



## **Interactive Behaviour Chain (Ibc) As a Scientific Model in Measuring the Behavioural Impact of individuals on Strategic Investment Decisions**

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### **Abstract.**

The interaction between Individual Behavioural Factors (IBFs) and decision making process has been controversially discussed in management accounting literature and organisational behaviour fields. These contextual factors should be taken into account within the firms which seek to exploit the behavioural factors related to management accounting roles and decision-making processes including psychological aspects. As a dependent variable, the research essentially focuses on the Strategic Investment Decisions (SIDs) that represent a significant relative weight of strategic operations and plans of firms. In this context, the research provides a model which is Interactive Behaviour Chain (IBC). This model is based on eight 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 assumptions and providing an analytical framework of the positive and negative implications and performance outcomes of these eight factors. In this research, 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 investment decision-making process, and how to exploit and improve the positive behavioural impact and minimise the negative implication. The research uses the quantitative approach by designing compatible questionnaire that has been distributed on 80 participants. The results of this study support the research hypothesis and its behavioural assumptions that includes 8 main IBFs and 48 sub-factors.

**Keywords:** Interactive Behaviour Chain (IBC), Individual Behaviour Factors (IBFs), Strategic Investment Decisions (SIDs), Decision-Making, Management Accounting



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## 1. Introduction

Interactive Behaviour Chain (IBC) as a scientific approach is a multidisciplinary model, which helps firms to understand to what level do individual behavioural factors affect and determine the performance levels of individuals by clarifying and showing the affirmative and negative implications of these aspects. This model is based on 8 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. 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 represents in two main variables; Individual Behaviour Factors (IBFs) and Strategic Investment Decisions (SIDs). The research aims to clarify the interrelationships between these variables and the extent of influence through using this new behavioural model. The main objective of this research is to clearly identify the most influential IBFs, and explain how do these factors affect many different requirements of decision-making through essential stages of this process. Providing clearly marked objectives of these IBFs can be achieved through understanding and clarifying the main and sub-factors of the IBFs in their influential relationships with SID processes.

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 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.

Based on the research investigation, the research questions and hypotheses are addressed and formulated in the following:

**Research question-** To what extent do IBFs affect the performance levels, thus strategic investment decisions within firms?

This question considers the eight main IBFs and the 48 sub-factors included in the IBC model.

**Research hypothesis-** IBFs positively affect individuals' performance in a high level when firms enhance the desirable IBFs, and avoid the undesirable IBFs formulated in this research.

This hypothesis provides supposition and proposed assumptions of the eight main IBFs and the 48 sub-factors included in the IBC model in the positive and negative ways.

### 1.1 Establishing and Designing the IBC

The distinct characteristics of the IBC model stem from a set of behavioural determinants formulated in one essence. IBC technique absorbs many IBFs in a formulation that derived



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

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 (Goldberg, 1993; Leutner, Ahmetoglu, Akhtar & Chamorro-Premuzic, 2014). 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. 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, Tiagha & Waiguchu, 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 (Conte & Landy, 2018). 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, 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 (Sanders, Hopkins & Geroy, 2003; Antonakis & House, 2014). 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



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France | Paris | April 19-21, 2019

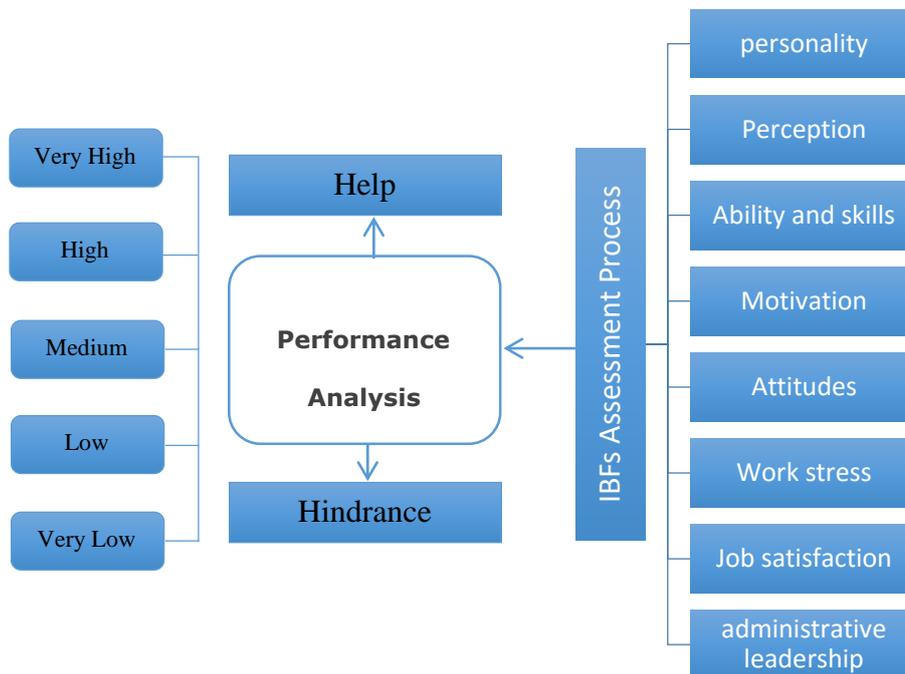
level. Another significant approach is Contingency theory that can be integrated into the IBC assumptions. In this theory, many decisions require contingent actions by leaders which are normally occur depending on the internal and external circumstances. The reason for including the philosophy of this 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.

### **1.2 Modelling the IBC**

IBC technique is a significant measurement model and a combination approach of several IBFs that can be applied in a wide variety of studies as a multidisciplinary model. In this research, the influence features and level of the IBFs chosen will be measured by this technique which allows firms to know to what extent do these essential behavioural factors determine the positive performance level of individuals in strategic decision-making process. Fig 1 shows the essence of this model.

*Figure 1: Interactive Behavioural Chain (IBC) model*



This structural diagram displays the essence of the interactive behavioural 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 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 positive 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.

### 1.3 IBFs Assessment Process and Basic Assumptions of the IBFs

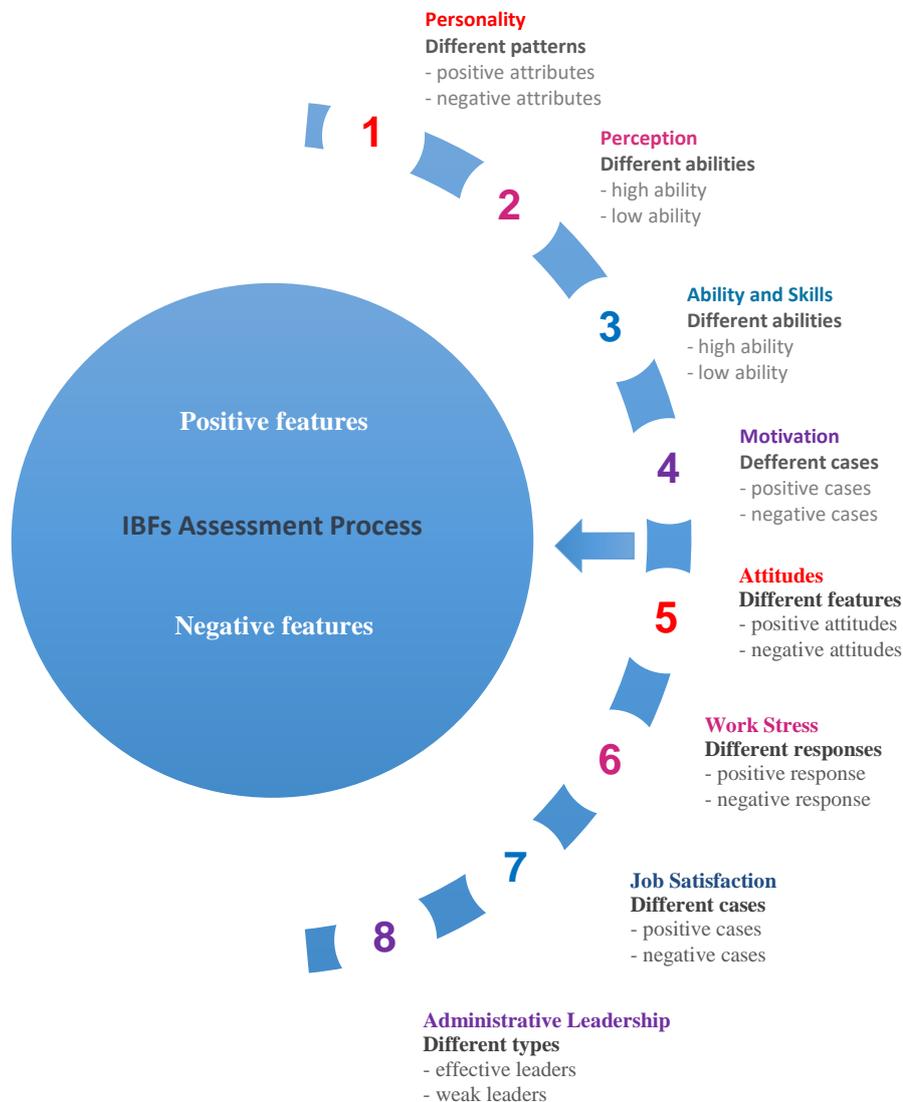
This section expresses the conceptual framework of the IBC, and the basic assumptions of all the IBFs chosen in this approach. Typically, this involves the positive and negative features of each behavioural component. This section presents how the IBC model can be operationalised in different cases including strategic decision-making process as a fundamental issue in this research. The scientific framework of this model stems from a set of significant conceptual and scientific values of relevant literature. To provide comprehensive behavioural factors 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, Fig 2 shows the IBFs in the initial form in the positive and negative aspects.

Figure2: Multidimensional impact of the eight IBFs



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France | Paris | April 19-21, 2019



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.

## 1.4 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 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 to measure 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



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France | Paris | April 19-21, 2019

influence feature (positive or negative) and in what level these outcomes are. Tab 1 shows the IBFs assessment process which includes the eight behavioural factors and 48 sub-factors.

*Table 1: Assessment process of the IBFs*

Key Response	Desirable Performance Enhancement						Undesirable Performance Impact					
	Attitude	Positive		Neutral	Negative		Attitude	Negative		Neutral	Positive	
		Strongly agree	Agree		Disagree	Strongly disagree		Strongly agree	Agree		Disagree	Strongly disagree
	Degree	5	4	3	2	1	Degree	5	4	3	2	1
Assumptions						Assumptions						
IBF 1	<b>IBF 1-1</b>	Creativity and Innovation (openness)					<b>IBF 1-2</b>	Carelessness (Opposite Conscientiousness)				
	<b>IBF 1-3</b>	Cooperation (Agreeableness)					<b>IBF 1-4</b>	Impulsivity (Neuroticism)				
	<b>IBF 1-5</b>	Assertiveness (Extraversion)					<b>IBF 1-6</b>	Bias				
IBF 2	<b>IBF 2-1</b>	Stimuli Interpretation					<b>IBF 2-2</b>	Misinterpretation				
	<b>IBF 2-3</b>	Individual Awareness and Constancy					<b>IBF 2-4</b>	Unrealistic Expectations				
	<b>IBF 2-5</b>	Task Interpretation					<b>IBF 2-6</b>	Different Management Styles				
IBF 3	<b>IBF 3-1</b>	Consistency of Performance					<b>IBF 3-2</b>	Ineffective Communication				
	<b>IBF 3-3</b>	Flexibility					<b>IBF 3-4</b>	Lack in Problem Solving				
	<b>IBF 3-5</b>	Quick Response					<b>IBF 3-6</b>	Inaccuracy				



# 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

Desirable Performance Enhancement						
Key Response	Attitude	Positive		Neutral	Negative	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1
<b>Assumptions</b>						

Undesirable Performance Impact						
Key Response	Attitude	Negative		Neutral	Positive	
	Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Degree	5	4	3	2	1
<b>Assumptions</b>						

IBF 4	<b>IBF 4-1</b> Reinforcement
	<b>IBF 4-3</b> Expectancy
	<b>IBF 4-5</b> Intrinsic and Extrinsic Rewards
IBF 5	<b>IBF 5-1</b> Positive Emotional Attitudes
	<b>IBF 5-3</b> The Possibility of Change
	<b>IBF 5-5</b> Background Knowledge
IBF 6	<b>IBF 6-1</b> Increased Creativity
	<b>IBF 6-3</b> Cognitive Enhancement
	<b>IBF 6-5</b> Task Completion Desire
IBF 7	<b>IBF 7-1</b> Participative Decision-Making
	<b>IBF 7-3</b> Encouraging Environment

IBF 4	<b>IBF 4-2</b> Fear of Failure
	<b>IBF 4-4</b> Pain-Avoidance
	<b>IBF 4-6</b> Performance Inconsistency
IBF 5	<b>IBF 5-2</b> Aggressive Expression
	<b>IBF 5-4</b> Disrespect to Others' Emotions
	<b>IBF 5-6</b> No Ownership in Mistakes Committed
IBF 6	<b>IBF 6-2</b> Loss of Concentration
	<b>IBF 6-4</b> Less Productivity
	<b>IBF 6-6</b> Increased Complaints
IBF 7	<b>IBF 7-2</b> Intensive Work Standards
	<b>IBF 7-4</b> Non-Financial Rewards



# 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

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	5	4	3	2	1
Assumptions						Assumptions						
IBF 8	<b>IBF 7-5</b> Job Loyalty						<b>IBF 7-6</b> Job Position Dissatisfaction					
	<b>IBF 8-1</b> Participative Leadership						<b>IBF 8-2</b> Irresponsible Leadership					
	<b>IBF 8-3</b> Inspirational Leadership						<b>IBF 8-4</b> Ineffective Leadership					
<b>IBF 8-5</b> Motivational Leadership						<b>IBF 8-6</b> Poor Communication						

IBFs	IBF Numbers refer to individual behavioural factors as presented in the Fig 2. For example, <b>IBF 1</b> refers to personality, while <b>IBF 8</b> refers to administrative leadership.
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The Figure shows the 48 sub-factors derived from the main eight IBFs involved in the IBC assessment process. This process investigates the influential relationship between these 48 sub-factors and the performance level of individuals, and then the quality of SIDs. These main and sub-factors are integrated into the research questions and hypotheses. In this process, the 48 sub-factors can be examined in their influential features and levels on individuals' performance, and then the impact on the issue under investigation (in this research, the quality of SIDs).



### **1.5 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, Houghton & Jain, 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. 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 can significantly 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 sup-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 & 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 & Krishnan, 2016), quick response (Palmer & Markus, 2000).



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

Interpreting each factor empirically can be examined by reviewing the relative weight of each component 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 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 & 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 & Meyer, 1994). Bias plays a significant role in the behavioural effects on replacement decisions. Cripps & 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 need 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 could be made such as rebuilding, renewing assets and updating computers and software. In some cases, renewing assets can be more beneficial than replace 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, 2019).

## 2. Methodology

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 & 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 research 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 reflects in numbers, logical and rational objective



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

data gathered, which are considered appropriate characteristics of this research (Research Guides, 2019).

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 research, especially in the nature of variables examination, hypotheses testing, data collection tools and statistical analyses (Muijs, 2010).

In this research 80 questionnaires were distributed on a number of Chairmen, Chief Executive Officers (CEOs), Chief Operating Officers (COOs), Chief Financial Officers (CFOs) and the accountants in Libyan service companies in this exploratory study to investigate the impact of IBFs on individuals' performance and then the quality of SIDs.

### **2.1 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.

### **2.2 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 Tab 2, IBFs assessment process. 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, Tab 2 presents how the questionnaire statements are adaptable with hypotheses.



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

*Table 2: 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.

**Desirable Performance Enhancement**

**Key Response**

<b>Attitude</b>	Positive		Neutral	Negative	
<b>Response</b>	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
<b>Degree</b>	5	4	3	2	1

**Assumptions**

**Undesirable Performance Impact**

<b>Attitude</b>	Negative		Neutral	Positive	
<b>Response</b>	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
<b>Degree</b>	5	4	3	2	1

**Assumptions**

**Hypothesis 1 (1-1)** Creativity and Innovation (openness)

**IBF 1**

Assumed statement should be inserted here that reflects the positive proposed relationship between this behavioural characteristic and strategic investment decisions.

**Hypothesis 1 (1-2)** Cooperation (Agreeableness)

**IBF 1**

Cooperative pattern + SIDs

**Hypothesis 1 (1-3)** Assertiveness (Extraversion)

**IBF 1**

Assertive pattern + SIDs

**Hypothesis 1 (1-4)** Carelessness (Opposite Conscientiousness)

Assumed statement should be formulated here that reflects the negative assumed relationship between this undesirable pattern and SIDs.

**Hypothesis 1 (1-5)** Impulsivity (Neuroticism)

Impulsive personality + SIDs

**Hypothesis 1 (1-6)** Bias

Biased personality + SIDs



Based on the main hypothesis of this research, the statements should be formulated in a way that ensures providing appropriate, objective and logical connection between the independent and dependent variables. This formulation 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 & Meenakshi, 2011; Bailey, 2008).

### 3. Research Findings

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 research. This investigation has been conducted through the IBC model. 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. As a compatible model, the IBC technique is examined in an exploratory research. It creates a flexible and comprehensive behavioural research design, gathering data and generating accurate and reliable results. In this research, the questionnaires have been designed in a way that ensures the ability of the model in investigating the influential relationship between IBFs and individuals' performance and then the quality of SIDs.

Significant results have been obtained by conducting an exploratory study of the relationships of the research variables. Based on the participants' responses, the main hypothesis was accepted. The assumptions of 8 IBFs have been differently accepted with slight differences. As it is shown in the assessment process of the IBC, the questionnaire can be accurately designed in line with the 48 sub-factors. From this technique, the main 8 IBFs were investigated including these sub desirable and undesirable factors.



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

### 3.1 The Grand Total of the IBFs

The table shows the totals of each IBF, and the grand total of the IBFs. This total reflects all the responses' degrees (based on Likert scale from 1 to 5) of the 80 questionnaires distributed including 48 statements for each questionnaire.

*Table 3: the grand total of the IBFs*

IBFs	IBF	IBF	Grand total							
	1	2	3	4	5	6	7	8		<b>of the IBFs</b>
<b>Total of each IBF</b>	1912	1923	1924	2020	1865	1932	1896	2041		<b>15513</b>

### 3.2 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 (15513) by the total statements which are 3840 (80 questionnaires \* 48 statements = 3840). Therefore, the general average of all these responses can be calculated by:

$$\frac{\text{The total responses' degrees of the IBFs of all the participants}}{\text{The total statements}} = \frac{15513}{3840} = 4.03984375$$

The general percentage of all responses' degrees is:

$$\frac{\text{The general average of the IBFs}}{\text{The highest possible degree}} = \frac{4.03984375}{5} = 0.80796875 \approx 81\%$$

The general average and percentage of all responses' degrees reflect where the relative weight falls under the category (Very High) which includes the degrees of 4 or more and the percentages of 80% or more as it can be seen in the following table.

*Table 4: 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	The general influential level of the IBFs on SIDs
	<b>81%</b>	<b>4.04</b>	



## 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

<b>High</b>	65% to 79%	3.25 to 3.95	
<b>Medium</b>	50% to 64%	2.5 to 3.2	
<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 (65% to 79% (high), and 80% or more (very high)) outcomes, the medium influence (50% and 64%), and the negative or undesirable outcomes represented in (30% to 49% (low), and 29% or less (very low)).

The hypothesis including the main and sub IBFs shown earlier are accepted and supported by these results in high influential levels. This investigation provides the opportunity to apply the IBC model into several areas including business, accounting, management and economics and more due to the flexibility of adopting this model as well as the accuracy and reliability.

#### 4. Conclusion and Recommendations of the Research

Several distinctive advantages of the IBC model have been presented 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.

An additional 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.

Managing performance of human resources 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, the research argued that focusing on the behavioural implications of the IBFs would significantly enhance the overall performance of accountants then the quality of SIDs.



# 6<sup>th</sup> International Conference on New Ideas in Management, Economics and Accounting

France | Paris | April 19-21, 2019

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France | Paris | April 19-21, 2019

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