothesis.

### 6.3 Summary of Hypotheses Testing

According to the descriptive and statistical analyses conducted, with some different levels of impact, the eight hypotheses were supported by the participants’ attitudes derived from their responses. The results generally were reliable and relatively consistent with the research hypotheses which were formulated in the first chapter. The following table shows the final results of research investigation of the association between IBFs and SIDs.

**Table 6.9: The main findings derived from the practical study of the 8 hypotheses**

H No	Hypotheses statements	Supported / Not supported		
<b>H 1</b>	There is even view from the respondents on the impact of the personality traits on SIDs in the Libyan service companies.	0.73712121 $\approx$ 74% <b>Supported</b> ( $p < 0.05$ )		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 2</b>	There is even view from the respondents on the impact of individuals’ perception on SIDs in the Libyan service companies.	0.62909091 $\approx$ 63% <b>Supported</b> ( $p < 0.05$ )		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 3</b>	There is even view from the respondents on the impact of the ability and skills on SIDs in the Libyan service companies.	0.75287879 $\approx$ 75% <b>Supported</b> ( $p < 0.05$ )		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 4</b>	There is even view from the respondents on the impact of the motivation on SIDs in the Libyan service companies.	0.76560606 $\approx$ 77% <b>Supported</b> ( $p < 0.05$ )		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 5</b>	There is even view from the respondents on the impact of the individuals’	0.62742424 $\approx$ 63%		

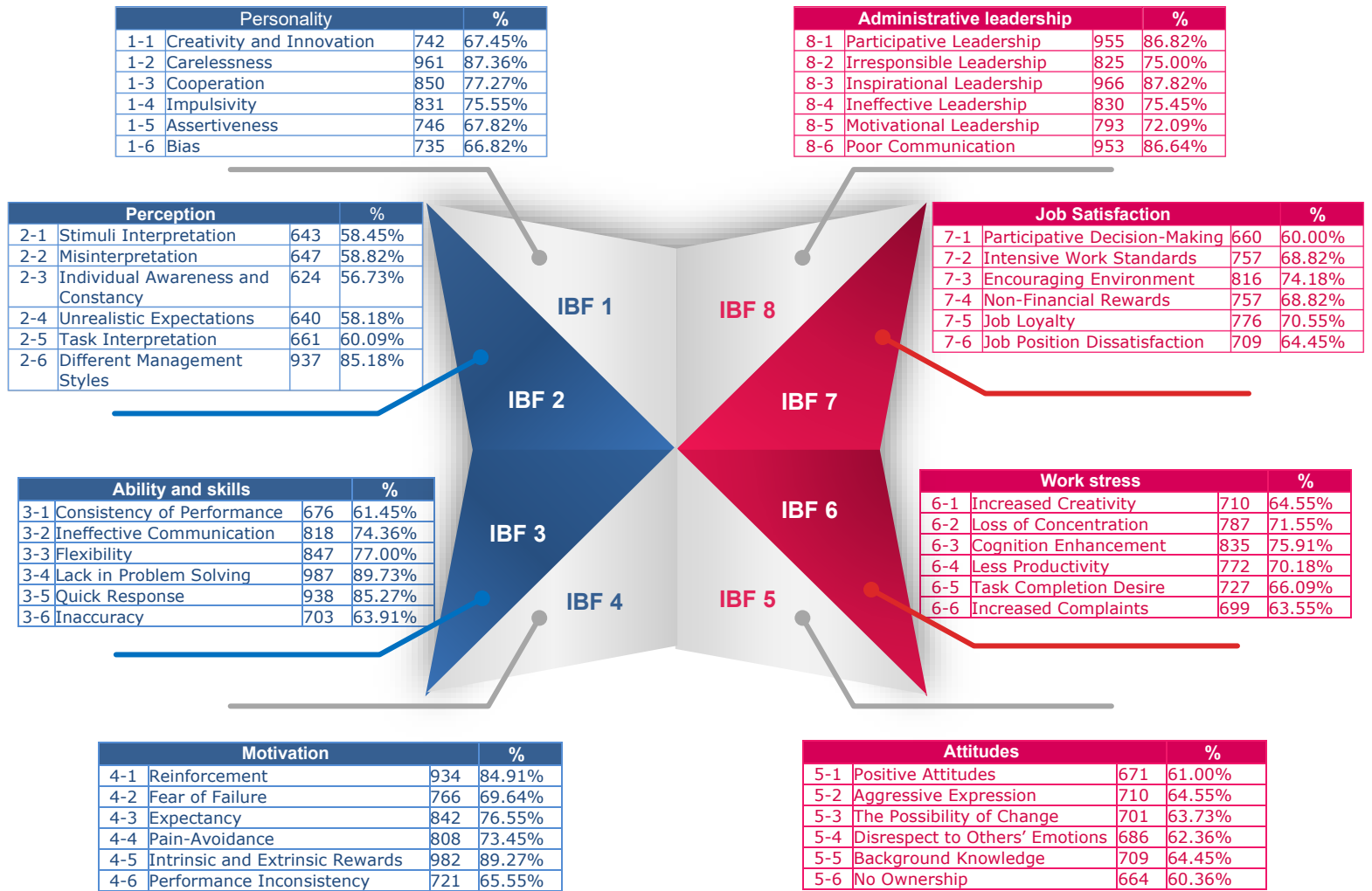
	attitudes on SIDs in the Libyan service companies.	<b>Supported</b> (p < 0.05)		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 6</b>	There is even view from the respondents on the impact of the job satisfaction on SIDs in the Libyan service companies.	0.68636364 ≈ 69% <b>Supported</b> (p < 0.05)		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 7</b>	There is even view from the respondents on the impact of the work stress on SIDs in the Libyan service companies.	0.6780303 ≈ 68% <b>Supported</b> (p < 0.05)		
		Performance level	The relative weight	Average response
		High	<b>60% to 79%</b>	<b>3 to 3.95</b>
<b>H 8</b>	There is even view from the respondents on the impact of the administrative leadership on SIDs in the Libyan service companies.	0.80636364 ≈ 81% <b>Supported</b> (p < 0.05)		
		Performance level	The relative weight	Average response
		Very High	<b>80% or more</b>	<b>4 or more</b>

In general, supportive results were obtained in the eight parts. Although all the results enhance the high and very high influential level which support the research hypotheses, the slight difference recorded was concentrated in some IBFs. Starting from the highest influential factor, the results showed that the administrative leadership has a very high impact as it reached 81% resulted from the six sub-factors. With similar levels, the percentages of personality, ability and skills, and motivation fall into the 70s % as they reached 74%, 75% and 77% respectively. With less impact, work stress and job satisfaction recorded 69% and 68%, while the least two IBFs were represented in individuals' perception and attitudes as their impact was 63%.

To summarise the interactive answers of respondents regarding the eight IBFs and their 48 sub-factors, Figure 6.2 shows the overall responses of research participants and the relative weight of each sub-factor based on the total answers. In other words, for example, the Creativity and Innovation factor shows that 742 degrees were reported and obtained by the participants which represent 67.45% of the highest possible degree ( $742 \div 1100$ ). 1100 is the highest number that can be obtained ( $220 \text{ answers} \times 5$ ).



**Figure 6.2: The overall responses' rates of research participants**



(Researcher's figure)

### 6.3 Critical Insights and Findings' Interpretation

Evidence from the practical study confirms the research hypotheses which assume that the 8 IBFs and 48 sub-factors lead to a higher positive level of performance, thus affect SIDs when firms enhance these main IBFs and sub-factors (the assumed desirable factors), and avoid (the assumed undesirable factors). Reaching research findings can be a useful and valuable way in helping readers understand the core results of a research (Cooper, 2008). The distinct findings of the research are derived from the comprehensive stages that have been conducted in a coherent manner. Starting from the research questions, objectives and hypotheses, the research has

additionally covered the main 8 IBFs and 48 sun-factors in the literature review and theoretical framework to fill a significant gap that has been identified. Also, as a complementary and organising stage, the methodological part has linked the research elements and hypotheses into the research data collection instrument (questionnaires). Data collection stage showed the results, and paved the way to present the main and detailed results obtained from the practical study before summarising and interpreting them in this chapter.

A number of key findings were perceived to influence individuals' performance and therefore the quality of SIDs. Creative and innovative personality as significant characteristics can determine the appropriate alternative investment decisions as individuals who have these kinds of personalities can generate these options with intelligent solutions and work development as a high number of participants stated. In a similar context, 70% (27.3% + 42.3%) of participants are agree and strongly agree that cooperative pattern normally plays an indispensable role in providing the required data and information in the gathering information stage of SIDs. More balanced attitudes were perceived from the respondents regarding the assertive personality trait as they have different point of views and their experience background might be the crucial part in the agreement and disagreement of assertiveness effect.

The negative impact of careless personality has been logically supported by the respondents as the agreement and strong agreement were in high levels, which confirms that such trait usually do not pay enough attention to managers in SIDs even if they provide the opportunity to participate in these decisions. In addition, the undesirable impact of impulsivity pattern was agreed by a high number of participants as they support the statement that indicates that defining possible projects and formulating strategic opportunities can be negatively affected by impulsive behaviour. In fact, generating alternatives as one of the essential stages in decision-making process needs to be conducted by professional employees and decision-makers. Impulsivity in the Libyan environment is most likely a consequence of several issues such as the inability in providing internal control systems, unqualified staff and the lack of proficiency of human resources.

Individuals' perception was investigated as the second IBF in this study. The results of this part show how individuals' perception can be controversially understood and interpreted by the respondents, which might reflect a complex issue to participants. In the assumed positive parts,

there were no clear agreement trends about the statements. However, a reasonable number of participants have confirmed the association between perception and SIDs. Stimuli interpretation is a challenging process of individuals in understanding the core meaning of it and its real structure (Guido, 2001). From this concept, the responses of this research vary depending on the personal understanding of this early stage of perception especially when it is linked to interpreting the information of investment alternatives. Responses of individual awareness and constancy factor is similarly recorded in different trends as understanding the environmental requirements of proposed investment projects is considered as a fundamental issue in SIDs. Also, task interpretation was not a crucial factor as the overall responses reflect different percentages of agreements and disagreements.

The varied responses are also obtained from the participants regarding the misinterpretation where SIDs are assumed to be affected by misinterpretation at any stage if incorrect information is provided by unqualified individuals. Moreover, unrealistic expectations of the possible investment decisions do not necessarily reflect an initial failure in choosing the generated alternatives as a reasonable number of participants think. The results obtained revealed that different management styles factor was clearly supported to be a challenging issue for individuals' perception. These difficulties rise when individuals work on different systems or changeable procedures as they might face complicated conditions in their work.

In the ability and skills part, the stability of performance needs an appropriate level in order to make high quality decisions based on the principles, standards and regulations of firm. More than 44% strongly agreed that flexibility of decision-makers helps firms in responding intelligently with all possible investment options and avoiding biased behaviour. These results support many studies that reveal how the flexibility is required during making strategic decisions (Gerber, 2014; Papadakis and Barwise, 2012). In a significant support to the assumed desirable behaviour, more than 52% of responses have strongly agreed that some investment opportunities need quick responses by decision-making team as some alternative need taking immediate appropriate actions. This advanced percentage reflects the necessity of quick response in many SIDs due to different circumstances that might occur at any stage.

As an essential component in decision-making process, communication plays a significant role in presenting, linking and discussing individuals' thoughts and ideas regarding any SID taken. In

this context, more than 60% of respondents agree and strongly agree that ineffective individuals' communication with others in irrational, illogical and unclear way poses difficulties in many investment procedures such as supporting decisions and funding the proposed projects. Another important element that should be avoided is the lack in problem solving. The majority of participants (30.9% agree, and 59.5% strongly agree) argue that the inability of problem solving could negatively affect investment projects when decision-makers fail in finding appropriate solution of some related problems. In less supportive percentage, about 45% of participants who have agreement attitudes agree that inaccurate data provided by individuals can be considerably reflected in a number of unrealistic information, thus inaccurate investment appraisal results.

Motivation factor was studied in terms of its positive and negative implications on SIDs. Reinforcement using significant rewards has been supported by more than 80% of participants who agreed that such rewards normally encourage individuals to desirable behaviour as a significant technique that leads to positive performance outcomes. Another relevant factor has been supported is expectancy, which is derived from expectancy theory that proposes positive behaviour of individuals when they are motivated by conscious choices that maximise their pleasure (Hiriyappa, 2015). Linking this factor to SIDs was proposed to be a significant factor in expansion, replacement and renewal investment decisions that need estimated indicators and standard costing analysis, thus a high ability in expectancy that helps decision-makers to evaluate investment projects. With more than 88% (26.4% + 61.8%) intrinsic and extrinsic rewards had considerable support due to the role played by these rewards. In a relevant context, physical and non-physical rewards assumed to be a significant encouragement to decision-making participants to increasing their performance in all the stages of investment decisions.

Fear of failure is the first undesirable behaviour, which is linked to motivation. The results show that the fear of being failed in reaching specific achievements has undesirable outcomes of individuals' performance. The responses of participants could be resulted from different reasons such as their tendency of perfectionism, where some individuals seek to finish their assigned tasks perfectly. Additional factor linked to motivation is pain avoidance. The results reveal that the desire of avoiding painful situations when individuals expect negative outcomes of their performance can negatively lead to helplessness and depression of decision-makers and make them pessimistic. Logically, transforming individuals' attitudes about this psychological issue is

a challenging part of the IBF4 as decision-makers' emotions could be an independent variable in SIDs. However, the responses of participants showed 60% of respondents support the assumed negative implications that can be occurred by this sub-factor. Constructive argument has been also supported by participants regarding the negative consequences that occur because of the inconsistency of performance. In this case, about 48% agreed that inconsistent performance of estimating life-cycle costing, target costing and value-chain costing of investment projects leads to inaccurate and unreliable information.

In similar overall trends to perception, individuals' attitudes factor supports the fifth research hypothesis in lower than the other hypotheses. In the desirable behaviour factors part, positive emotional attitudes of staff have not crucially supported by respondents when they asked that to what extent you agree that these attitudes create strong relationships between individuals and work loyalty. The results of this sub-factor show similar responses in the strongly disagree, neutral and strongly agree options as all of these choices reached 21%. The possibility of change was proposed in terms of the flexibility of personality attitudes and behaviour, where it is supposed that such flexibility helps others in preparing the essential requirements of strategic projects such as strategic costing, strategic pricing. In fact, such statement can be understood and interpreted easier than other factors as it focuses on the flexibility which might be more obvious and desirable than other attitudes. The appropriate financial background knowledge also plays a significant rule in analysing proposed investment projects in many aspects such as profitability analysis and financial funding as they are required for decision-makers.

On the other part of attitudes, aggressive expression assumption was supported by participants regarding the uncooperative work and aggressive communication between financial and managerial staff, which is proposed to negatively affect the quality of decisions. Again, disrespect to others' emotions was considered as inappropriate behaviour that could negatively affect SID process as it leads to impolite and offensive behaviour which consequently represents in undesirable performance. Different answers were received regarding the no ownership in mistakes committed factor. This variety might be resulted from the inability to link such assumption to SIDs of firms. The statement of this sub-factor stated that individuals who do not take ownership of committing mistakes are likely to hinder the quality of investment decisions as this sensitive process needs a reasonable level of transparency.

In work stress part, a number of supportive statements have been introduced for hypothesis testing purposes. Increased creativity was one of the desirable assumptions where increasing the creative work was proposed as a useful part in merger and acquisition decisions due to the significance contribution provided to decision-makers. The underlying relationship between creative work and work stress lies in individuals' desires of changing the daily routine and stressful work and replace it with new techniques and creative work in order to avoid regular stressful tasks. For generating new investment appraisal techniques, cognition enhancement was proposed as a mental power and supportive sub-factor in choosing which method can be used in proposed investment projects. With more than 62%, agreement and strong agreement responses have been obtained in this sub-factor to reflect how important this issue is. In work stress situations, a number of individuals seek to complete their assigned work on time and in accordance with the work criteria. Although some tasks need more time and devoting massive efforts, such individuals attempt to perform their tasks in these stressful conditions. This desirable behaviour can be positively reflected in their performance level and to achieve their personal objectives as well as firms' objectives.

Along with the positive performance that can be improved, there are several undesirable attributes of work stress. For example, losing the concentration is considered as a determinant of inaccurate investment analysis and inappropriate decision preparation. This situation normally occurs for individuals when their concentration ability decreases after particular level of efforts. Another supportive assumption was proposed regarding individuals' productivity. The occurrence of this issue might exist when individuals feel that they do not have the desire or ability to perform specific amount of work or production in a particular time, which can affect all investment decision stages. A controversial sub-factor of work stress was introduced regarding the complaints increase. The proposed assumption in this context was about individuals' dissatisfaction increase that might be resulted from their work conditions or not involving them in decision-making process that would raise their complaints and then hinder their performance level. In this issue, response rates of participants were similar in the agreement, neutral and disagreement options as they recorded 20%, while the strong disagreement was slightly different to the strong agreement as they were 15% and 24% respectively.

In a similar context to work stress, job satisfaction comes as the 7<sup>th</sup> main IBF, where some positive and negative situations are associated with this matter. An important sub-factor in satisfaction aspect is the participation of decision-making process. Participating in determining the project outline, selecting the best options for the firm and making suitable decisions are proposed as fundamental requirements for successful investment decisions. The response trends indicated that similar attitudes were recorded by the participants as there were balanced choices of the agreement and disagreement parts. In addition, encouraging environment was introduced and a positive sub-factor and a number of examples were presented in the relevant statement such as the positive surrounding environment, providing applicable accounting software and useful operational systems. The overall trend of responses was in favour the positive impact concerning the help provided to decision-makers. In a similar way of response, job loyalty was supported by respondents as it enhances the work accuracy.

The overall percentages of the undesirable proposed sub-factors were in favour of the 7<sup>th</sup> hypothesis as the strong agreements of all of them were the highest option chosen. These percentages were represented in intensive work standard, as the level of individuals' performance was proposed to be decreased if the work standards are in a higher level than individuals' abilities. Moreover, non-financial rewards was proposed in working without receiving additional bonuses or rewards that makes employees less productive in providing the efficient accounting support to decision-makers. This sub-factor was supported by 53% of participants who agreed and strongly agreed. The other issue proposed is job position dissatisfaction, where the diversity of investment decision-makers' positions was proposed as a matter that makes the employees in lower positions dissatisfied because they feel that their voice is less important. This dissatisfaction can be occurred as a result of the lack of leadership, local work culture and organising the administrative hierarchy.

The final key findings in the research showed a considerable support to the six sub-factors related to the administrative leadership. With regard to the participative leadership, the majority of respondents confirm that leaders who allow subordinates in participating in some functions such as goal setting and decision-making are likely to be more successful than the other leadership styles. Such leadership practices should be taken into consideration in SID due to increasing the comprehensiveness of this process. An essential trait of successful leadership is

the ability of inspiring others. This is what the inspirational leadership supposed to be in the second assumed desirable behaviour that shows the ability of leaders in creating a positive sense for individuals and inspiring them in their assigned work that can be reflected in positive decision-making participation. Another essential function of leadership practices is motivating the subordinates in positive way. In this regard, motivating employees is proposed as a significant function in devoting more efforts in gathering sufficient investment information. This third sub-factor was supported by 59.5% of participants who chose the options agree and strongly agree, while in the first two positive factors (participative and inspirational leadership) the percentages were higher than the third sub-factor as they reached 85.5% and 88.2% respectively.

The results of the last part have also shown that the proposed undesirable behaviours have been supported by the majority of participants. In more than 60% of respondents confirm that irresponsible leadership makes the subordinates less confident in participating in decision-making process. Similarly, ineffective leadership has been considered undesirable attributes as it reflects the inability of persuading subordinates with logic or rational decisions which makes leaders ineffective in evaluating the proposed investment projects. With more than 84% of agreement, participants have confirmed that poor communication between leaders and their subordinates hinders many substantial decision procedures that need clarification and clear communication. It is a logical response that takes into consideration the necessity of effective communication as an indispensable role that leadership plays within firms.

#### **6.4 Distinctive Features of the IBC**

##### *Understanding Behavioural Features:*

Several distinctive advantages of the IBC model have been presented in the third chapter regarding strategic investment decisions, enhancing performance tracking techniques and managing performance of human resources. As a core aim of the research, investigating the influential level of the psychological and behavioural factors on SIDs paves the way to increasing individuals' understanding of these factors and how can they adopt the positive practices and avoid the undesirable behaviours. Each factor of the main IBFs was introduced in an interpreted context including the sub-factors to help readers, academics, accountants and



managers perceive the direct and indirect implications of these relationships. In this respect, understanding the behavioural features of the IBC helps in:

- Increasing individuals' realisation of the 8 IBFs and 48 sub-factors
- Deep understanding of the desirable and undesirable behaviour factors through the classification shown in the IBC assessment process of the IBFs
- Working on creating positive environment which takes into consideration the underlying implications that might occur by individuals' behaviours
- Improving leadership practices through understanding leadership styles and the main effective functions such as motivating, inspiring and influencing individuals in their assigned works
- Reducing confliction and stressful situations of individuals through recognising which behaviour determinants can increase or decrease work stress
- Negative practice avoidance, where the firms can appropriately identify which negative behaviour can affect the sustainable work, and how they can avoid it by appropriate actions
- Improving communications as an effective role of leaders as well as subordinates in many work requirements such as persuasion, goal setting, interaction, problem solving and creating professional organisational culture
- Creating motivational atmosphere as understanding human behaviour can help in predicting individuals' needs and how to attract and motivate them in order to increase their performance level and quality
- Managing decision-makers' expectation realistically to be in line with the firms' objectives as understanding the behavioural issue can clarify to what extent can individual performance support the SID taken
- Managing creative and innovative work can be easier as understanding the relevant behaviour factors paves the way to support such practices by leaders and decision-makers

### *Performance Tracking System:*

An additional main advantage of the model lies in the possibility of integrating this behavioural model into a performance tracking system within firms. Although such integration needs several requirements such as understanding the core elements of this model, adopting the model in an sophisticated system and skilled managers who can deal with this model, it could be a significant contribution to management accounting and other departments of firms in tracking individuals' performance. Performance tracking capabilities of this model would allow managers tracking employees' progression not only in management accounting practices, but in many different organisational practices and occupational norms. Individual performance tracking system can be designed in accordance with the objectives of each firm taking into consideration the behavioural aspects. In this regard, the IBC model can enhance such tracking systems in:

- 1- Determining the performance outcomes based on the behavioural features. The final stage of the IBC model shown in the theoretical chapter of this thesis indicates the level of performance outcomes resulted from each employees or manager. It can be determined either by percentages or by classifying the results into five categories as shown earlier (very low, low, medium, high and very high levels).
- 2- It can be integrated in existing managerial accounting software and systems to cover the behavioural dimensions as a complementary part of individual performance.
- 3- It provides accurate and rich information of more than the 48 sub-factors as there are many psychological and behavioural factors related to these sub-factors. The information provided can be linked to incentive systems applied in institutions according to the performance level of each employee or manager.

### *Managing Performance of Human Resources:*

It was introduced as a further advantage of the IBC where linking the overall objectives of a firm with the personal goals can be positively reflected in desirable behaviours. In addition, providing intrinsic and extrinsic rewards play a significant role in motivating accountants, managers and decision-makers through the motivational factor (IBF 4). From the behavioural context, I argued that focusing on the behavioural implications of the IBFs would significantly enhance the overall

performance of accountants then the quality of SIDs. This argument stems from the advantages of linking individuals' objectives with the main objectives of firms considering many relevant aspects such as loyalty, commitment and professional values of individuals derived from their work experience.

## 6.5 Conclusion

Based on the data analysis, the discussion of research findings chapter made interpretative framework of the main findings derived from the previous chapter. The key findings differently supported the 8 research hypotheses as the following Table shows:

**Table 6.10: The key findings and hypotheses testing**

<b>IBF 1</b> <b>0.73712121 <math>\approx</math> 74%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>			<b>IBF 5</b> <b>0.62742424 <math>\approx</math> 63%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>		
Performance level	The relative weight	Average response	Performance level	The relative weight	Average response
High	60% to 79%	3 to 3.95	High	60% to 79%	3 to 3.95
<b>IBF 2</b> <b>0.62909091 <math>\approx</math> 63%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>			<b>IBF 6</b> <b>0.68636364 <math>\approx</math> 69%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>		
Performance level	The relative weight	Average response	Performance level	The relative weight	Average response
High	60% to 79%	3 to 3.95	High	60% to 79%	3 to 3.95
<b>IBF3</b> <b>0.75287879 <math>\approx</math> 75%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>			<b>IBF 7</b> <b>0.6780303 <math>\approx</math> 68%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>		
Performance level	The relative weight	Average response	Performance level	The relative weight	Average response
High	60% to 79%	3 to 3.95	High	60% to 79%	3 to 3.95
<b>IBF 4</b> <b>0.76560606 <math>\approx</math> 77%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>			<b>IBF 8</b> <b>0.80636364 <math>\approx</math> 81%</b> <b>Supported</b> <b>(<math>p &lt; 0.05</math>)</b>		
Performance level	The relative weight	Average response	Performance level	The relative weight	Average response
High	60% to 79%	3 to 3.95	Very High	80% or more	4 or more

With 8 supported hypotheses, the chapter has interpreted and discussed the underlying impacts occur by the IBFs on SIDs in the Libyan service companies. Each main IBF has been discussed in accordance with the results reached and responses obtained to reach what the research aimed to. Reaching an analytical and interpretive framework of the research is a reflection of how the

study has covered and achieved the research objectives and aims, which can be finally concluded in the next summarised chapter.

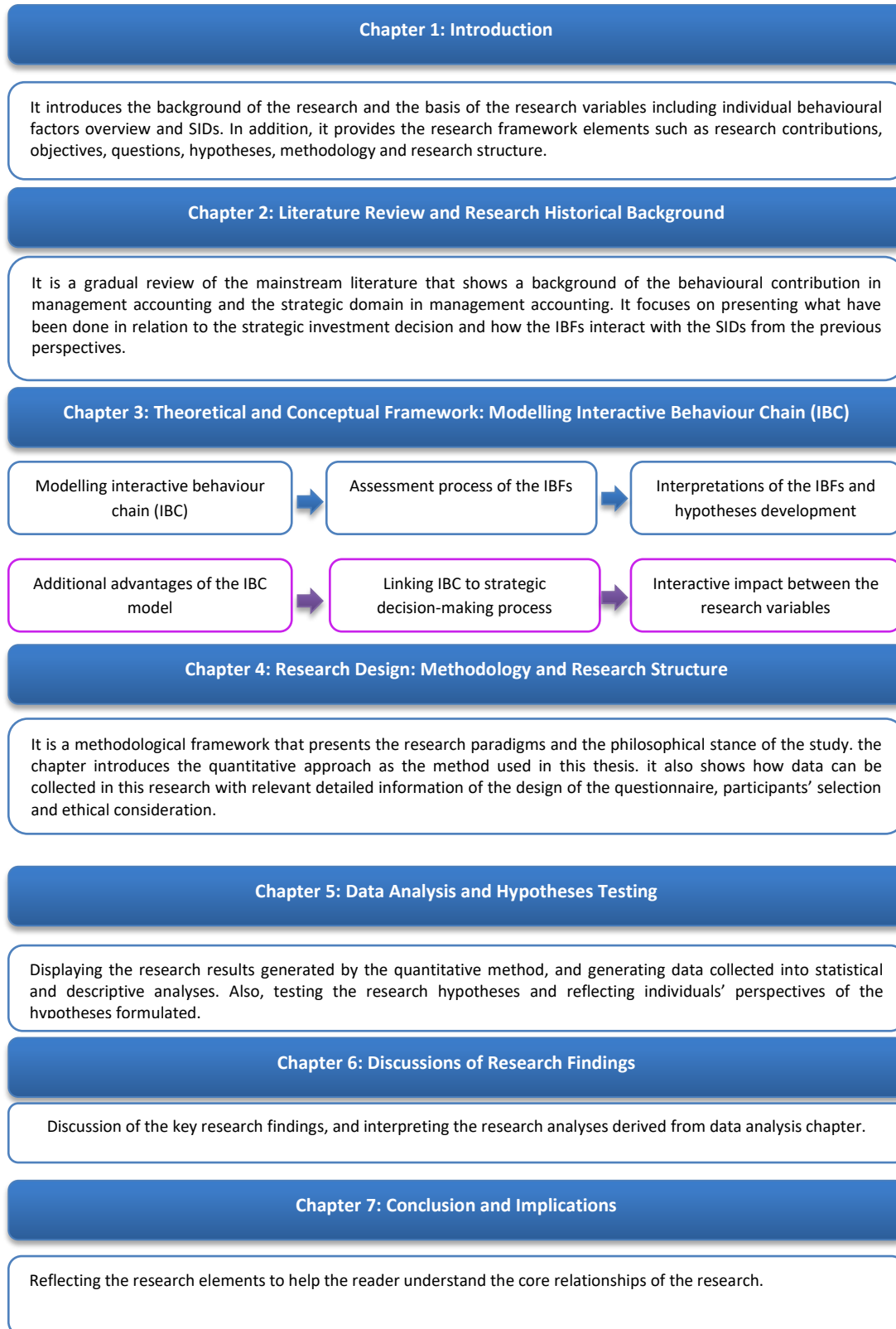
## **CHAPTER 7: CONCLUSION AND IMPLICATIONS**

### **7.1 Introduction**

This study investigates and examines the association between the IBFs and SIDs through applying the IBC model that measures the influence level of the behavioural factors on individuals' performance, thus the quality of investment decision-making process based on individuals' attitudes of the Libyan service companies. Although the interactive nature and the interrelationships of the behavioural factors have direct and indirect impact of the SIDs (Anum, 2017; Nermend and Latuszynska, 2017; Bakar and Yi, 2016; Copur, 2015; Chatterjee et al., 2014), the literature shows that there is no combination of all the IBFs, and they have not been integrated in one study. As a result, this thesis intended to address the continuing gap of this influential relationship by answering the eight questions of the research regarding the desirable and undesirable features of the personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership.

The research has successfully demonstrated with robust evidence that the influence of behavioural factors on SIDs can be measured by investigating a number of IBFs studied in this thesis. This investigation has been conducted through the IBC model established in the third chapter of this thesis. The model is based on the eight IBFs mentioned and the assessment process of the IBFs along with the detailed assumptions and interpretations of the 48 sub-factors (8 main IBFs \* 6 sub-factors =48). The study has argued that the eight IBFs are the most influential behavioural factors as they affect the performance level of individuals in performing their assigned tasks and participating in SIDs. To reflect the main seven chapters of this thesis, the following figure shows each chapter with the main outlines introduced in each part.

**Figure 7.1: Chapters' outlines of the research**



**(Researcher's figure)**

The Figure 7.1 illustrates the main outlines of the seven chapters of this thesis. As it can be seen from this figure, the introductory chapter that covers the research's approach was introduced to pave the way to the complementary chapters and show the linkage and consistency of the whole research. The literature review chapter shows the contributions of related studies and their insights, and what the continuing gap that should be taken into consideration. The theoretical framework supports these insights further by showing the establishment of the IBC model including the assessment process, the IBC behavioural assumptions and linking IBC to strategic decision-making process.

This chapter summarises the core elements of the research and presents the main features and findings of the study. It provides reminders of the research components including the research rationale and intentions, the purpose and objectives of the study, and the research questions and hypotheses. In addition, it reminds readers how the IBC model was established by concluding the basis of conceptual framework, the IBC assumptions, and the assessment process of the IBC. As a fundamental part of any research, the research design and methodology is introduced in this chapter to reflect the whole research organisation and how has it been done. The research methodology approach will be introduced again in this chapter along with the integration of the IBC model. Also, the examination of the research hypotheses will be summarised to show the mechanisms used in this process and how the main results were obtained in this process. The validity and reliability of the applied study will also be introduced in this chapter. The analytical framework of this thesis is illustrated as a significant reminder.

The conclusion chapter also summarises the key and main findings derived from the analytical framework conducted. It provides reminders of the study's discussion. Another significant part of the research derived from the research is the limitations and the future directions which are outlined. The current study endeavoured to identify and determine various behavioural factors that affect the SIDs by creating the IBC model and this is the core contribution of this research that will be further introduced in this chapter. In addition, the research recommendations are introduced for future studies to develop the core contributions of this study, and to clarify the possibility and the benefits of adopting the IBC model into further dependent variables as it is a flexible behavioural approach.

## **7.2 Reminding of the Research Elements**

### **7.2.1 Research Rationale and Intentions**

Choosing the topic was for a number of reasons. Understandings and addressing the behavioural impact of individuals is a challenging issue in the contemporary research. This reason stems from the necessity of identifying the behavioural challenges of the IBFs in a logical framework. The challenges drive the research to investigate the positive and negative behavioural impact on the performance level outcomes that result in the quality of strategic investment decisions.

Another significant reason lies in integrating multiple IBFs in one framework. This contribution can provide a significant basis to researchers who aim to study different behavioural determinants as independent variables. In this context, I argue that the comprehensiveness of this combination paves the way to other studies to adopt this strategy that absorbs the most influential IBFs instead of focusing on some divided IBFs.

Besides the identification challenges of the most influential IBFs, interpreting the underlying impact of the main eight IBFs and providing 48 sub-factors have also a challenge in transforming the behavioural implications into specific framework (IBC). I contend that determining the main IBFs and their sub-factors was in a rational manner and they were carefully chosen depending on a number of studies mentioned in the second and the third chapters.

I argue that conducting this research can help firms and different organisations all around the world build a more understandable behavioural framework regarding the association between these IBFs and decision-making process. This contribution motivates the researcher build and finalise the study to be an appropriate basis to understand the behavioural impact and inspire other studies in this field. The current study is conducted in the Libyan service companies, and that does not mean that it is designed to be a local study, but it can be also conducted in many other countries from similar perspectives. The flexibility of study design allows researchers build other studies in similar ways by changing some details such as the study settings and the independent variable.

Another essential part of conducting this study is responding to the need to develop the theoretical background of the IBFs and building practical investigations that can be resulted in specific influence outcomes. This development of literature resources makes a contribution to



knowledge by filling the continuing gap of the relationship between research variables through applying the IBC model as an innovative model.

Based on the IBC model assumptions, the provided contribution would build clear mechanisms of how would firms and managers deal with their individuals and organise their human resources regarding the behavioural activities. These strategic actions can be applied by adopting and enhancing the desirable behaviours and working on reducing the undesirable patterns as the model interprets and recommends.

Financial and investment decisions in accounting have to be made according to some principles (Petty et al., 2015; Bhat, 2008). These principles could be derived from accounting standards, internal regulations or any other authorised source. The challenging factor in this context is the behavioural issue in how firms can deal with individuals' performance in achieving these accounting requirements. The comprehensive interactive chain of the IBC model works in a way that provides an integrated model of the behavioural factors and investment decisions process from two dimensions, first; measuring the influential level of the IBFs on SIDs, second; exploiting the desirable patterns and avoiding the undesirable behaviours in order to make effective decisions.

### **7.2.2 The Purpose and Objectives**

The broad aim of the research is to investigate the impact of the IBFs on decision-making process related to investment strategic decisions through a number of the IBFs included in the IBC model. This thesis aimed to identify the underlying assumptions of the IBFs to be in a logical scientific framework supported by the IBC model that transforms individuals' behavioural impact into the performance level outcomes that result in the quality of strategic investment decisions. It sought to providing eight main IBFs and 48 sub-factors and applying them in the research to help firms identify and examine the influential level of these IBFs on SIDs. In order to achieve this broad purpose, the research examined a number of IBFs and therefore the main objectives of the research are:

- To provide a holistic theoretical framework that includes the concepts, theories and models of the most influential IBFs, and explains how these factors are associated with many different requirements of decision-making processes.

- To establish an interactive and interdisciplinary model regarding the IBFs, and to investigate the proposed association with the SIDs including the eight elements of the IBC model based on prominent theories and models and a distinctive combination of the IBFs.
- To clarify and reflect individuals' attitudes of the relationship between IBFs and SIDs in the Libyan service companies, and how would the IBC model provide an effective and interdisciplinary approach in order to improve the decision-making framework in these firms.
- To provide an analytical and interpretive framework of the association between the IBFs and SIDs regarding the participation and authority levels to be precisely described in accordance with the IBC model.

### **7.2.3 Research Questions Addressed and the Formulated Hypotheses**

#### **7.2.3.1 Research Questions**

The research sought to address a number of questions in a reliable and logical basis. Eight research questions have been raised in order to investigate the impact of the IBFs on SIDs. The eight primary research questions proposed in this research are:

RQ1: What are the views as to how personality traits influence strategic investment decisions within the Libyan service companies?

RQ2: What are the views as to how individuals' perception influence strategic investment decisions within the Libyan service companies?

RQ3: What are the views as to how ability and skills influence strategic investment decisions within the Libyan service companies?

RQ4: What are the views as to how motivation influences strategic investment decisions within the Libyan service companies?

RQ5: What are the views as to how attitudes influence strategic investment decisions within the Libyan service companies?

RQ6: What are the views as to how work stress influences strategic investment decisions within the Libyan service companies?

RQ7: What are the views as to how job satisfaction influences strategic investment decisions within the Libyan service companies?

RQ8: What are the views as to how administrative leadership influences strategic investment decisions within the Libyan service companies?

### **7.2.3.2 Research Hypotheses**

Several hypotheses were formulated and developed as proposed explanations that have been examined and analysed in this thesis. The hypothetical basis of the research has been introduced in eight hypotheses as follows:

RH1: There is even view from the respondents on the impact of the personality traits on SIDs in the Libyan service companies.

RH2: There is even view from the respondents on the impact of individuals' perception on SIDs in the Libyan service companies.

RH3: There is even view from the respondents on the impact of the ability and skills on SIDs in the Libyan service companies.

RH4: There is even view from the respondents on the impact of the motivation on SIDs in the Libyan service companies.

RH5: There is even view from the respondents on the impact of the individuals' attitudes on SIDs in the Libyan service companies.

RH6: There is even view from the respondents on the impact of the job satisfaction on SIDs in the Libyan service companies.

RH7: There is even view from the respondents on the impact of the work stress on SIDs in the Libyan service companies.

RH8: There is even view from the respondents on the impact of the administrative leadership on SIDs in the Libyan service companies.

### **7.3 Conceptual Framework of the IBC Model**

The research investigates the association between the IBFs and SIDs from the perspective of the individuals of the Libyan service companies. Based on several models and theories, the IBC model is derived to provide an accurate and more comprehensive model to measure the influence level of IBFs on several areas (SIDs in this research). As a multidisciplinary model, it is designed to clarify and determine the desirable and undesirable implications of eight main IBFs that have direct and indirect impacts on individuals' performance levels. Focusing on personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership, the model could be further developed in the future to be applied on other disciplines such as accounting, management, economics and business issues as it is a flexible and interactive model.

Due to the behavioural challenges in management accounting and decision-making processes, the IBC has been established to continuously explore new interactive ways between the behavioural dimensions and SIDs. To support this endeavour, the research has created this model through several stages:

- 1- Establishing the framework of the IBC model and the main features, uses, implications and benefits.
- 2- Setting the IBC goals and functions that can be beneficially adopted in other similar disciplines.
- 3- Designing the Assessment Process of the IBC model that transforms the behavioural determinants (eight main IBFs and 48 sub-factors) into measurable individual performance. Thus, the impact of the performance outcomes on the quality of SIDs.
- 4- Clarifying the relative weight of measuring performance quality and level.
- 5- Making the IBC assumptions and interpreting the sub-factors concerning the SIDs' framework.

As a fundamental part of the IBC, the assessment process was carefully designed in a way that reflects how the IBFs can affect the performance level of individuals concerning SID processes. This process was introduced using input–process–output (IPO) model that normally is used to describe inputs and the results derived from information gathered (Pavitt, 2014). The IBFs represent the independent variables of the research as well as the IBC model, while the

influential level of these factors on SIDs represents individuals' performance outcomes. The essence of this essential process stems from two main broad ways represented in the positive (desirable behaviours) and the negative (undesirable behaviours) of individuals measured by the Likert five-point scale that measures participants' responses as the model requires reflecting participants' attitudes. The relative weight of measuring performance quality and level is a subsequent stage that accurately reflects whether the impact is positive or negative, and specific level of this influence starting from low level to high level.

The research provides interpretations of the main eight IBFs and 48 sub-factors. This interpretive framework provides an effective intellectual underpinning for users of this model in an academic context and within firms. The research is structured in a way that links all of these assumptions with the research hypotheses to pave the way to hypotheses testing (Weakliem, 2016). Hypotheses development was included in each IBF in the interpretation section to make the research in a coherent manner and they are testable. In this context, the behavioural hypotheses formulation needs a linked framework that can reflect the psychological implications in an understandable way (Poletiek, 2013).

### **7.3.1 Linking the IBC to Strategic Decision-Making Process**

Fundamentally, the IBC model is established and adopted in this research as a measurement of the association between research variables. From this broad objective, the association between the IBFs and SIDs has been introduced in details in the interpretation of the IBFs that absorbs all the eight factors including the 48 sub-factors. The core elements of the IBC model were linked to the main stages of SIDs in an interactive process including several stages of decision-making processes. For example, the basic stages of SIDs as Harris et al. (2009) stated are linked in figures and additional explanations to clarify how the IBFs can affect these stages including:

- 1- Scanning for proposed and possible projects.
- 2- Defining generated projects and formulating strategic opportunities.
- 3- Gathering data related to each alternative.
- 4- Making initial assumptions and determining the project outline.
- 5- Primary evaluation to decide if the alternative is accepted.
- 6- Estimation of cash flow and financial data based on assumptions provided.
- 7- Proper evaluation using discounted cash flows (DCF) technique.

- 8- Progression through the company, persuading managers /decision-makers to support the project.
- 9- Authorisation of the decision-makers' board (to support decision and fund the project).
- 10- Auditing and evaluating the project (project review).

This linkage represents the essence of this research as after a gradual presentation of research variables in both literature review and theoretical framework, the direct relationship should be provided theoretically and practically.

A number of SIDs have been introduced including capital investment decisions and other SIDs. The research focused on several strategic domains related to accounting profession such as expansion, replacement and renewal investment decisions. Furthermore, additional SIDs have been involved in this research such as the decisions of mergers and acquisitions. By determining the SIDs, the IBC model was applied to measure the influential characteristics and levels of the IBFs on the SID processes. This measurement process sought out to investigating to what extent the SIDs can be affected by the IBFs and sub-factors, and to reflecting those influences into specific performance outcomes through the assessment process of the IBC.

## **7.4 Research Design and Methodology**

The aim of Research Design and Methodology chapter is to provide a methodological and theoretical context of the methods applied in this thesis. It comprised the theoretical view of the methods and principles associated with the association between the IBFs and SIDs. It involved concepts such as paradigm, research philosophy, stages and quantitative approach chosen. Chapter 4 started by showing the research design and the main elements of the study including the introductory chapter, the theoretical insights of literature review and theoretical framework, methodological stages, data analysis, hypotheses testing, discussion and research findings.

### **7.4.1 IBC Integration and Research Approach**

The eight research hypotheses have been tested through several stages and designed in a way that ensures providing accurate and reliable examination process. Integrating all of these hypotheses with the questionnaire statements is essential in terms of the validity and relevance. The questionnaire has been designed with a careful integration of the research hypotheses, the IBC assumptions and the derived literature of the research variables. A significant advantage of the

simplicity of integrating the IBC with the research questionnaire is represented in the IBC assessment process which is a main part of the model. This process can be effectively adopted by the research or any other similar study that measures the influential level of the IBFs on SIDs. The process allows the researcher to:

- 1- Link the research hypotheses with the research questions
- 2- Provide an interpretive framework of the IBFs in a clear and understandable way.
- 3- Enable relevant statistical packages to analyse and test the hypotheses based on Likert scale measurement.
- 4- Transform the complex individual behavioural concepts and practices into more simplified framework.

As it can be noticed that the questionnaire's statements were introduced in 48 statements derived from the IBFs' assumptions (from 1-1 to 8-6). The objective and logical linkage between the research hypotheses and statements was carefully conducted to reflect the impact level caused by the independent variable on the dependent variable. The considerable features of the model would be further developed and applied in similar studies and settings. It needs only minor changes depending on the behavioural factors studied and the dependent variable investigated. The flexibility and adaptability of this approach is not limited only to this research, but also it can be applied in a wide range of studies, especially in similar areas of business, accounting and management.

### **7.5 Analytical Framework of the Research**

Research analytical framework was carried out to present and analyse the data gathered from the research sample. Descriptive analysing part was provided that showed full information of the demographic questions including gender, age, the highest degree completed, current job and overall period spent in the firm and position, any training programmes taken and participation and authority level in investment decision-making process. Pearson Chi-Square Test was applied to assess how likely it is that the observed differences and expected values. The diversity of responses in research assumptions resulted in different levels of asymptotic significance as shown in the analytical part of this research. The validity and reliability considerations are covered in choosing these analytical techniques taking into consideration the simplicity and effectiveness of data testing.

## **7.6 Research Findings and Discussion**

The results derived from the analytical framework confirm that supportive results were obtained in the eight IBFs. The results showed some considerable support of the association between IBFs and SID as the hypotheses proposed, while other results presented less support. The overall results of research testing have confirmed the 8 hypotheses in relative weights. The administrative leadership factor was the highest factor supported by 81% which is considered as in the very high impact level as the research supposes. Similarly, personality, ability and skills, and motivation fall into the 70s % as they recorded 74%, 75% and 77% respectively. The rest of research hypotheses were accepted in lower impact levels.

## **7.7 Research Limitations**

Although the contribution made of this research have extended knowledge regarding the behavioural factors and how they affect SIDs in the positive and negative ways, it is significant to understand the main limitations of the current study.

### **7.7.1 Theoretical Investigation Background**

Investigating the association between the 8 IBFs studied in this research and SIDs have not been studied in the Libyan context. In addition, the combination of the 8 IBFs is a distinctive technique established in the IBC model. From this aspect, establishing a new behavioural model related to accounting field was a challenging issue in terms of the way of how the IBC works. Theoretically, the research attempted to cover the interrelationship between IBFs and SIDs as it exists. The limitation in this context stems from several issues related to the behavioural and accounting literature in terms of how to choose; the best and most appropriate research method, designing the research instrument, choosing the population and sample, and analysing and interpreting the results.

### **7.7.2 Timing**

Many advanced contacts have been made between the researcher and the Libyan service companies and administrative control authority in order to arrange a scheduled distribution plan of the questionnaires. Although there were some delays in a number of companies to respond to the distribution process, considerable efforts have been devoted to overcome these delays by the regular contacts made. In this context, the study has obtained the required response rate of questionnaires despite the delays occurred.



### **7.7.3 Institutional Sector**

The study focuses on the companies that work in services sector. This sector has been chosen due to this significant contribution and massive operations provided by the companies selected. However, investigating the association between the IBFs and SIDs and applying the IBC model on other sectors would be an additional contribution to the study. The accessibility required for other sectors such as the petroleum and industrial sectors can be considered as a limitation in this research due to some restrictions and special requirements of some companies.

### **7.8 Research Recommendations and Future Research Directions**

This study sought to address the gap in the existing literature and attempted to provide an investigation of how the 8 IBFs influence SIDs based on the research approach represented in the IBC model. This study could be a basis of future studies concerning the implications of the behavioural and psychological issues that can be interacted and resulted in management accounting and other accounting and managerial fields.

Based on the IBC model, research investigation and analyses provided in this study, the adoption of this model would be possible for many other issues as mentioned earlier in the third chapter that explains establishing the IBC and the main concepts of the model. This adoption can be recommended to further studies that focus on the IBFs including personality, perception, ability and skills, motivation, attitudes, work stress, job satisfaction and administrative leadership. Also, the studies conducted in investigating the determinants of individuals' performance and their impact on SIDs.

There is a need to increase the public awareness of perception concept and implications in terms of understanding the stimuli interpretation, misinterpretation, individual awareness and constancy, unrealistic expectations, task interpretation and different management styles. The awareness of such sub-factors can enhance individuals' attitudes, beliefs about how to receive, interact and interpret stimuli and reflect them into comprehensible actions. This IBF has recorded the lowest influential level among the 8 factors with 3.1 (63%) which falls into the high level (from 60% to 79%).

The research methodological approach can be adopted by future studies by applying it in other sectors in different countries due to the flexibility of this design and the comprehensiveness. As

mentioned in the third chapter, in designing the IBC processes, the flexibility of the IBFs and their assumptions is taken into consideration to be easily adopted in other similar fields. In addition, the integration of the IBC with other research questionnaires can easily be designed and conducted as well as analysed in a reliable and accurate manner.

Moreover, although this research has investigated the nature of association between IBFs and SIDs in the Libyan service companies, the researcher is aware that focusing on the current IBFs in this study can be further generalised to include more IBFs and additional psychological factors. Expanding the knowledge of the IBFs in terms of their impact on SIDs can be academically conducted whether the IBC model is conducted by the current 8 IBFs or by adding further behavioural factors. Additional behavioural and organisational factors can be investigated along with the current factors including company structure, environment, work culture, job responsibilities, relationship at work, loyalty, organisational commitment. These further factors can provide more investigations on the research relationships and produce more critical insights.

## **7.9 Conclusion**

Using IBC-based research design, this research investigated the association between the IBFs and SIDs, and transformed the complex behavioural issues and assumptions into a comprehensible basis. A historical background has been introduced in the literature review regarding the IBFs and SIDs. The theoretical framework has been also presented to show the establishment processes of the IBC model, the essence of this model and the behavioural assumptions linked to the 8 IBFs. The methodological part of this research has been developed based on the conceptual framework and the practical study that have been carried out on the Libyan service companies. Research philosophy, approaches and methods have been used in an integrated framework to provide a solid and coherent basis of the research. Data collection and analysis showed a supportive basis of the 8 research hypotheses in different relative supportive weights. The research has been concluded with an interpretive framework and summarised with critical insights that direct the research into additional recommended work in the interactive behaviour chain implementation.



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## **Appendices**

### **Appendix 1: Research Questionnaire (English version)**

#### **Questionnaire**

Dear Sir/Madam,

I am Khalid Nayel, a PhD researcher in the department of Accounting, Finance and Operations Management at Anglia Ruskin University. I am currently conducting a research thesis about The Influence of Individual Behavioural Factors on Decision-Making Process of Management Accounting Based on Interactive Behaviour Chain Model (IBC).

My research focuses on the individual behaviour and how does it affect the strategic investment decisions in your firm. The questionnaire is designed in a way that ensures the simplicity and to be understood by all the participants as the behavioural issue requires an appropriate level of concentration. In this context, I would like to invite you to participate in this questionnaire and your contribution will be highly appreciated. Your knowledge and experience are a significant part of enhancing my research results.

The questionnaire generally focuses on two main issues; the behavioural factors and the main stages of strategic investment decisions, and it links them into a significant influential relationship. This relationship is formulated in accurate, understandable and relevant forms and presented in clear statements that will be explained in details in the questionnaire instructions.

The contribution of your participation is valuable and voluntary. Your name and sensitive information will not be required for this questionnaire. In addition, your answers of the entire research questionnaire will remain anonymous and will not be released to anyone. This contribution can be reflected in positive results in the near future for a wide range of firms including your institution. In this aspect, if you are interested to receive a summary of the research findings and recommendations, please feel free to contact me via my email attached in this form. Also, if you have any queries regarding the questionnaire statements, you can ask me through my contact details attached below.

Kind regards,

**Khalid Nayel**

Accounting, Finance and Operations Management, Lord Ashcroft International Business School

**Anglia Ruskin University**

Khalid.nayel@pgr.anglia.ac.uk

## Section 1: General Information

1- What is your gender?

Male <input type="checkbox"/>	Female <input type="checkbox"/>	Prefer not to say <input type="checkbox"/>
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2- What is your age?

18 to 24 years <input type="checkbox"/>	25 to 34 years <input type="checkbox"/>	35 to 44 years <input type="checkbox"/>
45 to 54 years <input type="checkbox"/>	55 to 64 years <input type="checkbox"/>	Age 65 or older <input type="checkbox"/>

3- What is the highest degree you have completed?

High School level <input type="checkbox"/>	Bachelor Degree <input type="checkbox"/>	Master's degree <input type="checkbox"/>
PhD degree <input type="checkbox"/>	Other Professional qualifications <input type="checkbox"/>	If Other, please specify <input type="text"/>

4- Which of the following most closely matches your job title?

Accountant <input type="checkbox"/>	Management accountant <input type="checkbox"/>	Cost accountant <input type="checkbox"/>
Chief Executive Officer (CEO) <input type="checkbox"/>	Chief Operating Officer (COO) <input type="checkbox"/>	Chief Financial Officer (CFO) <input type="checkbox"/>
Head of a department <input type="checkbox"/>	Director <input type="checkbox"/>	Other (Please Specify): <input type="text"/>

5- How long have you been in this position?

Less than 5 years <input type="checkbox"/>	5 to 10 years <input type="checkbox"/>	11 to 15 years <input type="checkbox"/>
16 to 20 years <input type="checkbox"/>	21 to 25 years <input type="checkbox"/>	More than 25 years <input type="checkbox"/>

6- If you have worked for the company in more than one position, how long the overall period is "including the original position"?

Less than 5 years <input type="checkbox"/>	5 to 10 years <input type="checkbox"/>	11 to 15 years <input type="checkbox"/>
16 to 20 years <input type="checkbox"/>	21 to 25 years <input type="checkbox"/>	More than 25 years <input type="checkbox"/>

7- Have you attended any training sessions of human resources or any course related to the organisational behaviour?

Yes <input type="checkbox"/>	No <input type="checkbox"/>	If Yes, please write the course name and year <input type="text"/>
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8- How do you consider your participation and authority level in investment decision-making process?

Low authority (minimal authority)	1	2	3	4	5	6	7	8	9	10	High authority (effective influence)

## Section 2: Research statements (individual behavioural factors and strategic investment decisions)

Using the scale from 1 to 5, please rate the extent to which you agree/disagree with the following research statements.

No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1	<b>IBF 1-1</b> Creativity and Innovation (openness) Creative and innovative personality has a high ability in determining the appropriate options of investment decisions as it links these options with intelligent solutions and work development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<b>IBF 1-2</b> Carelessness (Opposite Conscientiousness) Individuals who have careless personalities usually do not pay enough attention to their managers, which could be reflected in a negative decision-making participation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<b>IBF 1-3</b> Cooperation (Agreeableness) In gathering information stage of strategic investment decision, individuals' cooperation plays an indispensable role in providing the required data and information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<b>IBF 1-4</b> Impulsivity (Neuroticism) Defining possible projects and formulating strategic opportunities can be negatively affected by impulsive behaviour.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<b>IBF 1-5</b> Assertiveness (Extraversion) Using discounted cash flows (DCF) technique and some capital techniques to evaluate the alternatives proposed need assertiveness in the evaluation and assessment processes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<b>IBF 1-6</b> Bias Individual inclination for some types of capital investment decisions poses threats in choosing the most appropriate projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<b>IBF 2-1</b> Stimuli Interpretation Effective interpretation of the information behind each investment alternative leads to more objective results, and helps decision-makers in selecting the suitable project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<b>IBF 2-2</b> Misinterpretation					

No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
	Providing incorrect information of any step of decision-making could be occurred by some unqualified individuals that leads to undesirable results.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<b>IBF 2-3</b> Individual Awareness and Constancy The high ability of understanding the environmental requirements of the proposed investment projects is a fundamental issue that helps firms being more aware of such projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<b>IBF 2-4</b> Unrealistic Expectations The unrealistic expectations of the possible investment decisions reflect an initial failure in choosing the generated alternatives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<b>IBF 2-5</b> Task Interpretation In the auditing and evaluating project stage, task interpretation and understanding the assigned work are essential requirements in making effective decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<b>IBF 2-6</b> Different Management Styles Working on different systems or changeable procedures raises a difficulty of realising and understanding the assigned tasks for decision-makers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<b>IBF 3-1</b> Consistency of Performance Consistent performance to be in line with the principles, standards and regulations of firm results in high decision quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<b>IBF 3-2</b> Ineffective Communication Ineffective individuals' communication with others in irrational, illogical and unclear way poses difficulties in many investment procedures such as supporting decisions and funding the proposed projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<b>IBF 3-3</b> Flexibility Flexibility of decision-makers helps firms in responding intelligently with all possible investment options and avoiding biased behaviour.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<b>IBF 3-4</b> Lack in Problem Solving The inability of problem solving could negatively affect investment projects when decision-makers fail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
	in finding appropriate solution of some related problems.					
17	<b>IBF 3-5</b> Quick Response Some investment opportunities need quick responses by decision-making team as some alternative need taking immediate appropriate actions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	<b>IBF 3-6</b> Inaccuracy Inaccurate data provided by individuals can be considerably reflected in a number of unrealistic information, thus inaccurate investment appraisal results.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	<b>IBF 4-1</b> Reinforcement Using rewards to encourage individuals to desirable behaviour is a significant technique that leads to positive performance outcomes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<b>IBF 4-2</b> Fear of Failure Fear of being failed in reaching specific achievements has undesirable outcomes of individuals' performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	<b>IBF 4-3</b> Expectancy Expansion, replacement and renewal investment decisions need estimated indicators and Standard costing analysis, thus a high ability in expectancy that helps decision-makers to evaluate investment projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	<b>IBF 4-4</b> Pain-Avoidance The desire of avoiding painful situations when individuals expect negative outcomes of their performance can negatively lead to helplessness and depression of decision-makers and make them pessimistic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	<b>IBF 4-5</b> Intrinsic and Extrinsic Rewards Physical and non-physical rewards significantly encourage decision-making participants to increasing their performance in all the stages of investment decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	<b>IBF 4-6</b> Performance Inconsistency Inconsistent performance of estimating life-cycle costing, target costing and value-chain costing of					

No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
	investment projects leads to inaccurate and unreliable information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	<b>IBF 5-1</b> Positive Emotional Attitudes The positive emotional attitudes of staff create strong relationships between individuals and work loyalty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	<b>IBF 5-2</b> Aggressive Expression Uncooperative work and aggressive communication between financial and managerial staff can negatively affect the quality of decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	<b>IBF 5-3</b> The Possibility of Change The flexible personality helps others in preparing the essential requirements of strategic projects such as strategic costing, strategic pricing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	<b>IBF 5-4</b> Disrespect to Others' Emotions The lack of respect to the participants of investment decision leads to impolite and offensive behaviour which consequently represents in undesirable performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	<b>IBF 5-5</b> Background Knowledge The appropriate financial background of analysing the proposed projects such as profitability analysis and financial funding is required for decision-makers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	<b>IBF 5-6</b> No Ownership in Mistakes Committed Individuals who do not take ownership of committing mistakes are likely to hinder the quality of investment decisions as this sensitive process needs a reasonable level of transparency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	<b>IBF 6-1</b> Increased Creativity In merger and acquisition decisions, increasing the creative work and adopting new analysis techniques would be a significant contribution to decision-makers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	<b>IBF 6-2</b> Loss of Concentration Loss concentration is a determinant of inaccurate investment analysis and inappropriate decision preparation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
33	<b>IBF 6-3</b> Cognition Enhancement High cognitive ability helps in generating new useful investment appraisal techniques and strengthens the mental power and the effectiveness of individuals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	<b>IBF 6-4</b> Less Productivity Less productivity is a general problem that affects all investment decision stages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	<b>IBF 6-5</b> Task Completion Desire Qualified staff usually have a desire in completing their analysing tasks on time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	<b>IBF 6-6</b> Increased Complaints Individuals' dissatisfaction increase resulted from their work conditions or not involving them in decision-making process would raise their complaints and then hinder their performance level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	<b>IBF 7-1</b> Participative Decision-Making Participating in determining the project outline, selecting the best options for the firm and making suitable decisions is a fundamental requirement for successful investment decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	<b>IBF 7-2</b> Intensive Work Standards In some stressful and intensive work procedures, the level of staffs' performance might be decreased if the work standards are in high levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	<b>IBF 7-3</b> Encouraging Environment The positive surrounding environment, providing applicable accounting software and useful operational systems help employees and decision-makers in making more efficient decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	<b>IBF 7-4</b> Non-Financial Rewards Working without receiving additional bonuses or rewards makes employees less productive in providing the efficient accounting support to decision-makers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	<b>IBF 7-5</b> Job Loyalty Job loyalty supports employees in being more careful in conducting the investment appraisal methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No	Research Statements	Agreement and Disagreement Levels				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
42	<b>IBF 7-6</b> Job Position Dissatisfaction In investment decision-making process, the diversity of decision-makers' positions makes the employees in lower positions dissatisfied because they feel that their voice is less important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	<b>IBF 8-1</b> Participative Leadership Leaders who allow subordinates in participating in some functions such as goal setting and decision-making are likely to be more successful than the other leadership styles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	<b>IBF 8-2</b> Irresponsible Leadership Irresponsible leadership makes the subordinates less confident in participating in decision-making process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	<b>IBF 8-3</b> Inspirational Leadership The ability of leaders in creating a positive sense for individuals and inspiring them in their assigned work can be reflected in positive decision-making participation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	<b>IBF 8-4</b> Ineffective Leadership Inability of persuading subordinates with logic or rational decisions makes leaders ineffective in evaluating the proposed investment projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	<b>IBF 8-5</b> Motivational Leadership Motivating employees is a significant issue in devoting more efforts in gathering sufficient investment information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	<b>IBF 8-6</b> Poor Communication Poor communication between leaders and their subordinates hinders many substantial decision procedures that need clarification and clear communication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix 2: Research Questionnaire (Arabic version)

### استمارة استبيان

السيدات والسادة،

أنا خالد نائل، طالب دكتوراه في قسم المحاسبة والمالية وإدارة العمليات بجامعة أنجليا رسكن. أقوم بإجراء أطروحة الدكتوراه حول تأثير العوامل السلوكية الفردية على عملية اتخاذ القرارات في المحاسبة الإدارية اعتماداً على نموذج سلسلة السلوك التفاعلية IBC. بحثي يركز على العوامل السلوكية الفردية و كيفية تأثيره على قرارات الاستثمار الاستراتيجية في الشركات. استمارة الاستبيان تم تصميمها بطريقة تضمن البساطة ليتمكن فهمها بواسطة المشاركين حيث أن المسألة السلوكية تتطلب مستوى مناسب من التركيز. في هذا السياق، أود أن أدعوك إلى المشاركة في هذا الاستبيان ومساهمتك سوف تكون محل تقدير كبير. معرفتك وخبرتك يمثلان جانب مهم في تعزيز نتائج البحث.

استمارة الاستبيان بشكل عام تركز على مسألتين أساسيتين: العوامل السلوكية والمراحل الأساسية لاتخاذ قرارات الاستثمار الاستراتيجية، وترتبط بهم في سياق العلاقة التأثيرية. هذه العلاقة تم تكوينها بدقة وبشكل مفهوم وبشكل مرتبط وتم عرضها في عبارات واضحة والتي سوف يتم شرحها بالتفصيل في سياق استمارة الاستبيان.

مساهمة المشاركين ذات قيمة وأيضاً اختيارية. اسمك والمعلومات الحساسة لن تكون مطلوبة في هذه الاستمارة. علاوة على ذلك، إجابتك على استمارة الاستبيان سوف تكون مجهولة ولن يتم عرضها لأي أحد. هذه المساهمة يمكن ان تنعكس في نتائج إيجابية في المستقبل القريب لكثير من الشركات بما فيهم مؤسستك. في هذا الجانب، إذا كنت مهتماً باستقبال خلاصة من نتائج البحث وأيضاً التوصيات، الرجاء لا تتردد في التواصل معي عن طريق البريد الإلكتروني المرفق في هذا النموذج. أيضاً، إذا كانت لديك أية استفسارات فيما يتعلق بعبارات الاستبيان، بإمكانك سؤالي من خلال تفاصيل الاتصال الخاصة بي.

خالص التحيات،

**خالد نائل**

قسم المحاسبة والمالية وإدارة العمليات

جامعة أنجليا رسكن

Khalid.nayel@pgr.anglia.ac.uk

## القسم 1: معلومات عامة

9- ماهو جنسك

لا تفضل الإجابة	<input type="checkbox"/>	أنثى	<input type="checkbox"/>	ذكر	<input type="checkbox"/>
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10- ماهو عمرك

سنة 35 إلى 44	<input type="checkbox"/>	سنة 25 إلى 34	<input type="checkbox"/>	سنة 18 إلى 24	<input type="checkbox"/>
أو أكبر 65	<input type="checkbox"/>	سنة 55 إلى 64	<input type="checkbox"/>	سنة 45 إلى 54	<input type="checkbox"/>

11- ماهي أعلى درجة قمت بإكمالها

الماجستير	<input type="checkbox"/>	بكالوريوس	<input type="checkbox"/>	الثانوية	<input type="checkbox"/>
إذا كانت أخرى، الرجاء الإيضاح	<input type="text"/>	مؤهلات أخرى	<input type="checkbox"/>	الدكتوراه	<input type="checkbox"/>

12- ماهي أقرب وظيفة لك من الاقتراحات التالية

محاسب تكاليف	<input type="checkbox"/>	محاسب إداري	<input type="checkbox"/>	محاسب	<input type="checkbox"/>
(CFO) مدير مالي	<input type="checkbox"/>	(COO) رئيس تنفيذي للعمليات	<input type="checkbox"/>	(CEO) رئيس تنفيذي	<input type="checkbox"/>
(الرجاء التحديد) أخرى:	<input type="text"/>	رئيس	<input type="checkbox"/>	رئيس قسم	<input type="checkbox"/>

13- منذ متى وأنت في هذا المنصب

سنة 11 إلى 15	<input type="checkbox"/>	سنوات 10 إلى 5	<input type="checkbox"/>	أقل من 5 سنوات	<input type="checkbox"/>
أكثر من 25 سنة	<input type="checkbox"/>	سنة 21 إلى 25	<input type="checkbox"/>	سنة 16 إلى 20	<input type="checkbox"/>

14- إذا عملت في الشركة في أكثر من مجال، كم هي المدة الإجمالية بالإضافة إلى الوظيفة الرئيسية؟

سنة 11 إلى 15	<input type="checkbox"/>	سنوات 10 إلى 5	<input type="checkbox"/>	أقل من 5 سنوات	<input type="checkbox"/>
أكثر من 25 سنة	<input type="checkbox"/>	سنة 21 إلى 25	<input type="checkbox"/>	سنة 16 إلى 20	<input type="checkbox"/>

15- هل سبق لك حضور أي دورات تدريبية خاصة بالموارد البشرية أو أي دورة لها علاقة بالسلوك التنظيمي؟

إذا نعم، الرجاء كتابة اسم الدورة والسنة	<input type="text"/>	لا	<input type="checkbox"/>	نعم	<input type="checkbox"/>
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16- كيف تعتبر مستوى مشاركتك والسلطة الممنوحة لك في عمليات اتخاذ القرارات الاستثمارية؟

سلطة قوية (تأثير قوي)	10	9	8	7	6	5	4	3	2	1	سلطة ضعيفة (الحد الأدنى)

**الجزء 2: عبارات الاستبيان (العوامل السلوكية الفردية وقرارات الاستثمار الاستراتيجية)**

باستخدام المقياس المكون من 1 إلى 5، الرجاء قم بتقييم مدى موافقتك أو عدم موافقتك على عبارات البحث التالية:

No	عبارة البحث	مستويات الموافقة والمعارضة				
		موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
		5	4	3	2	1
1	<b>IBF 1-1</b> الابتكار والإبداع الشخصية المبدعة والمبتكرة لديها قدرة كبيرة في تحديد الخيار الأنسب الخاص بقرارات الاستثمار حيث تربط هذه الخيارات مع حلول ذكية وتطوير للعمل.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<b>IBF 1-2</b> اللامبالاة الأفراد الذين يتميزون بالشخصية اللامبالية بالعادة لا يولون اهتماماً كافياً لمدراهم، الأمر الذي قد ينعكس في مشاركة سلبية في اتخاذ القرارات.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<b>IBF 1-3</b> التعاون في مرحلة جمع المعلومات الخاصة بالقرارات الاستثمارية، تعاون الأفراد يلعب دوراً لاغنى عنه في تزويد البيانات والمعلومات المطلوبة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<b>IBF 1-4</b> الإندفاع التعريف بالمشروعات المحتملة وخلق الفرص الاستراتيجية يمكن أن تتأثر سلبياً بواسطة السلوك المتسرع والمندفع.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<b>IBF 1-5</b> الصرامة استخدام التدفقات النقدية المخصومة DCF والأساليب الرأسمالية لتقييم البدائل المقترحة يحتاج الصرامة في تقييم وقياس العمليات.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<b>IBF 1-6</b> التحيز ميول الأفراد لبعض أنواع قرارات الاستثمار الرأسمالية يشكل تهديداً في اختيار أكثر البدائل ملائمة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<b>IBF 2-1</b> تفسير المحفزات التفسير الفعال للمعلومات الكامنة وراء بدائل الاستثمار يقود إلى نتائج أكثر موضوعية، ويساعد متخذي القرارات في اختيار المشروع الأنسب.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No	عبارة البحث	مستويات الموافقة والمعارضة				
		موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
		5	4	3	2	1
8	<b>IBF 2-2</b> التفسير الخاطئ تزويد المعلومات الخاطئة في أي مرحلة من مراحل اتخاذ القرارات يمكن أن يحدث بواسطة الأفراد الغير مؤهلين والذي يقود إلى نتائج غير مرغوبة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<b>IBF 2-3</b> الوعي الفردي والثبات القدرة العالية لفهم المتطلبات البيئية للمشاريع الاستثمارية المقترحة يعتبر مسألة أساسية والتي تساعد الشركات في أن يكونوا مدركين لهذه المشاريع.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<b>IBF 2-4</b> التوقعات الغير واقعية التوقعات الغير واقعية الخاصة بقرارات الاستثمار المحتملة تعكس الفشل المبني في اختيار البدائل.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<b>IBF 2-5</b> تفسير المهام في مرحلة مراجعة وتقييم المشروع، تفسير المهام وفهم المهام الموكلة هي متطلبات أساسية في اتخاذ القرارات الفعالة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<b>IBF 2-6</b> أنماط إدارية مختلفة العمل على أنظمة مختلفة أو إجراءات قابلة للتغيير تزيد من صعوبة فهم وإدراك المهام الموكلة لمتخذي القرارات.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<b>IBF 3-1</b> اتساق وثبات الأداء الأداء المتسق ليكون متماشياً مع المفاهيم والمعايير واللوائح الخاصة بالشركة ينتج في جودة عالية للقرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<b>IBF 3-2</b> التواصل الغير فعال تواصل الأفراد الغير فعال مع الآخرين في شكل غير عقلاني وغير منطقي وغير واضح يشكل صعوبات في الكثير من إجراءات الاستثمار مثل القرارات الداعمة وأيضاً تمويل المشاريع المقترحة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<b>IBF 3-3</b> المرونة مرونة متخذي القرارات تساعد الشركات في الاستجابة بشكل ذكي مع كل الاستثمارات الممكنة وتجنب السلوك المتحيز.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<b>IBF 3-4</b> القصور في حل المشاكل عدم القدرة على حل المشاكل من الممكن أن يؤثر سلباً على المشاريع الاستثمارية عندما يفشل متخذي القرارات في إيجاد حلول مناسبة لبعض المشاكل المتعلقة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



No	عبارة البحث	مستويات الموافقة والمعارضة				
		غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
		1	2	3	4	5
17	<b>IBF 3-5</b> الاستجابة السريعة بعض فرص الاستثمار تحتاج إلى الاستجابات السريعة بواسطة فريق اتخاذ القرارات حيث أن بعض البدائل تحتاج إلى اتخاذ إجراءات ملائمة بشكل فوري.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	<b>IBF 3-6</b> عدم الدقة البيانات الغير دقيقة التي يتم إتزيدها بواسطة الأفراد يمكن أن تنعكس بشكل كبير في عدد من المعلومات الغير واقعية، وبالتالي نتائج بدائل التقييم الغير دقيقة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	<b>IBF 4-1</b> التعزيز استخدام المكافآت لتشجيع الأفراد للسلوك المرغوب يعتبر طريقة مهمة والتي تقود إلى مخرجات أداء ايجابي.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<b>IBF 4-2</b> الخوف من الفشل الخوف من الفشل في الوصول إلى إنجازات محددة لها مخرجات غير مرغوبة لأداء الأفراد.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	<b>IBF 4-3</b> التوقع قرارات الاستثمار الخاصة بالاستبدال والتجديد تحتاج مؤشرات تقديرية وتحليل تكلفة معيارية، وبالتالي القدرة العالية في التوقع والذي يساعد متخذي القرارات في تقييم المشاريع الاستثمارية.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	<b>IBF 4-4</b> تجنب الألم الرغبة في تجنب حالات الألم عندما يتوقع الأفراد مخرجات سلبية لمستويات الأداء يقودهم بشكل سلبي للعجز والاكتئاب من صانعي القرار وجعلهم متشائمين.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	<b>IBF 4-5</b> المكافآت الداخلية والخارجية المكافآت المادية وغير المادية تشجع المشاركين في صنع القرار بشكل كبير على زيادة أدائهم في جميع مراحل قرارات الاستثمار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	<b>IBF 4-6</b> عدم ثبات واتساق الأداء يؤدي الأداء غير المتسق لتقدير تكلفة دورة الحياة والتكلفة المستهدفة وتكاليف سلسلة القيمة للمشاريع الاستثمارية إلى معلومات غير دقيقة وغير موثوق بها.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	<b>IBF 5-1</b> لاتجاهات العاطفية الايجابية					

No	عبارة البحث	مستويات الموافقة والمعارضة				
		موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
		5	4	3	2	1
	المواقف العاطفية الإيجابية للموظفين تخلق علاقات قوية بين الأفراد والولاء في العمل.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	<b>IBF 5-2</b> التعبير العدواني يمكن أن يؤثر العمل غير المتعاون والتواصل العدواني بين الموظفين الماليين والإداريين سلبيًا على جودة القرارات.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	<b>IBF 5-3</b> القابلية للتغيير تساعد الشخصية المرنة الآخرين في إعداد المتطلبات الأساسية للمشروعات الإستراتيجية مثل التكلفة الاستراتيجية والتسعير الاستراتيجي.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	<b>IBF 5-4</b> عدم احترام عواطف الآخرين يؤدي عدم احترام المشاركين في قرار الاستثمار إلى سلوك غير مؤذب وهجومي يمثل بالتالي أداء غير مرغوب فيه.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	<b>IBF 5-5</b> الخلفية المعرفية الخلفية المالية المناسبة لتحليل المشاريع المقترحة مثل تحليل الربحية والتمويل المالي مطلوب لصانعي القرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	<b>IBF 5-6</b> عدم الاعتراف بالأخطاء المرتكبة من المحتمل أن يعيق الأفراد الذين لا يتحملون مسؤولية ارتكاب الأخطاء جودة قرارات الاستثمار لأن هذه العملية الحساسة تحتاج إلى مستوى معقول من الشفافية.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	<b>IBF 6-1</b> زيادة الإبداع في قرارات الاندماج والاستحواذ ، زيادة العمل الإبداعي وتبني أساليب تحليل جديدة ستكون مساهمة مهمة لصناع القرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	<b>IBF 6-2</b> فقدان التركيز فقدان التركيز هو أحد العوامل المحددة لعدم دقة تحليل الاستثمار والإعداد غير المناسب للقرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	<b>IBF 6-3</b> تعزيز الإدراك القدرة المعرفية العالية تساعد في توليد تقنيات جديدة مفيدة لتقييم الاستثمار وتقوية القوة العقلية وفعالية الأفراد.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	<b>IBF 6-4</b> إنتاجية أقل تعتبر الإنتاجية الأقل مشكلة عامة تؤثر على جميع مراحل قرارات الاستثمار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No	عبارة البحث	مستويات الموافقة والمعارضة				
		موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
		5	4	3	2	1
35	<p>IBF 6-5 الرغبة بإكمال المهام</p> <p>عادة ما يكون لدى الموظفين المؤهلين رغبة في إكمال مهامهم التحليلية في الوقت المحدد.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	<p>IBF 6-6 زيادة الشكاوي</p> <p>زيادة استياء الأفراد الناتجة عن ظروف عملهم أو عدم إشراكهم في عملية صنع القرار من شأنها رفع الشكاوي الخاصة بهم ومن ثم إعاقة مستوى أدائهم.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	<p>IBF 7-1 المشاركة في اتخاذ القرارات</p> <p>تعد المشاركة في تحديد مخطط المشروع واختيار أفضل الخيارات للشركة واتخاذ القرارات المناسبة شرطاً أساسياً لاتخاذ قرارات استثمارية ناجحة.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	<p>IBF 7-2 معايير العمل المكثفة</p> <p>في بعض إجراءات العمل المجهد والمكثف ، قد ينخفض مستوى أداء الموظفين إذا كانت معايير العمل في مستويات عالية.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	<p>IBF 7-3 البيئة المشجعة</p> <p>البيئة المحيطة الإيجابية ، وتوفير برامج المحاسبة المعمول بها وأنظمة التشغيل المفيدة تساعد الموظفين وصناع القرار في اتخاذ قرارات أكثر كفاءة.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	<p>IBF 7-4 المكافآت الغير مالية</p> <p>العمل دون تلقي مكافآت أو مكافآت إضافية يجعل الموظفين أقل إنتاجية في توفير الدعم المحاسبي الفعال لصناع القرار.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	<p>IBF 7-5 الولاء الوظيفي</p> <p>يدعم الولاء الوظيفي الموظفين في أن يكونوا أكثر حرصًا في إجراء أساليب تقييم الاستثمار.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	<p>IBF 7-6 عدم الرضا للوظيفة الحالية</p> <p>في عملية اتخاذ القرارات المتعلقة بالاستثمار ، يجعل تنوع وظائف صانعي القرار الموظفين في الوظائف الأدنى غير راضين لأنهم يشعرون أن صوتهم أقل أهمية.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	<p>IBF 8-1 القيادة التشاركية</p> <p>من المحتمل أن يكون القادة الذين يسمحون للمؤوسين بالمشاركة في بعض الوظائف مثل تحديد الأهداف وصنع القرار أكثر نجاحًا</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No	عبارة البحث	مستويات الموافقة والمعارضة				
		غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
		1	2	3	4	5
	من أساليب القيادة الأخرى.					
44	<b>IBF 8-2</b> القيادة الغير مسؤولة					
	القيادة غير المسؤولة تجعل المرؤوسين أقل ثقة في المشاركة في عملية صنع القرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	<b>IBF 8-3</b> القيادة الملهمة					
	يمكن أن تنعكس قدرة القادة على خلق شعور إيجابي للأفراد وإلهامهم في عملهم في المشاركة الإيجابية في صنع القرار.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	<b>IBF 8-4</b> القيادة الغير فعالة					
	عدم القدرة على إقناع المرؤوسين بقرارات منطقية أو عقلانية تجعل القادة غير فعالين في تقييم المشروعات الاستثمارية المقترحة.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	<b>IBF 8-5</b> القيادة التحفيزية					
	يعد تحفيز الموظفين مسألة مهمة في تكريس مزيد من الجهود لجمع المعلومات الاستثمارية الكافية.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	<b>IBF 8-6</b> التواصل الضعيف					
	يؤدي ضعف التواصل بين القادة ومرؤوسيهـم إلى إعاقـة العـديد من إجراءات اتخاذ القرارات الجوهرية التي تحتاج إلى توضيح وتواصل واضح.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix 3: Participant Information Sheet



### PARTICIPANT INFORMATION SHEET

#### Section A: The Research Project

1. **Title of project**

The Influence of Individual Behavioural Factors on Decision-Making Process of Management Accounting Based on Interactive Behaviour Chain Model (IBC).

2. **Brief summary of research.**

The research investigates the influential relationships between individual behavioural factors and strategic investment decision based on the Interactive Behaviour Chain model (IBC). It contends that the IBFs' implications could be more obvious if the scientific research contributions build their assumptions and analyses on an organised scientific basis. From this conceptualization, the thesis aims to identify the underlying assumptions of the IBFs to be in a logical scientific framework supported by the IBC model that transforms individuals' behavioural impact into the performance level outcomes that result in the quality of strategic investment decisions. The model is an additional contribution to the mainstream literature and related to behavioural accounting research that has been introduced in critical insights. Developing this area makes the behavioural implications more transparent to researchers, individuals and firms. As a result of the complex behavioural issues, the research aims to transform these characteristics of individuals' performance into a more comprehensive framework.

3. **Purpose of the study**

This thesis aims to identify the underlying assumptions of the IBFs to be in a logical scientific framework supported by the IBC model that transforms individuals' behavioural impact into the performance level outcomes that result in the quality of strategic investment decisions.

4. **Name of your Supervisor**

5. **Why have I been asked to participate?**

The reason of your participation is based on your position, so you can positively contribute in investigating the relationship between the IBFs and SIDs in the Libyan service companies as you are selected from a number of participants who meet the research population criteria.

**6. How many people will be asked to participate?**

The research sample size is statistically determined by Cochran's formula for sample size determination, the number that reliably represents the population of the study.

**7. What are the likely benefits of taking part?**

Based on the sample participation, the participants will contribute in investigating the influential relationship between the IBFs and SIDs, and providing the real insights based on the IBC model. It is essentially a beneficial contribution to the research and the participation helps the researcher reflecting the actual visions regarding the research issue.

**8. Can I refuse to take part?**

The participants can refuse taking part of this research at any time. However, the contribution of the participation is valuable and the names of participants and sensitive information will be anonymous and will not be released to anyone.

**9. Has the study got ethical approval?**

The study complies with the ethics of Anglia Ruskin University. At the university, the following forms and regulations are taken into consideration for business conducted research and this study:

- Code of practice for applying for ethical approval at Anglia Ruskin University (Scott, 2016).
- Research Ethics Policy (Anglia Ruskin University, 2017a).
- Data Protection Policy (Anglia Ruskin University, 2016).
- Research Ethics Application Form (Anglia Ruskin University, 2017b).
- Legislation relating to research ethics (Scott, 2016).

**10. Has the organisation where you are carrying out the research given permission?**

In the Libyan service companies, the participants are responsible for their participation as they have the right for participating in this research. In this aspect, the researcher clearly explains that the study is conducted for academic purposes only and the information given will not be used or provided to any other parties.

**11. If your research falls under specific legislation e.g. the Human Tissue Act (2004), you need to state that your research complies with it.**

No applicable.

**12. Source of funding for the research, if applicable.**

The Libyan Embassy (Cultural Affairs) in London is fully responsible for funding the research.

**13. What will happen to the results of the study?**

The results of this study will be analysed in this research in order to provide clear interpretation of the relationship between IBFs and SIDs based on the IBC model. They will also be used for publishing purposes in academic journals to be as an academic resource in management accounting, organisational behaviour and similar fields.

**14. Contact for further information**

**Section B: Your Participation in the Research Project**

**1. What will I be asked to do?**

The questionnaire describes how the researcher will deal with the information provided. It includes a cover letter that shows the research title, aims and the essential information of the questionnaire as well as the contact details. Several essential issues are confirmed to the participants that guarantee anonymity, confidentiality and privacy. The participants will be asked to answer the questionnaire honestly and carefully due to the significance of their attitudes in this study. The guidelines of answering the questions are provided and they are clearly designed to help the participants in filling in their questionnaires.

For providing further explanation assistance, contact details are presented at the end of the questionnaire including the researcher's university email address and mobile number. This assistance is provided to encourage the targeted individuals to ask and discuss any further issues concerning the questionnaire's questions and statements. According to the code of practice for applying for ethical approval at Anglia Ruskin University guideline, the separate consent form should be provided in this study as it uses the questionnaire instrument.

**2. Will my participation in the study be kept confidential?**

The participants of this research have the right to know that their answers, behavioural attitudes and information of accounting issues will be treated in a responsible manner. This means that all information provided in the questionnaire is under the anonymity conditions and participants should know that their information are confidential. In this context, it is important to know the distinction between anonymity and confidentiality. Anonymity refers

to the impossibility of knowing the private information of the participants such as their names, emails and address (Protecting Confidentiality and Anonymity | Institutional Review Board, Virginia Tech, 2017). Confidentiality means that data collected from participants will be not linked to individual and it is not made public (Monette, Sullivan and DeJong, 2013). In other words, anonymity exists when the researcher cannot connect the participants' answers to individuals who provided the responses, but in the confidentiality cases, the researcher can link these variables and know the participants identity without providing and sharing any information about them for confidential purposes (Edwards, Scott and Raju, 2007).

In this research, the questionnaire instrument shows clearly that all the information provided will be treated confidentially. Researchers must clarify to the participants that their confidentiality is preserved as many participants seek a safe participation and to be in line with the ethical consideration (Cowburn, Gelsthorpe, and Wahidin, 2016). Also, the research confidentiality and anonymity are ensured based on the Code of Practice of Ethical Approval at Anglia Ruskin University and the Data Protection Act (1998).

3. **Use of quotes.**  
The research uses the questionnaire that does not include quotes and explanations.
4. **Use of recording equipment.**  
The research data collection depends on the quantitative method using the questionnaire and it does not involve interviews.
5. **Will I be reimbursed travel expenses?**  
Participants are not required to travel. The researcher will distribute all the questionnaires at their locations where they work.
6. **If participants will be offered incentives to take part in the research, state this here.**  
The research does not involve any kind of incentives.
7. **Are there any possible disadvantages or risks to taking part?**  
The data collection stage does not pose any threats or risks on the participants. The questionnaire is designed in a way that ensures the simplicity and it does not take a long time to be filled. The study does not have any physical or emotional harm to participants as it only represents an academic investigation study. Also, the agreement to participate in the study does not affect participant's legal rights.
8. **Whether I can withdraw at any time, and how.**  
Participants have the right to withdraw at any time without providing specific reason. If they feel that they are not comfortable at any stage of answering the questionnaire, they



can withdraw immediately without hesitation. They do not have to answer any questionnaire questions they do not wish to.

9. **Whether there are any special precautions you must take before, during or after taking part in the study.**

There is not further or special precautions required during or after taking part in the research as all the procedures are clearly explained in the questionnaires' instructions and in the previous parts of this information sheet guidelines.

10. If there is any information that participants may tell you that you would need to disclose to someone else (e.g. if you feel they are at risk, if they reveal anything of an illegal nature or if you are researching in an organisation and they reveal anything of an unprofessional nature) you need to state this on the participant information sheet. For further information, please refer to Section 3.14 of the Code of Practice for Applying for Ethical Approval at Anglia Ruskin University.

11. **What will happen to any information/data/samples that are collected from you?**

The data gathered from the questionnaires will be only used for academic purposes and it will not be provided to any other parties. The data is securely held and it will be used during the research period and data analysing stage. The questionnaires will not be distributed to any other parties including the Libyan service companies as they are confidential and anonymous.

12. If carrying out qualitative interviews with participants, will they be shown a copy of the transcript? If so, state this and the process via which this will happen.

The research does not conduct interviews.

13. Summary of research findings. It is good practice to send participants a summary of research findings wherever possible. This would be a summary rather than their individual results. If you will do this, explain the process via which this will happen.

It is shown in the cover page of the questionnaire that if the participants are interested to receive a summary of the research findings and recommendations, they can contact the researcher via the email attached in the questionnaire.

14. **Contact details for complaints.**

If participants have any complaints about the study, they should be encouraged to speak to the researcher or the supervisor via the following emails:

Researcher's email:

Supervisor's email:

They also can contact Anglia Ruskin University's complaints procedure via:

Email address: [complaints@anglia.ac.uk](mailto:complaints@anglia.ac.uk)

Postal address: Office of the Secretary and Clerk, Anglia Ruskin University, Bishop Hall Lane, Chelmsford, Essex, CM1 1SQ.

Students from Associate Colleges need to check what their procedures for complaints are and provide details to participants.

PARTICIPANTS WILL BE GIVEN A COPY OF THIS TO KEEP,  
TOGETHER WITH A COPY OF THE CONSENT FORM.

Date 24.10.16

V1.0

## Appendix 4: Participant Consent Form



### PARTICIPANT CONSENT FORM

NAME OF PARTICIPANT:

Title of the project:

**The Influence of Individual Behavioural Factors on Decision-Making Process of Management Accounting Based on Interactive Behaviour Chain Model (IBC).**

Main investigator and contact details: **Khalid Nayel**

Members of the research team:

1. I agree to take part in the above research. I have read the Participant Information Sheet (Date 24.10.16. V1.0) for the study.  
I understand what my role will be in this research, and all my questions have been answered to my satisfaction.
2. I understand that I am free to withdraw from the research at any time, without giving a reason.
3. I am free to ask any questions at any time before and during the study.
4. I understand what will happen to the data collected from me for the research.
5. I have been provided with a copy of this form and the Participant Information Sheet.

Data Protection: I agree to the University<sup>1</sup> processing personal data which I have supplied. I agree to the processing of such data for any purposes connected with the Research Project as outlined to me\*

Name of participant (print) .....

Signed .....

Date .....

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<sup>1</sup> "The University" includes Anglia Ruskin University and its Associate Colleges.

PARTICIPANTS MUST BE GIVEN A COPY OF THIS FORM TO KEEP  
ADD DATE AND VERSION NUMBER OF CONSENT FORM.

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**I WISH TO WITHDRAW FROM THIS STUDY.**

If you wish to withdraw from the research, please speak to the researcher or email them at (khalid.nayel@pgr.anglia.ac.uk) stating the title of the research.

You do not have to give a reason for why you would like to withdraw.

Please let the researcher know whether you are/are not happy for them to use any data from you collected to date in the write up and dissemination of the research.

Date 24.10.16

V1.2

## Appendix 5: A Sample of Data Extraction Form

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IBF 1	1																			
	2																			
	3																			
	4																			
	5																			
	6																			
IBF 2	7																			
	8																			
	9																			
	10																			
	11																			
	12																			
IBF 3	13																			
	14																			
	15																			
	16																			
	17																			
	18																			
IBF 4	19																			
	20																			
	21																			
	22																			
	23																			
	24																			
IBF 5	25																			
	26																			
	27																			
	28																			
	29																			
	30																			
IBF 6	31																			
	32																			
	33																			
	34																			
	35																			
	36																			
IBF 7	37																			
	38																			
	39																			
	40																			

	41																					
	42																					
IBF 8	43																					
	44																					
	45																					
	46																					
	47																					
	48																					
Total																						

\* In this from, all the participants answers were transferred into this table that reflects all the answers (48 questions \* 220 participants). It can be noticed that this table shows only the first 20 participants which is only for clarification purpose and simplifying the data presentation only. The comprehensive table is the total of 11 tables (11 tables \* 20 participants = 220 participants). All the numbers that have been extracted in this table were between 1 and 5 according to the Likert scale.