The Effect of Intellectual Capital on Quality of Decision Making Process at Jordanian Commercial Banks.

أثر رأس المال الفكري في جودة عملية صنع القرار في البنوك التجارية الأردنية.

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Thesis Submitted in Partial Fulfillment of the Requirements for Master Degree in MBA.

Management Department - Business Faculty

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Amman - Jordan

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Date: 9/2/2019

Examination Committee's Decision (English)

This thesis of the student Qusai Mekhed Sharaiyah, which studied "The Effect of Intellectual Capital on Quality of Decision Making at Jordanian Commercial Banks" has been defined, accepted and approved on 30/01/2019:

Committee Members:

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1	Dr. Abdel-Aziz Ahmad Sharabati	Member & Supervisors	
2	Dr. Sameer Musa Aljabaly	Head of Committee	
3	Dr. Murad Salim Attiany	External Member	

Examination Committee's Decision (Arabic)

تم مناقشة أطروحة الماجستير للطالب قصي مخلد الشرايعة بتاريخ 2019/01/30 وعنوانها "أثر رأس المال الفكري في جودة عملية صنع القرار في البنوك التجارية الأردنية" وقد أجيزت بتاريخ: 2019/01/30.

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Qusai Mekhled Sharaiyah

Dedication

I would like to dedicate this thesis to my parents in particular and to my family in general, and to my amazing friends and managers, who have shown me support in all forms whenever needed and for their faith in me to be where I am today.

I am finding it incredibly difficult to find the words to express how grateful I am, to each and every one above, I truly appreciate having you in my life.

Qusai Mekhled Sharaiyah

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The Effect of Intellectual Capital on Quality of Decision Making process at Jordanian Commercial Banks.

Prepared by:

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Abstract

Purpose: The purpose of the current study is to investigate the effect of intellectual capital on quality of decision-making process at Jordanian commercial banks.

Design/methodology/approach: This study considered as a descriptive analytical, study as well as, cause/effect study. The data collected from 100 managers working at 12 commercial banks. After confirming normality, validity and reliability of the tool, the descriptive analysis used to describe the responses, then correlation between variables was carried out, and finally multiple regressions used to test the hypothesis.

Findings: The result of the study shows that the respondents agree on medium to high implementation of intellectual capital sub-variables. Moreover, result shows that the respondents agree on medium to high implementation of quality of decision-making process. Result also shows the relationship between intellectual capital and quality of decision-making process is very strong. Finally, result shows that intellectual capital sub-variables affect the quality of decision-making process, where structural capital was having the highest effect, followed by customer capital and finally, human capital.

Limitations/Recommendations: This study is directed towards commercial banks in Amman-Jordan. Generalizing the result of this study to other industries and/or countries is questionable. Therefore, further studies on other industries in Jordan and in other countries are required to be able to generalize the results of this study.

Practical Implications: Managers should consider the three intellectual capital sub-variables together during strategy development, as well as, during daily practices, because they are related to each other.

Kay Words: Intellectual Capital, Quality of Decision-Making Process, Jordanian Commercial Banks.

أثر الرأس المال الفكري في جودة عملية صنع القرار في البنوك التجارية الأردنية

إعداد:

قصي مخلد الشرايعة

إشراف:

الدكتور عبد العزيز الشرباتي

Abstract (Arabic)

الغرض: الغرض من هذه الدراسة هو بحث تأثير رأس المال الفكري في جودة عملية اتخاذ القرار في البنوك التجارية الاردنية.

التصميم / المنهجية / المنهج: تعتبر هذه الدراسة بمثابة دراسة وصفية تحليلية وسببية، وقد تم جمع البيانات من 100 مدير يعملون في 12 مصرفًا تجاريًا .بعد التأكد من التوزيع الطبيعي للبيانات وصحة وثبات أداة الدراسة، تم استخدام التحليل الوصفي لوصف البيانات، وتحليل الارتباط، وأخيرًا تم استخدام الانحدار المتعدد لاختبار الفرضية.

النتائج: تظهر نتيجة الدراسة أن المشاركون يوافقون على أنه يتم تطبيق متغيرات رأس المال الفكري بشكل متوسط إلى مرتفع، وكذلك تطبيق مراحل عملية صنع القرار. كما وتظهر النتائج أنه هناك علاقة قوية بين متغيرات رأس المال الفكري ومراحل صنع القرار. واخيرا، تشير النتائج إلى أن متغيرات رأس المال الفكري تؤثر في عملية صنع القرار وكان الأثر الأكبر رأس المال الهيكلي، ثم رأس المال الزبائني وأخيرا، رأس المال البشري.

.**القيود / التوصيات**: أجريت هذه الدراسة على البنوك التجارية في الأردن، وحتى يتسنى تعميمها على الصناعات الأخرى في الأردن أو نفس الصناعات في دول أخرى، يوصى بإجراء دراسات مماثلة حول على الصناعات الأخرى في الأردن، وعلى نفس الصناعة في دول أخرى وخاصة الدول العربية.

التطبيقات العملية: يجب على المدراء أن يأخذوا بعين الاعتبار مكونات رأس المال الفكري الثلاثة معا أثناء عملية تطوير الاستراتيجية لأنهم مرتبطين بشكل وثيق مع بعضهم البعض.

مفتاح الكلمات: رأس المال الفكري، جودة عملية صنع القرار، البنوك التجارية الاردنية.

Chapter One: Introduction

Background:

In the recent-decades, global business environment is becoming more complex, dynamic, and highly competitive. Organizations that are competing in the current global market require developing their resources and capabilities regularly, to match with market needs and wants. Improving capabilities require taking decisions regarding resources development. Then resources (tangible or intangible) development affect quality of decision-making process, resources may include intellectual capital sub-variables human capital, structural capital and customer capital.

Stewart and Ruckdeschel (1998) defined intellectual capital as the combination of human, structural and customer factors influencing the wealth of the organization. Bontis (1998) stated that organizations with high intellectual capital are able to add value and create competitive advantage. Youndt, et. al. (2004) considered intellectual capital to be the sum of all knowledge firms utilize for competitive advantage. Sharabati, et. al. (2010) pointed that the intellectual capital have positive influence on organization's performance business. Sharabati (2013) pointed out that human capital has the most powerful effect on productivity and profitability. Shakina and Barajas (2014) stated that decision-making has been influenced by internal and external factors. Intellectual capital is a resource within the organization that added a value. Khalique, et. al. (2015) said that intellectual capital dimensions include individual skills, customer relations and information that are important to increase the organizational value and provide competitive advantage to the organization. Ghasem, et. al. (2015) indicated that intellectual capital includes human, structural, customer, and innovation, which creates sustainable competitive advantages.

Making a decision was viewed to be difficult task for the management as need to be selected from various alternatives. Literature confirmed that decision-making is a process that easy to be influenced by other factors such as intellectual capital including its factors. The importance of these factors has not been widely studied in the literature. For instant, Mohammed and Jalal (2011) found that various knowledge management dimensions such as human resource, information technology, and knowledge sharing affected decision-making process positively. Sinclair, et. al. (2012) stated that information is a key and important in decision-making. Jansen, et. al. (2013) stated that

human capital and social capital affects the quality of decision-making process. Since knowledge management and intellectual capital are inter-dependent.

Nazir. et. al. (2014) study indicated that transformational leaders as a part of intellectual capital play important role in decision-making and organization success. Albidewi (2014) mentioned that human capital development improve decision-making processes, which mainly depend on intellectual human skills. Sen and Walle (2014) pointed out that intellectual capital, which considered as intangible internal and external assets affect quality of decision-making process. Ghasem, et. al. (2015) indicated that good intellectual capital management lead to good decision-making and in turn organizational success. Orugun and Aduku (2017) stated that intellectual capital help to define future to attain organizational desired goals. Bhardwaj and Singh (2018) examined how intellectual capital, decision making correlated with knowledge management in Indian public sector. They found that the combination of intellectual capital and its dimensions with knowledge management process very important in decision-making.

Finally, it seems that intellectual capital affect almost all organizations' decisions. Therefore, the current study is dedicated to investigate the effect of intellectual capital on quality of decision-making process at Jordanian commercial banks, Amman - Jordan.

Study Purpose and Objectives

The main purpose of this study to investigate the effect of intellectual capital on quality of decision-making process at Jordanian commercial banks.

The general objective of this study is to ascertain the effect between intellectual capital and quality of decision-making process in commercial banking sector in Jordan. The study's specific objectives are:

- To determine the effect between intellectual capital and quality of decision-making process in banking sector.

- To set the effect between human capital and quality of decision-making process in banking sector.

- To restriction the effect between structural capital and quality of decision-making process in banking sector.

- To voice the effect between customer capital and quality of decision-making process in banking sector.

The objective of this study is to provide recommendation to bank industry regarding the development of intellectual capital (human, structural and customer capital) and its effect on quality of decision-making process. Furthermore, to provide recommendations to decision-makers who concern about intellectual capital and quality decision-making process. Finally, it adds a new study to previous literature, which may be useful for academicians who are interested in these topics.

Study Significance and Importance:

This study may be considered as one of the few studies that devoted to investigate the effect of intellectual capital on the quality of decision-making process in commercial banking sector in Amman - Jordan. It can be important for bank sector, where it can assess the intellectual capital components available in the Jordanian commercial banks, and help managers to understand how quality of decision-making process is validated by intellectual capital.

This study is also important for researcher, because he is working in this field and responsible for taking decisions. this study is not only important for the managers working in this industry, but also it may be helpful to other managers, who are working in other industries and decision makers who concern about this topic, as well as, for academicians.

Therefore, the importance of this study comes from the following scientific and practical consideration:

1. Highlight on the importance of intellectual capital on commercial banking sector and its importance in reinforcement quality of decision-making process that contributes to the achievement of the long run goals.
2. Contribute to the development of commercial banks in Jordan, which may lead to maintain these organizations work effectively that help on the public benefit.
3. Help other researchers to converse about intellectual capital and its important wither on the same sector or for other sectors.
4. Help decision makers to earning the benefits of applying intellectual capital.

5. Help the managers to develop skills, knowledge, and competency to improve quality of decision-making process.

Study Problem:

According to researcher interviewing many managers working in these banks, realized that many commercial bank daily practices problems are related to quality of decision-making process, which based on intellectual capital quality i.e. human capital, structural capital and customer capital. Bontis (1998) mentioned that the managing intellect capital is important for business performance and competitive advantage. Deakins et al. (2010) stated that managers face difficult and complex quality of decision-making situations, which related to customer satisfaction such as systems and programs, and customer relationship. Moreover, Kim, et. al. (2012) confirmed that decision-making strategy play a key role in the success of any organization and are influenced by various factors which need to be explored such as human, structural and customer capital. Jansen, et. al. (2013) stated that individual decision-makers knowledge and skills are important for quality of decision-making process. Khalique, et. al. (2015), Albidewi (2014) and Alzoubi, (2013) considered that the intellectual capital and its elements as strategic assets, which improve quality of decision-making. Ghasem, et. al. (2015) mentioned that intellectual capital should be measured. Bhardwaj and Singh (2018), Nazir, et. al. (2014) mentioned that the discussion of the past studies that examined the intellectual factors and decision-making process relationships has ignored the specific nature of intellectual capital effect on decision-making. Furthermore, there is deficiency of research confirming the effect of intellectual capital on the quality of decision-making process in business organization in general.

Therefore, this study is dedicated to answer the following main question: Do intellectual capital sub-variables (human, structural and customer) effect the quality of decision-making process at Jordanian commercial banks?

Questions of the Study:

Based on the problem statement above this study is dedicated to answer the following main question:

1. Do intellectual capital sub-variables (human, structural and customer) affect quality of decision-making process at Jordanian commercial banks?

Based on intellectual capital sub-variables the following three questions can be developed:

1.1. Does human capital affect quality of decision-making process at Jordanian commercial banks?

1.2. Does structural capital affect quality of decision-making process at Jordanian commercial banks?

1.3. Does customer capital affect quality of decision-making process at Jordanian commercial banks?

Study Hypothesis:

The above questions will be answered through testing the following hypothesis:

Main hypothesis:

H_{01}: Intellectual capital sub-variables (human, structural and customer) do not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

Based on intellectual capital sub-variables the following three hypotheses can be developed:

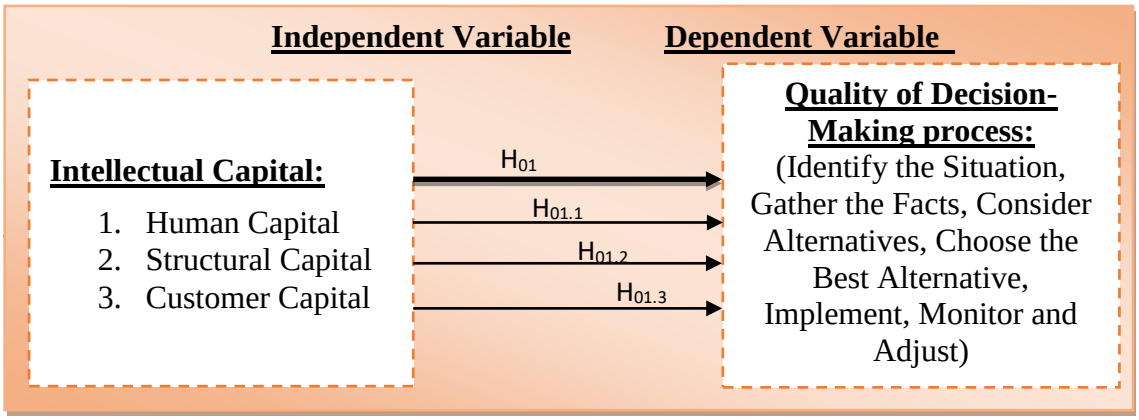
$H_{01.1}$: Human capital does not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

$H_{01.2}$: Structural capital does not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

$H_{01.3}$: Customer capital does not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

Research Model:

Model (1-1): Study Model



Sources: The model developed based on previous studies: Independent variable (Bhardwaj and Singh, 2018; Nazir and Shah, 2014; Bontis, 1998; Sharabati, et. al. 2010; Martin-de-Castro, et. al. 2011; Hwang and Masud, 2012; Ahmed and Omotunde, 2012; Schoenfeld, 2011; Atan and Sofian, 2017; Beckfield, 2010; Asemi, 2011; McShane and Glinow, 2003; Goetsch and Davis, 2014).

Operational and Procedural Definitions of Terms:

Intellectual Capital: the ability of the banks to act individual, structural and people needs and relations to achieve the banks objectives.

Human Capital: employees' skills, experience, and training process as well as the educational degrees holds by individuals work at the banks.

Structural Capital: the modern technology and tools used in the bank business.

Customer Capital: the relationship between the banks, and its employees with customers as well as meeting their needs and requests.

Quality of Decision-Making Process: the techniques used by the bank to choose the best options.

Identify the Situation: analyzing the situation in order to know the exact and specific causes of the problem.

Gather the Facts: the ability to generate as much options as possible to identify the problem causes.

Consider Alternatives: process of choosing the possible alternatives that may play a key role in making the decision.

Choose the Best Alternative: the stage in identifying and choosing the best options representing and leading to the bank objectives.

Implement: implementing the best options chosen in the previous stages from many options.

Monitor and Adjust: process of collecting information about the performance of the actions and keep regular evaluating for further enhancement**.**

Study Limitations and Delimitations:

Human Limitation: This study carried out on managers and leaders at Jordanian commercial banks

Place Limitation: This study carried out on Jordanian commercial banks located at Amman – Jordan. All headquarters of Jordanian banks are actually located in Amman.

Time Limitation: This study carried out within the period between summer semester and first semester of academic year 2018/2019.

Study Delimitations: This study carried out on Jordanian Commercial banks in Amman - Jordan. The possibility to generalize the results should be investigated. Moreover, intellectual capital sub-variables and decision-making element are limited to some selected previous studies.

Chapter Two: Conceptual and Theoretical Framework and Previous Studies

Introduction:

This chapter includes theoretical and conceptual framework, which starting by defining independent variable (intellectual capital) and dependent variable (quality of decision-making process); followed by previous models; then previous related studies; the relationship between variables and what differentiate this study from the mentioned previous studies.

2.1 Intellectual Capital:

Teece (2000) pointed out that intellectual capital contain intangible assets like knowledge, intellectual property, innovation, expertise and the abilities and skills of staff. Abdolmohammadi (2005) mentioned that intellectual capital qualities that employees possess and put to work for the benefit of their employer. Sharabati, et. al. (2010) said that intellectual capital which evidenced its significance in driving and indicating the development of national and international economy. Bharathi (2008) examined the impact of intellectual capital component such as human capital, structural capital and customer capital on organization rendering to achieve its goals. Martin-de-Castro, et. al. (2011) said that intellectual capital has been acknowledge as a production factor that has replaced tangible components like land , job and facilities of production. Fazlzadeh (2017) mentioned that intellectual capital component such as human capital, structural capital and customer capital that impact in investment decisions. Lopez and Salazar-Elena (2017) stated that intellectual capital refers to the non-physical assets such as the capabilities and skills of the members of the team; structured knowledge owned by the firm such as production processes, internal procedures and activities, and the set of relations established with other agents or organizations outside the firm. These non-physical assets represented three dimensions of intellectual capital (human capital, structural capital and customer capital).

In this study, intellectual capital is defined as the ability of the banks to act individual, structural and people needs and relations to achieve the banks objectives.

2.1.1 Human Capital: Nonaka and Takenchi (1996) mentioned that human capital is the top intellectual capital component and owing to its value in firms as a source of sustainable competitive advantage. Bontis (1998) said that human capital is a

source of innovation and strategies renewal. Ulrich (1998) explained that individual's competency and commitment have a determining and influencing role on satisfactory outcomes such as customer loyalty, productivity and job performance. Robeyns (2006) defined human capital as employees' skills and knowledge, acquired through education. Gruian (2011) mentioned that human capital refer to expertise, knowledge and capability of employee to achieve organization goals such as output and profit. Atan and Sofian (2017) defined human capital as the ability of an organization to act with skills, education and characteristics of the members and generate value for the firms.

In this study, human capital is defined as employees' skills, experience, and training process as well as the educational degrees holds by individuals work at the banks.

2.1.2 Structural Capital: Sveiby (1997) described structural capital as patents, concepts, models and computer, and systems of administration. Stewart and Ruckdeschel (1998) referred to it as a platform allowing employees to innovate continuously. Cabrita and Bontis (2008) mentioned that Structural capital is considered as a significant strategic resource of the firm that covers within it, non-human assets such as information systems, routines, procedures and databases. Joshi, et. al. (2010) argued that structural capital refers to the developed knowledge of the firm that is embedded within it and these can be in the form of organizational structures, procedures, routines, systems, hardware, databases and the culture of the organization. Some other elements of this caliber are inventions, processes, copyrights, patents, technologies and systems. Despite the fact, structural capital has a role in enhancing employee capability, it is important to consider it as a distinct feature from the employees.

In this study, structural capital is defined as the modern technology and tools used in the bank business.

2.1.3 Customer Capital: Stewart and Ruckdeschel (1998) mentioned that customer capital informal and flexible interactions among the members of the organization that could be considered as a procedure of knowledge generation and sharing. Additionally, customer capital can facilitate the transmission of the knowledge of employees that cannot be codified. Tsai and Ghoshal (1998) defined it as the total

sum of the actual and potential resources that is contained within, available through and obtained from the relationships network of the individual or social group. Van Zyl (2005) defined customer capital as a company's activities related to developing and retaining customers in an effort to develop long term mutually beneficial links with them. Beckfield (2010) stated that intellectual capital indicates the ownership of knowledge and experience, professional knowledge and skills, good interactions and technological capacities, which when utilized will lead to the user's competitive advantage.

In this study, structural capital is defined as the relationship between the banks, and its employees with customers as well as meeting their needs and requests.

2.2 Quality of Decision-Making Process:

Decision-Making Process: Decision-making process has been tackled from different perspective such as Charles, et. al. (1997) defined decision-making process as a process of choose a reasonable option from the available options to resolve issue. Cabrerizo, et. al. (2010) described decision-making process of recognize issues which choose the best alternative. Hwang and Masud (2012) defined decision-making process as a knowledge process resulting in choose of the better action among many of alternatives.

Managers are not only concerns about decision-making process but on the quality of decision-making process.

Quality of Decision-Making Process: Koontz and Weihrich (2010) defined Quality of decision making as a process includes premising, identifying alternatives, evaluating alternatives in terms of the goal sought and choosing alternatives that will best achieve the goal. Goetsch and Davis (2014) pointed out that it is the process of selecting one course of action from among two or more alternative. Sousa, et. al. (2015) defined quality of decision-making process as the process that involves the recognition of a problem, define it and select the best choices to solve the problem and its outcomes

In this study, quality of decision-making process is defined as the techniques used by the bank to choose the best options.

2.2.1 Identify the Situation: Lunenburg (2010) defined the problem as anything that affect the quality of the decision. Bratton, et. al. (2010) refers identify the

situation as the deviation between the current and desired situation. Schoenfeld (2011) described identify the situation as the individual ability to define the situation, which is partly a matter of determining how a specific problem arose. Hunink, et. al. (2014) defined identify the situation as a process of observance, behavior, and encouragement to recognize the existence of a mutual issue. Mosadeghi, et. al. (2015) pointed out identify the situation as the gap between what was planned to be, and opportunity is a deviation between current expectations and a potentially better situation, which had not previously been accepted. Arai (2015) mention it, as a serious difficulty requires immediate action. Divijak, et. al. (2016) defined identify the situation as determining the importance or strength of criteria weights with respect to the decision-making goal. Thokala et al. (2016) defined the identify situation or defining the situation as understanding and defining the decision problem and the corresponding decision goal.

In this study, identify the situation is defined as analyzing the situation in order to know the exact and specific causes of the problem.

2.2.2 Gather the Facts: Choo (2006) described gather the facts as the individual ability to use their imagination and information to construct new alternative. Lunenburg (2010) also define gathering facts as generating as much alternatives as possible to result in the achievement of various outcomes and goals being sought. Citroen (2011) defined gather the facts as individual ability to produce several possible paths or action or alternative to construct a desirable alternative. Gather the facts refers to the individual ability to produce several possible paths or action or alternative to construct a desirable alternative. Zio and Pedroni (2012) defined it as gathered more information or data to be analyzed and the possible alternative are identified. Ahmed and Omotunde (2012) stated that gather the facts produce more choices to allow deep look into the problem and the more you assume there could be a better solution, the more likely to make the best decision. Alac (2015) defined gather facts by identifying and specifying all activities for making a decision.

In this study, gather facts is defined as the ability to generate as much options as possible to identify the problem causes.

2.2.3 Consider Alternatives: Porter and Sallot (2005) defined consider alternatives as individual ability to place the alternative in priority order, based upon their own value system. Citroen (2011) described consider alternatives individual

ability to decide or adapt the higher potential alternative to reach the goal that has been set up in the organization. Ahmad and Omotunde (2012) described consider alternatives as the degree of uncertainty on every alternative. It is essential to analyze the feasibility, risk and implication of each of the alternative. Gade and Osuri (2014) stated that ranking the alternatives or allowing choosing a more promising alternative from a set of defined alternatives represent evaluating alternative process. Thokala et al. (2016) defined the process as evaluating the best criteria by which the alternative were analyzed.

In this study, consider alternatives is defined as process of choosing the possible alternatives that may play a key role in making the decision.

2.2.4 Choose the Best Alternative: Choo (2006) and Citroen (2011) which is choose the best alternative, which seems to be best suited to the purpose. Gilboa (2011) also defined this process as selecting the best alternatives from various alternatives that lead to desired outcomes and goals. Citroen (2011) define this process as select the alternative, which seems to be best suited to the purpose. Kandemir and Acur (2012) defined choose the best alternative as a chosen an alternative to strategically reach the already set goal. Ahmed and Omotunde (2012) described that individual ability to evaluate the alternative and select the best option that fits for the objective is chosen. The ability to insure that all conditions have been considered and the best decision has been made. Gade and Osuri (2014) described it as the suitable alternative if identified in the last phase of the decision model with the help of evaluation and thus the goal is achieved.

In this study, choose the best alternatives is defined as the stage in identifying and choosing the best options representing and leading to the bank objectives.

2.2.5 Implement: Bratton, et. al. (2010) defined it as the individual ability to take action according to the alternative chosen. Citroen (2011) stated that implement the best alternative chosen to achieve the goals. Ahmed and Omotunde (2012) defined implement the decision as the best option that fits for the objective chosen. Negulescu (2014) define implementation process as collecting information for creating an implementation plan.

In this study, implement solution is defined as the best options chosen in the previous stages from many options.

2.2.6 Monitor and Adjust: Bratton, et. al. (2010) defined it as an individual ability to monitor different process and previous steps in order to make a new decision. Lunenburg (2010) defined the last step as the decision ability to produce the desire results as well as controlling the probably number of causes the outcomes of the decision. Alac (2015) defined it as methods used for monitoring and controlling the most effective information gathering, transfer and evaluation.

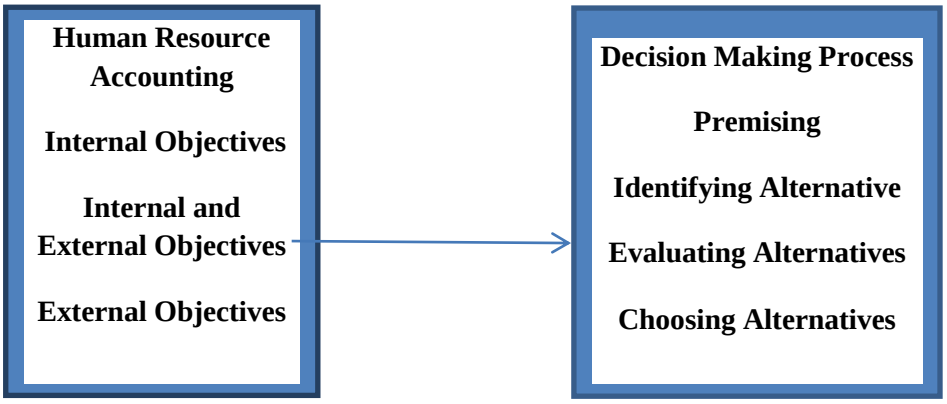
In this study, monitor and adjust is defined as process of collecting information about the performance of the actions and keep regular evaluating for further enhancement.

Previous Models:

After reviewing the previous studies, there was no consensus in the literature on the definition and measurement of intellectual capital and the quality of decision-making process. Furthermore, most of the studies presented in the literature did not directly examine the effect of intellectual capital on the quality of decision-making process in bank sector. However, the next part of the thesis, discussed the relevant literature measure the intellectual capital and decision-making process model.

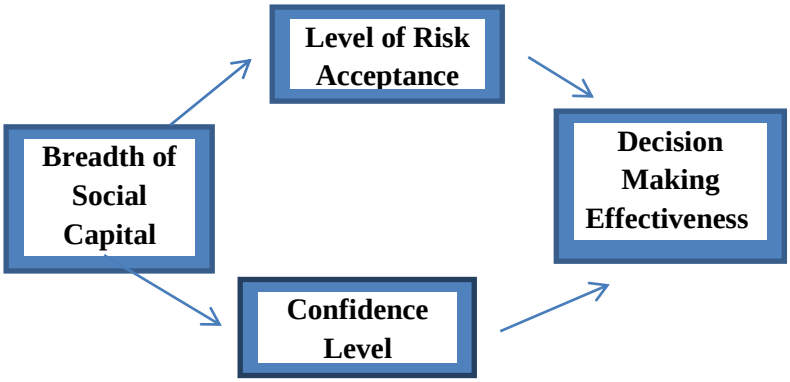
Enyi and Akindehinde (2014) Model: this study model investigates the relationship between human resource capital accounting and decision-making process.

Model (2-2): Enyi and Akindehinde (2014) Model:



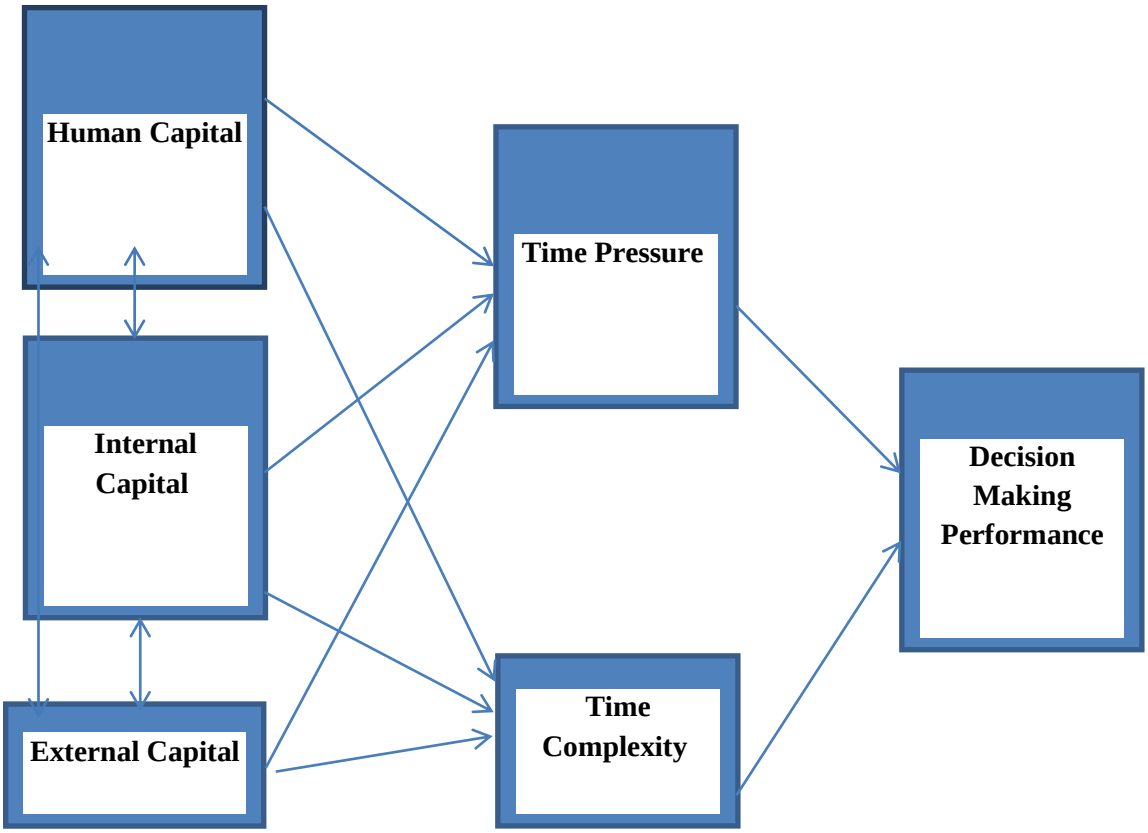
Jansen, et. al. (2013) Model: research meant to examine the role of social capital as a strategic decision aid in small and medium sized enterprises (SMEs) in different service sectors.

Model (2-3): Jansen, et. Al. (2011) Model:



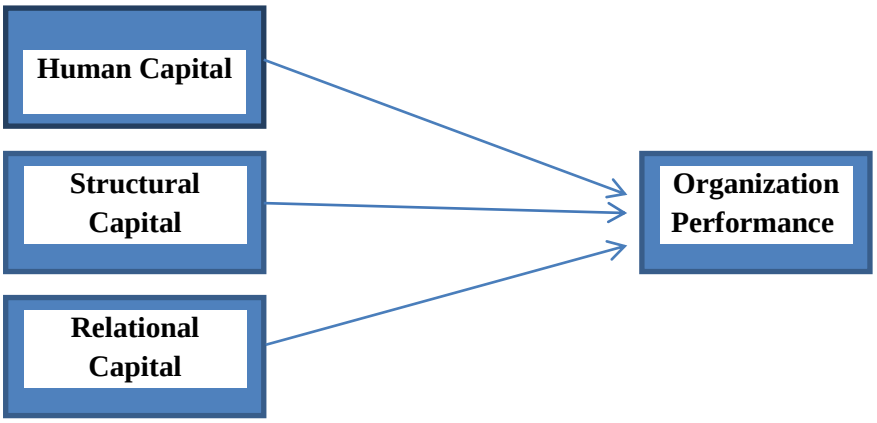
Sen and Walle (2014) Model: the study conducted to examine the relationships among intellectual capital, task complexity, time pressure and decision-making performance with the help of SEM on 374 respondents.

Model (2-4): Sen and Walle (2014) Model:



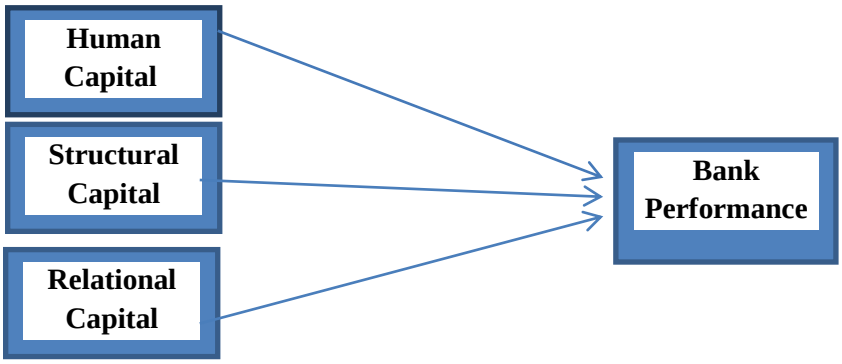
Orugun and Aduku (2017) Model: the study investigated the Intellectual capital and organizational performance in a competitive business performance.

Model (2-5): Orugun and Aduku (2017) Model:



Rezani and Mousavi, (2015) Model: the research model of the study was developed based on intellectual capital and performance literature and the suggested hypotheses with the aimed at examining the impact of intellectual capital on bank performance.

Model (2-6): Rezani and Mousavi (2015) Model:



In summary**,** most previous models shoed above found that there is effect of intellectual capital (human capital, structural capital and customer capital) sub-variables on decision-making performance. Therefore, the study investigates the effect of intellectual capital on quality of decision-making process at Jordanian commercial banks**.**

Previous Study:

Kuang, et. al. (2010) conducted a study titled **"Assessing knowledge creation and intellectual capital in banking sector",** aimed at examining the relationship between knowledge management and intellectual capital. The result revealed that the performance of knowledge creation has significant influence on the accumulation of subsequent human capital. Furthermore, human capital significantly influence on

structural capital and customer capital as well as customer capital influence structural capital.

Okpala and Chidi (2010) study titled "**The relationship between human resource capital accounting and decision making",** purpose was to identify the human resource capital and decision-making relation. However, the result of their study showed that human capital accounting is highly significant to investor in making relevant investment decisions and that human capital help managers to make a rational decision.

Fariborz and Raiasheka (2011) conducted a study titled **"Human resource accounting on individual decision making process among Iranian companies",** purpose was to examine the impact of human resource accounting on individual decision-making process. The result revealed that the use of human resource accounting information in financial statements impact on individual decision-making process. Furthermore, the result showed that human resource accounting plays important role in internal managerial decision-making.

Rangriz, et. al. (2011) study titled **"The impact of human resource information system on strategic decisions in Iran",** aimed at examining the impact of human resource information system (HRIS) impacts on strategic decisions. Survey technique was used to collect the data from 172 persons who worked in the management positions in Mellat and Parsion banks in Iran. The result revealed that the human resources information system (HRIS) is effective on strategic decisions in both banks. The study made a call for another study included the study variables.

Karim (2011) study titled **"The significance of management information systems for enhancing strategic and tactical planning",** purpose was to explore the level of implementation management information systems implemented to make successful decisions in financial organizations in Bahrain. Quantitative design using questionnaire was used to collect data from 190 managers. The result found that management information system used to enhance strategic planning in the organizations. Furthermore, the result found that only strategic planning affected the decision-making effectiveness for the both organizations. However, the study recommended for an orientation to help managers' skills in using management information system to generate proper information for better decision in the banks.

Jansen, et. al. (2011) study titled **"Social capital as a decision aid in strategic decision-making in service organizations",** aimed at examining the social capital role in strategic decision aid in different enterprises sized (SMEs) in different service sectors. Structural equation modeling using computer-aided telephone interviews and survey were used to analyze the data collected from the organizations. The results indicated that conclude that social capital helps managers in their assessment of the decision situation as a decision, but does not provide sufficient support to provide comprehensive analysis to achieve high levels of decision effectiveness. The study highlighted the importance of social capital for decision-making process.

Jansen, et. al. (2013) study titled "**Information processing and strategic decision-making in small and medium sized enterprises: The role of human and social capital in attaining decision effectiveness",** purpose was to examine the effect of human and social capital in decision effectiveness among 1203 employees. The results showed that human and social capital have a positive effect on decision-making effectiveness through mediation of the level of risk acceptance as well as confidence level. The result recommended for further study on the effect of the study variables on achieves decision effectiveness.

Sumedrea (2013) study titled **"Intellectual capital and firm performance: A dynamic relationship in crisis time",** aimed at the intellectual capital firm performance relationship by analyzing intellectual capital structure and its effect on the economic performances, using the VAIC model. The author also involved the top transparent major companies in the market and exposed data through regression analysis models. The study specifically conducted an analysis of the presence of a potential relationship between intellectual capital and performance of organizations to determine if such organizations leverage their innovative potential to handle crises. Using regression model the findings showed that human capabilities, knowledge, skills and experience reflect factors of organizational procedures that are valuable in turbulent business environment based on the structural capital's negative coefficient. The result confirmed the relationship between the profitability and intellectual capital, as human skills needed to adapt to change and learn.

Al-Zoubi (2013) study titled: **"The impact of intellectual capital on SWOT analysis among Jordanian banking industry "Empirical Study",** purpose was to explore the way intellectual capital and its components affected the SWOT in banking

sector. They found a relationship between intellectual capital and SWOT analysis and intellectual capital components and SWOT analysis. They suggest that Jordanian banks should work very hard to strength their presence in the region and around the world.

Shahpasand, et. al. (2013) study titled **"The effect of intellectual capital on knowledge management: Study on agriculture organization experts in Kurdistan province",** aimed at investigating the effect of intellectual capital on knowledge management among agriculture organization. Using quantitative method, 125 questionnaires were distributed and analyzed. The results showed that intellectual capital and its factors positively correlated with knowledge management.

Negulescu and Doval (2014) study titled "**The quality of decision making process related to organizations effectiveness",** examined the develop a model in the quality of decision relation with organization objectives and effectiveness from Romanian managers and employees' opinions A questionnaire was used to collect data from the study sample. The result revealed that some of the respondent's answers agreed on the relation between the quality of decision making and organization effectiveness. The study recommended for future research to investigate the quality of decision-making process in the organization

Salehi, et. al. (2014) study titled: **"The effect of IC information on investment decision in the automotive industry and parts that are listed in the Tehran Stock Exchange, in Iran",** aim was to examine the influence of intellectual capital information on the investment decisions of the firms for the period spanning from 2006 to 2012, using the panel data method. The findings revealed that intellectual capital index has a significant and positive influence on investment decision and the coefficients of physical capital efficiency, capital efficiency, while structural capital was found to have a positive influence on the investment level of the firms. The study highlighted the importance of intellectual capital and its elements in leverage index and market value, with the increase of the size of the company.

Sen and Walle (2014) study titled **"How intellectual capital reduces stress on organizational decision making performance: the mediating roles of task complexity and time pressure",** attempted to examine the relationships among intellectual capital, task complexity, and time pressure and decision making performance with the help of SEM. The result found intellectual to minimize tasks

complexity and time pressure, and ultimately, organizational stress. They also found that low stress level results in greater performance levels in decision-making processes. The study made a recommendation to investigate the effect of intellectual capital and decision-making performance and the task complexity and time pressure relations.

Al-Musali and Ismail (2014) study titled "**Intellectual Capital and its Effect on Financial Performance of Banks: Evidence from Saudi Arabia",** examined the performance of intellectual capital in Saudi listed banks, and the impact of intellectual capital on their financial performance, and identified the intellectual capital components that drive traditional successful banking indicators. The survey was distributed to listed banks in the period from 2008-2010. Based on the reported findings of the study, intellectual capital performance of Saudi listed banks is low and positively related with their financial performance indicators. Nevertheless, when value-added intellectual coefficient model was split into components, the components relationships with the financial performance indicators of banks differed.

Khan and Terziovski (2014) study titled: **"The Effects of Intellectual Capital on Performance in Australian Small and Medium Enterprises (SMEs)",** studied the relationship between intellectual capital and financial performance among small and medium enterprise in Australia by They examined the relationship between IC and performance of Pakistani banks, numbering five for the period from 2009 to 2011. Data was analyzed using multiple regression analysis to determine the intellectual capital bank performance relationship. Based on the findings, banks performance (proxies by ROA and ROE) positively and significantly related to the intellectual capital. The primary intellectual capital components are structural capital efficiency, human capital efficiency and capital employed efficiency, where all had a significant effect on the performance of banks.

Enyi and Akindehinde (2014) study titled **"Human Resource Accounting and Decision Making in Post-Industrial Economy",** purpose was to investigate the probable effect of human resources accounting on the decision making process. The study has been conducted among 16 publicly quoted Nigerian banks using Ex-post factor study design. The result showed that human resource accounting has a positive effect on management decision. The study recommended for developing employees skills and training to improve the quality of information for decision making in business organization.

Awan and Sarwar (2014) study titled **"Integrated role of HRIS & SHRM (SHRIS) in banking sector of Pakistan",** purpose was to identify the impact of human resources information system and strategic human resources management on organization performance. A quantitative method using questionnaire survey was implemented for different bank in Pakistan for data collection. The result showed that human resources information system positive relation and effect on various strategic human resources management decisions and strategic human resources management play a crucial role in organizational performance.

Donelan, et. al. (2015) Study titled **"Factors influencing quality decision-making: Regulatory and pharmaceutical industry perspectives",** purpose was to examine the important factors that influence quality decision-making. Semi-structured interview method with the senior decision-maker and regulatory authorities was used. The study analyzed the relationships between different themes related to decision-making such as quality and validity data, time consideration, qualification and experience, subjective and personal consideration. The result indicated that the relationships between themes were identified. The study suggests conducting a study for the quality of decision-making framework.

Vaz and Zarelli (2015) study titled: **"Measurement Models of Intellectual Capital for the Decision Making and Performance Variables",** purpose was to develop measurement models of intellectual capital for decision-making and performance variables for decision-making. Using quantitative methods by questionnaire, they revealed that some intellectual capital items lead to more optimum decision-making. The study recommended to analyze longitudinal the indicators of a considered method in public and private contexts and compare evolution, similarities and differences, amongst others. Furthermore, the study suggest conducting the implementation of the methods according to the considered context for the decision-making.

Ibrahim (2016) study titled "**Participation in decision-making, social capital and sustainability of watershed usage among peri-urban agricultural farmers of kwadon, gombe state, Nigeria",** aimed to identify the level of decision-making in participation into peri-urban agriculture PUA and social capital and examined their relationship in promoting sustainability of watershed resources. Data was collected using structured questionnaire survey. The result concluded that, participation in

decision-making into peri-urban agriculture PUA coupled with existence of social capital within the farmers helped in contributing significantly to sustainability of watershed usage at moderate level. However, the study highlighted the importance of developing ways of improving participation and social capital for organization sustainability.

Cassol, et. al. (2016) study titled **"Redefined the IC-innovation relationship, with the mediating role of absorptive capacity",** aimed at investigating the association between absorptive capacity, intellectual capital and innovation among firms in Brazil. A case study method using a mixed method approach (quantitative and qualitative methods) was used in the study. The result showed that absorptive capacity to promote intellectual capital and that the relationship between the two drives firm innovation. The result recommended to the possibility of application the theoretical framework and conceptual model to a large sample in another firms or industries.

Grusovnik, et. al. (2017) study titled **"dimensions of decision-making process quality and company performance: A study of Top Managers in Slovenia",** aimed to investigate the relationship between the dimensions of the decision-making process quality and company performance of top managers in Slovenia. A quantitative method using survey was implemented in the study for 500 managers. The result showed that there was a low correlation between the dimensions of efforts of the decision-making process quality and the number of employees in a company. The study suggest increasing the importance of quality of decision-making dimensions.

Bujar, et. al. (2017) study titled **"assessing the quality of decision-making in the development and regulatory review of medicines: Identifying biases and best practices",** aimed at assessing the differences in quality decision-making using a developed instrument such as the quality of decision-making orientation scheme (QoDoS), in order to find out the best practices affecting organization and people, pharmaceutical and regulatory agencies on decision-making behaviors between pharmaceutical companies and regulatory agencies. The result showed that the greater extent at an individual level (72%) was for a systematic, structured approach to aid in decision-making compared with that of the organization (38%). The study made a call for conducting more study on the quality of decision-making in the organization settings.

Fazlzadeh (2017) study titled: **"The effect of intellectual capital components on the effective indicators and investor decisions",** purpose was to investigate the intellectual capital components effect on the investment decision indicators among companies listed in the Tehran Stock Exchange and found a significant and positive effect of intellectual capital on the following variables; stock liquidity, earning per share, stock returns and volatility of stock prices. The study used a quantitative approach and survey method implemented to collect data. However, he found no significant relationships between intellectual capital components and both price to earnings ratio and dividends per share. The study suggest that the investors consider the value of intellectual capital in their decisions to achieve a better performance and increased returns on their investment.

Isabel and Bailoa (2017) study titled **"Intellectual capital: the strategic resource of organization",** aimed to explain the intellectual capital as a key factor to strategic management of the organization in the knowledge economy. The study showed that intellectual capital and its strategic management very important and plays as a way of developing sustainable competitive advantage for organization.

Bhardwaj and Singh (2018) study titled **"The effect of intellectual capital on decision making – A study of interaction moderation with knowledge management process",** aimed at extracting the relationship between intellectual capital and decision making in e-governance system in Indian public sector. The result revealed a relationship between intellectual capital and decision-making as well as knowledge management significantly moderated effect on the relationship between intellectual capital and decision-making. The result also highlighted that is an ideal to combined intellectual capital and its factors (human capital, structural capital) with the knowledge management stages for an effective decision-making. The study suggest for more study on the relationship between intellectual capital and decision-making process.

Wang, et. al. (2018) study titled "**The role of social capital and culture on social decision making constraints: A multilevel investigation",** aimed at examining the construct of social decision making as consequences associated with the social capital construct. The data from China firms was analyzed using multi-level of structural equation modeling (SEM). The study examined the impact of social capital and culture on social decision-making and found that reciprocity norms and power

distance as social capital and culture factors have increased social decision making at the firms levels.

Aldalabih (2018) study titled **"The level of disclosure of intellectual capital at Jordanian development banks",** aimed at identifying the level of disclosure of intellectual capital at the Jordanian development banks. His study revealed that the level of disclosure of intellectual capital for the three dimensions was high at the Jordanian development banks. His study suggests increasing bank staff awareness about the importance of disclosure of intellectual capital.

In summary, from the literature above, one can conclude that there are many benefits from leveraging intellectual capital (human capital, structural capital and customer capital) sub-variables, which has direct effect on quality of decision-making process. Moreover, intellectual capital sub-variables can improve good quality, increase performance and lead to competitive advantage. Therefore, it is worth to study the effect of intellectual capital on decision-making process, hence this study is dedicated to investigate the effect of intellectual capital on quality of decision-making process at Jordanian commercial banks from mangers point view**.**

Jordanian commercial bank:

Despite the challenges facing the economy, Jordan has achieved positive growth The Jordanian banking sector is one of the main pillars supporting the economy, While the sector is described as saturated, it has been able to withstand the repercussions of the global financial crisis and the economic slowdown without being affected only marginally, Jordan relies on neighboring countries for grants, indicating that social and political conditions in the region are key factors in determining how the country can overcome the challenges it faces For the banking sector, the main challenge will remain the quality of its assets. they are 13 Jordanian commercial banks, The Jordanian banking sector characterized by Satisfaction despite growth in the sector, Providing relatively mature services, that provide a range of opportunities for expansion and make the sector attractive to new entrants. Jordanian banking sector aims to earn high returns on customer deposits through the use of funds. Assets consist mainly of cash balances, investments and credit facilities granted to customers, The Central Bank has enacted prudent regulations that have enabled the sector to withstand the repercussions of the global financial crisis and economic slowdown, and its only impact has been a decline

in asset growth levels. Banks in Jordan have been resilient in terms of growth and profitability, This tendency by banks in Jordan to avoid risk, coupled with the wise regulations of the Central Bank, has enabled this sector to be strict about obtaining guarantees against loans granted.

The Relationship between Intellectual Capital and Decision-Making Process

Jansen, et. al. (2011) stated that human capital and social capital affects quality of decision process. Albidewi (2014) mentioned that human capital development improve quality of decision-making processes, which mainly depend on intellectual human skills. Sen and walle (2014) pointed out that intellectual capital, which considered as intangible internal and external assets affect quality of decision-making process. Ghasem, et. al. (2015) indicated that good intellectual capital management lead to good quality of decision-making and in turn organizational success. Vas and Zarelli (2015) reported that different intellectual capital and its components contributed towards better decision-making. Ibrahim (2016) stated that existence of social capital beside participation in decision-making significantly contributed to sustainability of watershed usage in the agriculture sector. Fazlzadeh (2017) revealed that intellectual capital significantly and positively impacted investors' decision-making process. Bhardwaj and Singh (2018) reported that intellectual capital play positively correlated with decision-making as well as significantly contributed to an effective decision.

The Differences between the Current Study and Previous Studies:

Intellectual Capital Concept: The current study expects that it will increase awareness about the role of Intellectual Capital in organizations' decisions.

Environment: The difference between the previous studies and the current one is the environment, since the previous ones were carried out in various countries outside the Middle East, while this one has been done in Amman - Jordan as a representative for Arab countries.

Variables: Prior studies used annual reports of various organizations and industries but this study used respondents' perception.

Comparison: The current study conduct a comparison between the findings of the previously mentioned studies in order to find out what they have in common and what differences exist between them.

Methodology: It seems that, this study is pioneer in using Principal Component factor Analysis with Kaiser–Meyer-Olkin (KMO) to check construct validity.

Industry: There are very few previous researches, which studied the relationship between intellectual capital and quality of decision-making process especially in bank sector in Jordan; therefore, it might be one of the few studies, which tacked this issue in Jordan.

Chapter Three: Study Methodology (Methods and Procedures)

Study Design:

The current study is considered as a descriptive, analytical as well as, cause/effect study. The purpose of the current study is to investigate the impact of intellectual capital on the quality of decision-making process at Jordanian Commercial Banks at Amman. It started with literature review and experts' interview to develop a questionnaire, which used to collect the data. The data collected from managers who are working in Commercial Jordanian Banks in Amman. Then data checked and coded on SPSS. After that normality, validity, and reliability tested, and the correlation between variables will be proved before checking the hypothesis.

Study Population, Sample and Unit of Analysis:

Population and Sample: To actualize the purpose of this study all Commercial banks in Jordan were targeted, which are 12 banks, except Arab Bank, because providing data need a special permission, as shown in Appendix (2). All managers at different levels, who working in these banks were targeted to collect the data, They are counted about 300.

Unit of Analysis: The survey unit of analysis composed of all managers working at Jordanian Commercial banks.

Data Collection Methods (Tools):

To fulfill the purpose of this study the data collected from two sources: secondary and primary data. Secondary data collected from Jordanian Banks, books, journals, researches, articles, dissertations, thesis, working papers, and the Internet. The primary data collected from expert interviews, and questionnaire, which developed purposefully for this study.

The Questionnaire

The questionnaire of the study was designed and developed to match with the research hypotheses and model, which was developed through a panel of judges.

Demographic Variables: include gender, age, educational level, experience, division and position.

Independent Variable (Intellectual Capital): includes human capital, structural capital and social capital.

Dependent Variable (Quality of Decision-Making Process): includes identify the situation, gather the facts, consider alternatives, choose the best alternative, implement, monitor and adjust.

All sub-variables and elements will be measured through suitable questions, which will be rated by using five Likert Scale from 1 to 5.

Data Analysis:

To fulfill the purpose of this study all commercial banks in Amman was targeted and covered, except Arab Bank, because providing data via questionnaire need a special permission, which count 12 commercial banks. The data collected from the managers who are working at these commercial banks Amman in Jordan, and they are about 300 managers. Hundred twenty questionnaires were distributed and 100 questionnaires returned back, after checking them, all were suitable for further analysis. Then they were coded against SPSS 20 and following analysis were carried out.

Validity Test: the current study used three methods to confirm the measurements validity, content, face and construct validity. Content validity was confirmed by collecting information from different sources such as books, journals, articles and working papers. While, face validity was confirmed through experts' interview and panel of judges. Finally, exploratory factor analysis was performed to check the construct validity.

Construct Validity (Factor Analysis):

Factor Analysis (Principal Component Analysis with KMO) was used to test construct validity, if factor loading for each item within its group is more than 40% then each sub-variable or dimension or element is suitable within its group (Sekaran, 2003). While, Kaiser–Meyer-Olkin (KMO) is used to measure sampling adequacy and Bartlett's Test of Sphericity of sample used as indicator for samples harmony, while variance percentage shows explanatory power (Kaiser, 1970; Kaiser and Rice, 1974).

Intellectual Capital (IC):

Table (3-1) shows that the factor loading of each sub-variable within its group rated higher than 40%, therefore all sub-variable are suitable to be within the group. KMO is 61.8%, which indicates that all sub-variable are adequate with each other, while, variance percentage rated 53.75%, which means it can explain 53.75% of the variance.

Table (3-1): Factor Analysis (Principal Component Analysis) for Intellectual Capital:

Sub-Variable	F1	KMO	Chi^2	BTS	Var%	Sig.
Human Capital	0.753	0.618	25.48	3	53.75	0.000
Structural Capital	0.767					
Customer Capital	0.677					

Extraction Method: Principal Component Analysis.

Human Capital (HC):

Table (3-2) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 80.3%, which indicates that all items are adequate with each other, while, variance percentage is 63.99%, which means it can explain 63.99% of the variance.

Table (3-2): Factor Analysis (Principal Component Analysis) for Human Capital:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
HC1	0.739	0.803	227.97	21	63.99	0.000
HC2	0.742					
HC3	0.544					
HC4	0.618					
HC5	0.649					
HC6	0.793					
HC7	0.747					

Extraction Method: Principal Component Analysis.

Structural Capital (SC):

Table (3-3) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 83.2%, which indicates that all items are adequate with each other, while, variance percentage is 55.28%, which means it can explain 55.28% of the variance.

Table (3-3): Factor Analysis (Principal Component Analysis) for Structural Capital:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
SC1	0.600					
SC2	0.676					
SC3	0.800					
SC4	0.801	0.832	303.68	21	55.28	0.000
SC5	0.766					
SC6	0.788					
SC7	0.751					

Extraction Method: Principal Component Analysis.

Customer Capital (CC):

Table (3-4): Factor Analysis (Principal Component Analysis) for Customer Capital:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
CC1	0.738					
CC2	0.631					
CC3	0.685					
CC4	0.634	0.771	242.21	21	65.34	0.000
CC5	0.710					
CC6	0.742					
CC7	0.704					

Extraction Method: Principal Component Analysis.

Table (3-4) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 77.1%, which indicates that all items are adequate with each other, while, variance percentage is 65.34%, which means it can explain 65.34% of the variance.

Quality of Decision-Making Process:

Table (3-5) shows that the factor loading of each elements within its group rated higher than 40%, therefore all elements are suitable to be within the group. KMO is 82%, which indicates that all elements are adequate with each other, while, variance percentage rated 50.64%, which means it can explain 50.64% of the variance.

Table (3-5): Factor Analysis (Principal Component Analysis) for Quality of Decision-Making Process:

Element	F1	KMO	Chi^2	BTS	Var%	Sig.
Identify the Situation	0.753					
Gather the Facts	0.683					
Consider Alternatives	0.786	0.820	165.47	15	50.64	0.000
Choose the Best Alternatives	0.662					
Implement	0.733					
Monitor and Adjust	0.641					

Extraction Method: Principal Component Analysis.

Identify the Situation (IdS):

Table (3-6) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group.

Table (3-6): Factor Analysis (Principal Component Analysis) for Identify the Situation:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
IdS1	0.840	0.859	267.234	10	68.707	0.000
IdS2	0.705					
IdS3	0.886					
IdS4	0.834					
IdS5	0.867					

Extraction Method: Principal Component Analysis.

KMO is 85.9%, which indicates that all items are adequate with each other, while, variance percentage is 68.70%, which means it can explain 68.70% of the variance.

Gather the Facts (GF):

Table (3-7) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 78%, which indicates that all items are adequate with each other, while, variance percentage is 54.83%, which means it can explain 54.83% of the variance.

Table (3-7): Factor Analysis (Principal Component Analysis) for Gather the Facts:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
GF1	0.816	0.780	138.76	10	54.83	0.000
GF2	0.753					
GF3	0.663					
GF4	0.776					
GF5	0.684					

Extraction Method: Principal Component Analysis.

Consider Alternatives (CA):

Table (3-8) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 80.6%, which indicates that all items are adequate with each other, while, variance percentage is 58.79%, which means it can explain 58.79% of the variance.

Table (3-8): Factor Analysis (Principal Component Analysis) for Consider Alternatives:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
CA1	0.777	0.806	179.58	10	58.79	0.000
CA2	0.853					
CA3	0.785					
CA4	0.821					
CA5	0.564					

Extraction Method: Principal Component Analysis.

Choose the Best Alternatives (CBA):

Table (3-9) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 72.1%, which indicates that all items are adequate with each other, while, variance percentage is 49.07%, which means it can explain 49.07% of the variance.

Table (3-9): Factor Analysis (Principal Component Analysis) for Choose the Best Alternatives:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
CBA1	0.699	0.721	107.25	10	49.07	0.000
CBA2	0.751					
CBA3	0.760					
CBA4	0.580					
CBA5	0.697					

Extraction Method: Principal Component Analysis.

Implement (Im):

Table (3-10) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 84.0%, which indicates that all items are adequate with each other, while, variance percentage is 66.60%, which means it can explain 66.60% of the variance.

Table (3-10): Factor Analysis (Principal Component Analysis) for Implement:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
Im1	0.802	0.840	246.94	10	66.60	0.000
Im2	0.853					
Im3	0.875					
Im4	0.831					
Im5	0.708					

Extraction Method: Principal Component Analysis.

Monitor and Adjust (MA):

Table (3-11) shows that the factor loading of each item within its group rated higher than 40%, therefore all items are suitable to be within the group. KMO is 86.4%, which indicates that all items are adequate with each other, while, variance percentage is 66.10%, which means it can explain 66.10% of the variance.

Table (3-11): Factor Analysis (Principal Component Analysis) for Monitor and Adjust:

Item	F1	KMO	Chi^2	BTS	Var%	Sig.
MA1	0.771	0.864	224.79	10	66.10	0.000
MA2	0.830					
MA3	0.828					
MA4	0.858					
MA5	0.776					

Extraction Method: Principal Component Analysis.

Normality Test: One-Sample Kolmogorov-Smirnov Test used to test normality of variables and sub-variables. The significance of all variables and sub-variables were more than 5%, which indicate that normality were assumed.

Table (3-12): Normality

No.	Sub-Variable	No. of items	(K-S)Z	Sig.
1	Human Capital	7	0.955	0.322
2	Structural Capital	7	0.865	0.443
3	Customer Capital	7	1.026	0.243
	Intellectual Capital	**3**	**0.585**	**0.883**
4	Identify the Situation	5	1.216	0.104
5	Gather the Facts	5	1.032	0.237
6	Consider Alternatives	5	0.961	0.314
7	Choose the Best Solution	5	0.805	0.537
8	Implement	5	0.911	0.378
9	Monitor and Adjust	5	0.984	0.288
	Quality of Decision-Making Process	**6**	**1.027**	**0.242**

Reliability Test: the current study used Cronbch's Alpha coefficients of internal consistency to test the consistency and suitability of the measures. Table (3-13) shows that Cronbach's alpha for the study variables ranges between 0.812 and 0.863, and for dependent variables ranges from 0.734 to 0.885, if Cronbch's Alpha coefficients are more than 0.60%, then reliability is not violated.

Table (3-13): Reliability

No.	Sub-Variable	No. of items	Cronbach's Alpha
1	Human Capital	7	0.819
2	Structural Capital	7	0.863
3	Customer Capital	7	0.812
	Intellectual Capital	**3**	**0.564**
4	Identify the Situation	5	0.885
5	Gather the Facts	5	0.790
6	Consider Alternatives	5	0.818
7	Choose the Best Solution	5	0.734
8	Implement	5	0.873
9	Monitor and Adjust	5	0.871
	Quality of Decision-Making Process	**6**	**0.801**

Demographic Characteristics Analysis:

The study sample consisted of 100-bank manager; the following tables show the demographic characteristics of the sample, which includes gender, age, educational degree, position, division and experience.

Gender: table (3-14) shows that most of banks' managers are male where they rate (67) 67%, and the females were (33) 33% only, which means that most of Commercial Banks managers are male, because Jordanian society is masculine.

Table (3-14): Respondents Gender.

		Frequency	Percent
Gender	Male	67	67%
	Female	33	33%
	Total	**100**	**100%**

Table (3-15): Respondents Age.

		Frequency	Percent
Age	25-30	53	53%
	31-35	39	39%
	36-40	7	7%
	Above 40	1	1%
	Total	**100**	**100%**

Age: table (3-15) shows that most of banks' manager age between 25-30 years (53) 53%, followed by 31-35 years (39) 39%, then 36-40 years (7) 7%, finally, above 40 years (1) 1%. Because they are more creative and more knowledgeable about technology.

Educational level: table (3-16) shows that most of banks' managers are Bachelor holder (69) 69%, and the Master were (33) 33% only, which means that most

of commercial banks managers are Bachelor holder. Because its more demanding than a master's degree.

Table (3-16): Respondents Education.

		Frequency	Percent
Education	Bachelor's	69	69%
	Master	31	31%
	Total	**100**	**100%**

Years of experience: table (3-17) shows that most of banks' manager experience between 5-10 years (60) 60%, followed by 10-20 years (21) 21%, then less than 5 years (14) 14%, finally, more than 40 years (5) 5%.

Table (3-17): Respondents Experience.

		Frequency	Percent
Years of experience	Less than 5	14	14%
	5-10	60	60%
	10-20	21	21%
	Above 20	5	5%
	Total	**100**	**100%**

Division: table (3-18) shows that most of banks' manager division from support branches (67) 67%, followed by financial accounting (16) 16%, research and development (10) 10%, and finally risk (7) 7%.

Table (3-18): Respondents Division

		Frequency	Percent
Division	Support Branches	67	67%
	Research and Development	10	10%
	Financial Accounting	16	16%
	Risk	7	7%
	Total	**100**	**100%**

Table (3-19): Respondents Positions

		Frequency	Percent
Position	High	10	10%
	Middle	71	71%
	Low	19	19%
	Total	**100**	**100%**

Position: table (3-19) shows that most of banks' managers position are middle (71) 71%, then low (19) 19%, and finally high (10)10%.

Chapter Four: Data Analysis

Introduction

This chapter includes data descriptive analysis to describe each element and item for both independent (Intellectual Capital) and dependent (Quality of Decision-Making Process) variables. Moreover, it includes the relationship between variables. Finally, it contains hypothesis testing.

Description of Study Variables

Means, standard deviations, T-Test, ranking and importance of each variable, sub-variables and its items used to describe the sample. The importance is calculated based on the following equation: 5-1/3= 1.33

Low implementation= 1 to 2.33

Medium implementation = 2.34 to 3.66

High implementation = 3.67 to 5

Independent Variables (Intellectual Capital):

Table (4-1):Mean, Standard Deviation, T-Test, Ranking and Implementation for Intellectual Capital

No.	Sub-Variable	Mean	S.D.	t-Value	Sig.	Rank.	Imp.
1	Human Capital	3.834	0.626	13.321	0.000	2	High
2	Structural Capital	3.569	0.788	7.217	0.000	3	Medium
3	Customer Capital	4.231	0.566	21.729	0.000	1	High
	Total of Intellectual Capital	**3.872**	**0.485**	**17.974**	**0.000**		High

T-tabulated=1.990

Table (4-1) shows that the means and standard deviations for intellectual capital sub-variables ranges from 3.569 to 4.231, with standard deviation ranges from 0.566 to 0.788. This indicates that the respondents agree on that the banks have medium to high implementation of intellectual capital. Results also shows that the total mean of intellectual capital is 3.872 with standard deviation of 0.485, which means that the banks are highly implementing the intellectual capital, where t-value 17.974 more than T-tabulated=1.990. Table shows that customer capital has highest implementation, followed by human capital, then structural capital.

Human Capital:

Table (4-2) shows that the means and standard deviations for human capital items ranges from 3.53 to 4.33 with standard deviation ranges from 0.753 to 0.987. This indicates that the respondents agree on that the banks have medium to high

implementation of human capital items. The average mean of the human capital items is 3.83, with standard deviation of 0.626, this means that the respondents agree on high implementation of human capital, where t-value equals 13.321>T-tabulated =0.1990.

Table (4-2): Mean, Standard Deviation, T-Test, Ranking and Implementation for Human Capital

No	Items	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank employees are talented	3.67	0.888	7.543	0.000	4	High
2	The bank employees develop knowledge and skills	3.89	0.827	10.755	0.000	3	High
3	The bank employees learn from each other	4.33	0.753	17.666	0.000	1	High
4	The bank employees get experience in their jobs	4.17	0.877	13.344	0.000	2	High
5	The bank employees learn well from training	3.66	0.987	6.687	0.000	5	Medium
6	The bank employees create novel ideas	3.53	0.948	5.593	0.000	7	Medium
7	The bank employees implement new ideas	3.58	0.976	5.941	0.000	6	Medium
	Total Human Capital	**3.83**	**0.626**	**13.321**	**0.000**		**High**

T-tabulated=1.990

Structural Capital:

Table (4-3): Mean, Standard Deviation, T-Test, Ranking and Implementation for Structural Capital

No	Questions	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank conduct succession training programs	3.78	1.001	7.794	0.000	1	High
2	The bank apply incentive system related to performance	3.78	1.060	7.361	0.000	2	High
3	The bank systems support innovation	3.54	0.958	5.637	0.000	3	Medium
4	The bank devotes suitable budget to support research and development	3.40	1.163	3.438	0.000	6	Medium
5	The bank attracts experts for research and development	3.54	1.039	5.198	0.000	4	Medium
6	The bank sets clear strategies and procedures for Intellectual Property Rights	3.52	1.087	4.784	0.000	5	Medium
7	The bank trains employees about Intellectual Property Rights	3.37	1.107	3.342	0.000	7	Medium
	Total Structural Capital	**3.56**	**0.788**	**7.217**	**0.000**		**Medium**

T-tabulated=1.990

Table (4-3) shows that the means and standard deviations for structural capital items ranges from 3.37 to 3.78 with standard deviation ranges from 0.958 to 1.163. This

indicates that the respondents agree on that the banks have medium to high implementation of structural capital items. The average mean of the structural capital is 3.56, with standard deviation of 0.788, this means that the respondents agree on medium implementation of structural capital, where t-value equals 7.217>T-tabulated=0.1990.

Customer Capital:

Table (4-4): Mean, Standard Deviation, T-Test, Ranking and Implementation for Customer Capital

No	Questions	Mean	S.D.	t-Value	Sig.	Rank.	Imp.
1	The bank develops full data base about customer	4.20	0.816	14.697	0.000	5	High
2	The bank shares information with customers	3.89	1.004	8.865	0.000	6	High
3	The bank develops strategic alliances with some customers	3.80	1.005	7.960	0.000	7	High
4	The bank updates customers' data	4.51	0.703	21.465	0.000	2	High
5	The bank uses diverse channels to contact with customer	4.42	0.741	19.163	0.000	3	High
6	The bank strengths the relationships with customers	4.20	0.791	15.164	0.000	4	High
7	The bank offers special treatment to giant customers	4.61	0.650	24.780	0.000	1	High
	Total Customer Capital	4.23	0.567	21.729	0.000		High

T-tabulated=1.990

Table (4-4) shows that the means and standard deviations for customer capital items ranges from 3.80 to 4.61 with standard deviation ranges from 0.650 to 1.005. This indicates that the respondents agree on that the banks have high implementation of customer capital items. The average mean of the customer capital items is 4.23, with standard deviation of 0.567, this means that the respondents agree on high implementation of customer capital, where t-value equals 21.729>T-tabulated = 0.1990.

Dependent Variables (Quality of Decision Making Process):

Table (4-5) shows that the means and standard deviations for quality of decision-making process elements ranges from 3.61 to 3.99 with standard deviation ranges from 0.632 to 0.838. This indicates that the respondents agree on that the banks have medium to high implementation of quality of decision-making process. Results also shows that total mean of quality of decision-making process is 3.77 with standard deviation of 0.499, which means that the banks are highly implementing quality of decision-making process, where t-Value 15.328 more than T-tabulated=1.990.

Table (4-5): Mean, Standard Deviation, T-Test, Ranking and Implementation for Quality of Decision-Making Process.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank.	Imp.
1	Identify the Situation	3.78	0.838	9.347	0.000	4	High
2	Gather the Facts	3.63	0.677	9.358	0.000	5	Medium
3	Consider Alternatives	3.78	0.632	12.303	0.000	3	High
4	Choose the Best Alternatives	3.61	0.660	9.293	0.000	6	Medium
5	Implement	3.82	0.716	11.358	0.000	2	High
6	Monitor and Adjust	3.99	0.710	13.926	0.000	1	High
	Total Quality of Decision-Making Process	**3.77**	**0.499**	**15.328**	**0.000**		**High**

T-tabulated=1.990

Table shows that monitor and adjust has highest implementation, followed by implement, consider alternatives, identify the situation, then gather the facts, finally choose the best alternatives.

Identify the Situation:

Table (4-6) shows that the means and standard deviations for identify the situation items ranges from 3.61 to 3.89 with standard deviation ranges from 0.898 to 1.083. This indicates that the respondents agree on that the banks have medium to high implementation of identify the situation items. The average mean of identify the situation items is 3.78, with standard deviation of 0.838, this means that the respondents semi-agree on high implementation of identify the situation, where t-value equals 9.347 > T-tabulated = 0.1990.

Table (4-6): Mean, Standard Deviation, T-Test; Ranking and Implementation for Identify the Situation

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank scans its external environment	3.77	0.962	8.000	0.000	4	High
2	The bank analysis its competitive situation	3.89	0.898	9.914	0.000	1	High
3	The bank identifies the problem within suitable time	3.61	1.034	5.901	0.000	5	Medium
4	The bank defines the problem exactly	3.79	1.076	7.343	0.000	3	High
5	The bank searches for problem reasons	3.86	1.083	7.944	0.000	2	High
	Total Identify the Situation	**3.78**	**0.838**	**9.347**	**0.000**		**High**

T-tabulated=1.990

Gather the Facts:

Table (4-7) shows that the means and standard deviations for gather the facts items ranges from 3.52 to 3.81 with standard deviation ranges from 0.861 to 0.972. This indicates that the respondents agree on that the banks have medium to high

implementation of gather the facts items. The average mean of gather the facts items is 3.63, with standard deviation of 0.677, this means that the respondents agree on medium implementation of gather the facts, where t-value equals 9.358>T-tabulated = 0.1990.

Table (4-7): Mean, Standard Deviation, T-Test, Ranking and Implementation for Gather the Facts.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank searches for relevant information	3.69	0.861	8.014	0.000	2	High
2	The bank uses SWOT analysis to find alternatives	3.53	0.881	6.013	0.000	4	Medium
3	The bank considers uncertainty during alternative development	3.52	0.937	5.548	0.000	5	Medium
4	The bank encourages employees to use creative approaches to collect information	3.62	0.972	6.378	0.000	3	Medium
5	The bank considers the company's goals during information gathering	3.81	0.940	8.621	0.000	1	High
	Total Gather the Facts	**3.63**	**0.677**	**9.358**	**0.000**		**Medium**

T-tabulated=1.990

Consider Alternatives:

Table (4-8): Mean, Standard Deviation, T-Test; Ranking and Implementation for Consider Alternatives.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank develops criteria for evaluation	3.77	0.886	8.691	0.000	3	High
2	The bank evaluates alternative based on criteria	3.66	0.831	7.938	0.000	5	Medium
3	The bank uses different methods to evaluate alternatives	3.71	0.769	9.229	0.000	4	Medium
4	The bank considers the company goals during evaluating alternatives.	3.82	0.833	9.839	0.000	2	Medium
5	The bank prioritizing alternatives based on value added	3.93	0.832	11.180	0.000	1	High
	Total Consider Alternatives	**3.77**	**0.632**	**12.303**	**0.000**		**High**

T-tabulated=1.990

Table (4-8) shows that the means and standard deviations for consider alternatives items ranges from 3.66 to 3.93 with standard deviation ranges from 0.769 to 0.886. This indicates that the respondents agree on that the banks have medium to high implementation of consider alternatives items. The average mean of consider alternatives items is 3.77, with standard deviation of 0.632, this means that the

respondents agree on high implementation of consider alternatives, where t-value equals 12.303 > T-tabulated = 0.1990.

Choose the Best Alternatives:

Table (4-9) shows that the means and standard deviations for choose the best alternatives items ranges from 3.49 to 3.70 with standard deviation ranges from 0.894 to 1.016. This indicates that the respondents agree on that the banks have medium to high implementation of choose the best alternatives items. The average mean of choose the best alternatives items is 3.61, with standard deviation of 0.660, this means that the respondents agree on medium implementation of choose the best alternatives, where t-value equals 9.293 > T-tabulated = 0.1990.

Table (4-9): Mean, Standard Deviation, T-Test, Ranking and Implementation for Choose the Best Alternatives.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank reduces its alternatives	3.49	0.969	5.056	0.000	5	Medium
2	The bank selects practical alternative.	3.64	0.894	7.163	0.000	3	Medium
3	The bank consider budget constrains during selection	3.65	0.903	7.197	0.000	2	Medium
4	The bank uses external consultants to select the best solution	3.59	1.016	5.807	0.000	4	Medium
5	The bank uses different tools to select best solutions	3.70	0.959	7.301	0.000	1	High
	Total Choose the Best Solution	**3.61**	**0.660**	**9.293**	**0.000**		**Medium**

T-tabulated=1.990

Implement:

Table (4-10): Mean, Standard Deviation, T-Test, Ranking and Implementation for Implement.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank defines the implementation process steps	3.71	0.868	8.180	0.000	5	High
2	The bank defines requirements for the implementation process	3.83	0.853	9.725	0.000	3	High
3	The bank follows structural approach for implementing solution	3.81	0.907	8.933	0.000	4	High
4	The bank develops detailed action plan for implementation	3.84	0.896	9.377	0.000	2	High
5	The bank ensures the achievement of its action steps	3.89	0.875	10.172	0.000	1	High
	Total Implement	**3.81**	**0.716**	**11.385**	**0.000**		**High**

T-tabulated=1.990

Table (4-10) shows that the means and standard deviations for implement items ranges from 3.71 to 3.89 with standard deviation ranges from 0.853 to 0.907. This indicates that the respondents agree on that the banks have high implementation of implement items. The average mean of implement items is 3.81, with standard deviation of 0.716, this means that the respondents agree on high implementation of implement, where t-value equals 11.385 > T-tabulated = 0.1990.

Monitor and Adjust:

Table (4-11) shows that the means and standard deviations for monitor and adjust items ranges from 3.92 to 4.09 with standard deviation ranges from 0.818 to 0.929. This indicates that the respondents agree on that the banks have high implementation of monitor and adjust items. The average mean of monitor and adjust items is 3.99, with standard deviation of 0.710, this means that the respondents agree on high implementation of monitor and adjust, where t-value equals 13.926 > T-tabulated = 0.1990.

Table (4-11): Mean, Standard Deviation, T-Test, Ranking and Implementation for Monitor and Adjust.

No.	Item	Mean	S.D.	t-Value	Sig.	Rank	Imp.
1	The bank develops criteria for monitoring implementation	3.94	0.874	10.754	0.000	4	High
2	The bank trains employees on how to monitor implementation	4.01	0.823	12.278	0.000	2	High
3	The bank searches for gaps during implementation	3.99	0.927	10.685	0.000	3	High
4	The bank provides corrective action based on gap	3.92	0.929	9.908	0.000	5	High
5	The bank leans from the feedback	4.09	0.818	13.331	0.000	1	High
	Total Monitor and Adjust	**3.99**	**0.710**	**13.926**	**0.000**		**High**

T-tabulated=1.990

Relationships between Intellectual Capital Components and the Quality of Decision Making Process

Bivariate Pearson Principal method used to test the relationships between variables and sub-variables. Table (4-12) shows that the relationships between Intellectual Capital sub-variables are medium, where r ranges from 0.263 and 0.370. Moreover, the relationships between Decision-Making elements are medium to strong, where r ranges between 0.252 and 0.538. Finally, the relationships between intellectual

capital components and quality of decision-making process are strong, where r ranges from 0.409 to 550, and the relationship between total intellectual capital and total quality of decision-making process is very strong, where r equals 0.626.

Table (4-12): Bivariate Correlation between the Study Variables

No.	Sub-Variables	1	2	3	4	5	6	7	8	9	10	11
1	**Human Capital**											
2	**Structural Capital**	.370** .000										
3	**Customer Capital**	.263** .008	.283** .004									
4	**Intellectual Capital**	.724** .000	.804** .000	.657** .000								
5	**Identify the Situation**	.384** .000	.488** .000	.314** .001	.544** .000							
6	**Gather the Fact**	.255* .010	.390** .000	.292** .003	.422** .000	.489** .000						
7	**Consider Alternatives**	.248* .013	.462** .000	.283** .004	.464** .000	.507** .000	.488** .000					
8	**Choose the Best Alternatives**	.335** .001	.377** .000	.081 .421	.377** .000	.466** .000	.364** .000	.394** .000				
9	**Implement**	.197* .050	.279** .005	.271** .006	.336** .001	.390** .000	.310** .002	.498** .000	.381** .000			
10	**Monitor and Adjust**	.337** .001	.333** .001	.520** .000	.521** .000	.324** .001	.270** .007	.405** .000	.252* .011	.538** .000		
11	**Quality of Decision-Making Process**	.409** .000	.550** .000	.413** .000	.626** .000	.764** .000	.687** .000	.756** .000	.662** .000	.733** .000	.650** .000	

.**Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

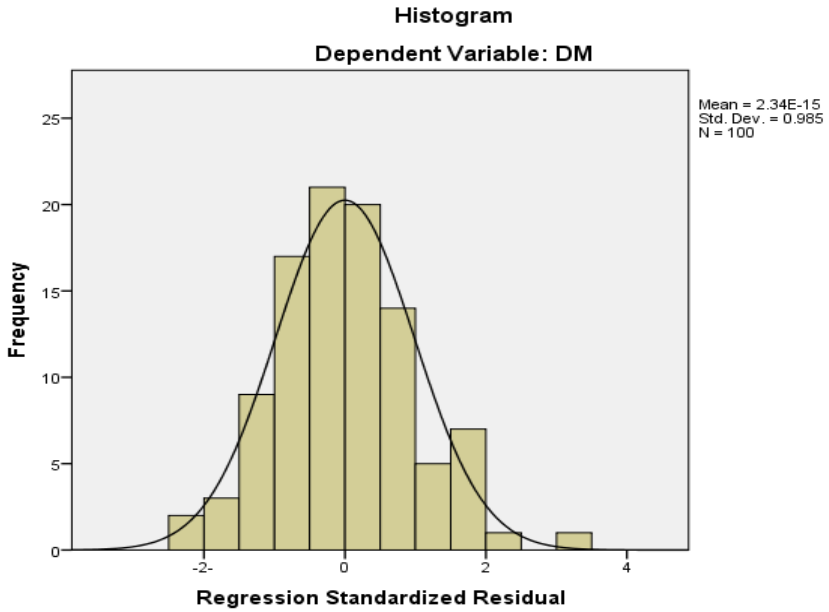
Hypotheses Testing:

After confirming validity, reliability and correlation between variables, and before using multiple regressions analysis to test the effect of intellectual capital on the quality of decision-making process, the following assumptions should be tested to prove the usefulness of the multiple regressions analysis; these are normality, linearity and independent of errors, multi-colleanearity (Sekaran, 2003; Sekaran and Bougie 2013).

Normal Distribution Histogram:

The result of histogram in figure (4-1) shows that the data are normally distributed, since the residuals do not affect the normal distribution, this confirm normality (Sokal and Rohlf, 1969; Sekaran 2016; Hair, et. al. 2014).

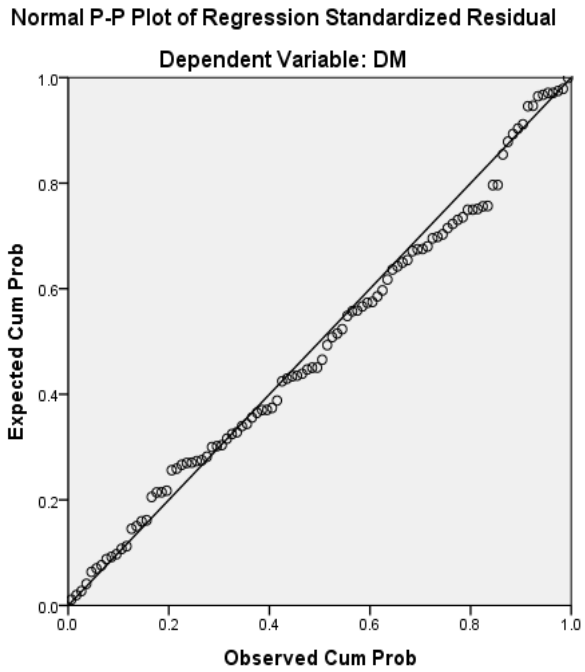
Figure (4-1): Normality Distribution



Linearity Test

The result of linearity in figure (4-2) shows that the relationships between the study variables are linear, therefore linearity is assumed. (Michael et. al.1997).

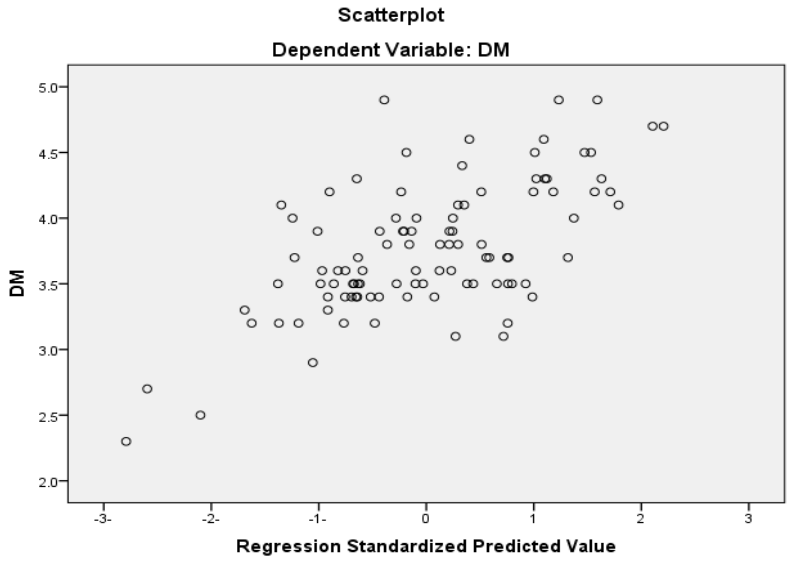
Figure (4-2): Linearity Plot



Independent of Errors

Figure (4-3) shows that the errors are randomly distributed around the linear line; therefore, the independent of errors are assumed.

Figure (4-3): Scatterplot



The result of Durbin-Watson test used to check the independent of errors, and if the Durbin-Watson value is about two the model did not violate the independent of error assumption. The result of Durbin-Watson in table (4-31) was (d=1.826), which was about two and this indicates that the residuals are not correlated to each other and proved that the assumption was met.

Multi-Collinearity:

Multicollinearity was tested by the tolerance and variance inflation factory (VIF) tests for the study independent variables, taking into account that tolerance value must be more than 0.2 and the VIF value must be less than 10. Table (4-13) shows that Multi-collinearity is assumed.

Table (4-13): Multicollinearity Test

Independent Variables	Tolerance	VIF	Durbin-Watson
Human Capital	0.836	1.196	1.826
Structural Capital	0.826	1.210	
Customer Capital	0.891	1.122	

Research Hypotheses

H_{01}: Intellectual capital sub-variables (human, structural and customer) do not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

For testing the study hypotheses, multi regressions analysis used to test the effect of the intellectual capital sub-variables on the quality of decision-making process at Jordanian commercial banks. Table (4-32) shows that when regressing the three intellectual capital sub-variables together against the total of decision-making process R^2 equals 0.406, which means that the independent variable intellectual capital can explain 40.6% of variance on dependent variable (quality of decision-making process), where (R^2=0.406, F=21,895, Sig=.000). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that intellectual capital sub-variables (human, structural and customer) affect quality of decision-making process at Jordanian banking sector, at level of $\alpha \leq 0.05$.

Table (4-14): ANOVA test: Regression the three Intellectual Capital Sub-Variables on Quality of Decision Making

Model	R	R^2	Adjusted R^2	f	Sig.
1	0.637[a]	0.406	0.388	21.895	0.000[b]

a. Predictors: (Constant), CC, HC, SC. b. Dependent Variable: DM

Table (4-14) also shows the effect of each intellectual capital sub-variables on the quality of decision-making process.

Table (4-15): ANOVA test: Regression the three Intellectual Capital Sub-Variables on Quality of Decision Making

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.328	0.344		3.854	0.000
	HC	0.154	0.069	0.193	2.245	0.027
	SC	0.259	0.055	0.409	4.729	0.000
	CC	0.218	0.073	0.247	2.965	0.004

a. Predictors: (Constant), CC, HC, SC. b. Dependent Variable: DM. T-Tabulated = 1.990

Sub-Hypotheses:

$H_{01.1}$: Human capital does not affect quality of decision-making process at Jordanian commercial banks, at level of $\alpha \leq 0.05$.

Table (4-15) shows a statistical significant effect of human capital on the quality of decision-making process, where (β=0.193; t=2.245; sig=0.027, p<0.05). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that human capital affects quality of decision-making process at Jordanian banking sector, at level of α≤0.05.

$H_{01.2}$: Structural capital does not affect quality of decision-making process at Jordanian commercial banks, at level of α≤0.05.

The results in table (4-15) showed a statistical significant effect of structural capital on the quality of decision-making process, where (β=0.409; t=4.729; sig=0.000, p<0.05). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that structural capital affects quality of decision-making process at Jordanian banking sector, at level of α≤0.05.

$H_{01.3}$: Customer capital does not affect quality of decision-making process at Jordanian commercial banks, at level of α≤0.05.

The results in table (4-15) showed a statistical significant effect of customer capital on the quality of decision-making process, where (β=0.247; t= 2.965; sig=0.004, p<0.05). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that customer capital affects quality of decision-making process at Jordanian banking sector, at level of α≤0.05.

Summary

In summary, results show that the respondents agree on medium to high implementation of intellectual capital sub-variables, where customer capital has highest implementation, followed by human capital, then structural capital. Moreover, result shows that the respondents agree on medium to high implementation of quality of decision-making process, where monitor and adjust has highest mean, followed by implement, then consider alternatives, identify the situation, gather the facts and choose the best alternatives, consequently.

Bivariate Pearson Principal method shows that the relationships between intellectual capital components are medium, the relationship between quality of decision-making process components are medium to strong, and the relationships between intellectual capital components and quality of decision-making process are

strong, finally, it shows that the relationship between total intellectual capital and total quality of decision-making process is very strong.

Multiple regressions analysis show that intellectual capital components (human, structural and customer) affect quality of decision-making process at Jordanian banking sector, where structural capital has the highest effect on quality of decision-making process, followed by customer capital, and finally human capital.

Chapter Five: Results Discussion, Conclusion and Recommendations

Results Discussion

Result of this study shows that there is a moderate to high implementation of the intellectual capital sub-variables in Jordanian commercial banks. All variables of intellectual capital are having moderate to high implementation level. The customer capital dimension implemented higher followed by human capital, then structural capital. The decision-making process is also high implemented among the Jordanian commercial banks. Moreover, results shows that monitor and adjust implemented higher followed by implement, consider alternatives, identify the situation, then gather the facts, Finally choose the best alternatives, consequently. Results is supported by previous studies such as Mansor, et. al. (2014) found that 69% of the study sample indicated that the company performed good in intellectual capital and its dimensions. Negulescu and Doval (2014) revealed that majority of the bank managers (80%) highly agreed on looking for the problem and its solutions, as well as (72%) of them agreed that they are focusing on the implementation and monitoring the problem solving. On the other hand, this study result was inconsistence with other study such as Mohammad (2015) who found that the level of intellectual capital was low in Kurdistan companies. Chahal and Bakshi (2016) who found that the intellectual capital significantly contributed to intellectual capital, among them customer capital score higher level, followed by human capital and structural capital. Al-Dalabih (2018) found that intellectual capital is very important on organization, and the highest level of intellectual capital in bank sector is human capital, followed by customer and structural capital.

Results show that the relationships between intellectual capital sub-variables are medium to high, and the relationships between decision-making process elements are medium to high. The relationships between intellectual capital sub-variables and decision-making elements are medium to high. The results of this study supported by the previous studies such as Bhardwaj and Singh, (2018) found that intellectual capital and its sub-variables (human capital, structural capital and customer capital) having positive correlation with decision-making. Results of the study partially agreed with the results of Fazlzadeh (2017) who mentioned that intellectual capital had significant and positive impact investors' decision-making process and economic growth factors.

Multiple regression analysis shows that intellectual capital affect quality of decision-making process. Results shows each one of the variables of intellectual capital has significantly effect on decision-making process. Moreover, the results also shows that structural capital has the highest effect on quality of decision-making process, followed by customer capital, and human capital. Results supported by the previous studies such as Sen and Walle, (2014) also reported that intellectual capital and its dimensions significantly affect decision-making process. Wang, et al. (2018), found that knowledge management factors such as information technology infrastructure, human resource sharing and culture positively impact decision-making. Furthermore, Bhardwaj and Singh, (2018) found that intellectual capital and its dimensions significantly impacted on decision making, among this human capital affecting decision-making the most, followed by structural capital and customer capital.

Conclusion

The purpose of the current study is to investigate the effect of intellectual capital on the quality of decision-making process at commercial banks, in Amman, Jordan. This study follows a quantitative descriptive design. The data collected from 100 managers working at 12 Commercial banks, Except Arab Banks, by questionnaire. After confirming normality, validity and reliability of the tool, the statistical analysis means, standard deviations, and t-values used to describe the responses, then correlation between variables was carried out, and finally multiple regressions used to test the hypothesis. The result shows that there is an agreement among the banks managers on medium to high implementation of each intellectual capital sub-variables, and the total mean of intellectual capital is high, which indicated that there is a significant implementation of intellectual capital among mangers in banks sector in Jordan. This indicates that the mangers working at Jordan banks realize the importance of the implementation of the intellectual capital sub-variables. Moreover, the result revealed that there is an agreement among managers on medium to high implementation of the quality of decision-making process, and the total mean of the quality of decision-making process is high, In addition, overall result indicated that there is a significant implementation of the quality of decision-making process among Jordanian banks. This indicated that the managers working at Jordan banks realize the importance of the implementation of the quality of decision-making process elements.

Results shows that intellectual capital affect decision-making process and each sub-variables of intellectual capital has significant effect on quality of decision-making process in Jordan banks. Furthermore, study indicated that customer capital has the highest impact on decision-making process, followed by human capital and finally structural capital.

Recommendations

In the light of the results of this study, the study highlights the following recommendations for banks and other industries:

- implementing intellectual capital sub-variables to improve the quality of decision-making process in Bank sector in Jordan.
- conducting training programs to train managers on how to implement intellectual capital sub-variables in their workplace.
- improving using the three intellectual capital sub-variable together, because they are strongly related to each other.
- using intellectual capital assessment to check intellectual capital development in other industry in Jordan, as well as, outside Jordan.
- including intellectual capital sub-variables within companies' strategies and daily practices.
- developing indicators to assess the availability of intellectual capital.

Recommendations for Academic and Future Research

- The study implemented a quantitative method to collect data from the study sample; therefore, the study recommends using qualitative method for future research to validate the result of the study.
- The study carried out on banking industry, the study recommends conducting similar research on other industries.
- The study recommends carrying out similar researches outside Jordan, to check results generalizability.
- The study collected data from the mangers in November 2018; therefore, the study recommends future research to test consistency of the study tool and results. Moreover, it is recommended to carry similar researches on other employees and customers.

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Appendix:

Appendix (1): Panel of Referees Committee

No.	Name	Qualification	Organization
1	Dr. Ahmad Ali Saleh	Prof.	Middle East University
2	Dr. Najem Aboud Najem	Prof.	Al-Zaitouneh University
3	Dr. Nedal Al Hawamdeh	Prof.	Mutah University
4	Dr. Amjad Etweiqat	Assistant Prof.	Middle East University
5	Dr. Mohammad Al Adayla	Assistant Prof.	Middle East University
6	Dr. Awatef Haddad	Assistant Prof.	Petra University
7	Dr. Mohammad Qudah	Assistant Prof.	Petra University
8	Dr. Ghazi Abu Zaitoun	Assistant Prof.	Petra University
9	Dr. Tamer Qabourtai	Assistant Prof.	Petra University
10	Hanna Soudah	District Manager	Bank Al Etihad
11	Diala Ajlouni	District Manager	Bank Al Etihad
12	Rami Aranki	Branch Manager	Bank Al Etihad

Appendix (2): Commercial Banks

No.	Name
1	Arab Bank
2	Etihad Bank
3	Cairo Amman Bank
4	Capital Bank
5	Jordan Kuwait Bank
6	Housing Bank
7	Ahli Bank
8	Invest Bank
9	ABC Bank
10	Jordan Bank
11	Jordan Commercial Bank
12	Societe General Bank
13	Jordan Arab Investment Bank

Appendix (3): Letter and Questionnaire of Respondents

The Effect of Intellectual Capital on Quality of Decision Making Process

Dear Participant:

Intellectual Capital Components are Human Capital, Structural Capital and Customer Capital is considered as a tool for modern measurement and management of business performance to achieve efficiency and effectiveness. It's also one of the best tools that are used to measure the quality of decision making process, in which managers of banks and other institutions are trying to find the best ways to measure and assess the quality of their products and linking it to the financial and non-financial performance

The purpose of this master thesis is to know the effect of Intellectual Capital on Quality of Decision Making Process

I hope that you will assess the paragraphs of this questionnaire, which his words are measured by Fifth Likert scale (1 to 5). Please give your suggestions about it, and add any comments about the topics that you feel is important for this topic and / or for the Bank industry, and I'm ready to take your recommendations into consideration when rewriting and revising the questionnaire.

I reiterate my thanks for your participation and your guidance, and if you have any question or comment, please call (0799595459).

Thank you for your attention.

Researcher: Qusai M. AL Sharaiyah

Supervisor: Dr. Abdulaziz AlSharbati

Appendix (4): Questionnaire (English Version):

Effect of Intellectual Capital on Quality of Decision Making Process.

Part one: Demographic information

Gender: □Male □Female

Age (years): □25-30 □ above 31-35 □above 36-40 □above 40

Education: □Bachelor □Master □Doctorate

Position: □ High level □Middle level □ Low level

Division: □ Support Branch □Research and Development□ Financial and Accounting □Risk

Years of experience: □ Less than 5 □Between 5-10 □ Between 10-15 □More than 15

The following 51 items tap into Intellectual Capital and its effect on Quality of Decision Making Process. Please, answer these questions based on actual and current situation and not on beliefs.

[1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree] based on how you feel about the statement.

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
Intellectual Capital						
Human Capital includes employees' talent, learning and education, knowledge and skills, experience and expertise, creation and innovation.						
1	The bank employees are talented.	1	2	3	4	5
2	The bank employees develop knowledge and skills.	1	2	3	4	5
3	The bank employees learn from each other	1	2	3	4	5
4	The bank employees get experience in their jobs.	1	2	3	4	5
5	The bank employees learn well from training	1	2	3	4	5
6	The bank employees create novel ideas	1	2	3	4	5
7	The bank employees implement new ideas.	1	2	3	4	5
Structural Capital: System and Programs, Procedures, Research and Development,						

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
Intellectual Property Rights.						
1	The bank conduct succession training programs	1	2	3	4	5
2	The bank apply incentive system related to performance.	1	2	3	4	5
3	The bank systems support innovation.	1	2	3	4	5
4	The bank devotes suitable budget to support research and development	1	2	3	4	5
5	The bank attracts experts for research and development	1	2	3	4	5
6	The bank sets clear strategies and procedures for Intellectual Property Rights	1	2	3	4	5
7	The bank trains employees about Intellectual Property Rights.	1	2	3	4	5
Customers Capital: Customer Knowledge, Relationship, Strategic alliances						
1	The bank develops full database about customer.	1	2	3	4	5
2	The bank shares information with customers.	1	2	3	4	5
3	The bank develops strategic alliances with some customers.	1	2	3	4	5
4	The bank updates customers' data.	1	2	3	4	5
5	The bank uses diverse channels to contact with customer.	1	2	3	4	5
6	The bank strengths the relationships with customers	1	2	3	4	5
7	The bank offers special treatment to giant customers	1	2	3	4	5
Quality of Decision Making:						
Identify the Situation:						
1	The bank scans its external environment.	1	2	3	4	5
2	The bank analysis its competitive situation.	1	2	3	4	5
3	The bank identifies the problem within suitable time	1	2	3	4	5
4	The bank defines the problem exactly.	1	2	3	4	5
5	The bank searches for problem reasons	1	2	3	4	5
Gather the Facts:						
1	The bank searches for relevant information.	1	2	3	4	5
2	The bank uses SWOT analysis to find alternatives.	1	2	3	4	5
3	The bank considers uncertainty during alternative development	1	2	3	4	5
4	The bank encourages employees to use creative approaches to collect information.	1	2	3	4	5
5	The bank considers the company's goals during information gathering.	1	2	3	4	5
Consider Alternatives:						
1	The bank develops criteria for evaluation.	1	2	3	4	5
2	The bank evaluates alternative based on criteria	1	2	3	4	5
3	The bank uses different methods to evaluate	1	2	3	4	5

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
	alternatives					
4	The bank considers the company goals during evaluating alternatives.	1	2	3	4	5
5	The bank prioritizing alternatives based on value added	1	2	3	4	5
Choose the Best Solution:						
1	The bank reduces its alternatives.	1	2	3	4	5
2	The bank selects practical alternative.	1	2	3	4	5
3	The bank consider budget constrains during selection.	1	2	3	4	5
4	The bank uses external consultants to select the best solution.	1	2	3	4	5
5	The bank uses different tools to select best solutions	1	2	3	4	5
Implement:						
1	The bank defines the implementation process steps.	1	2	3	4	5
2	The bank defines requirements for the implementation process.	1	2	3	4	5
3	The bank follows structural approach for implementing solution.	1	2	3	4	5
4	The bank develops detailed action plan for implementation	1	2	3	4	5
5	The bank ensures the achievement of its action steps	1	2	3	4	5
Monitor and Adjust:						
1	The bank develops criteria for monitoring implementation.	1	2	3	4	5
2	The bank trains employees on how to monitor implementation.	1	2	3	4	5
3	The bank searches for gaps during implementation	1	2	3	4	5
4	The bank provides corrective action based on gap	1	2	3	4	5
5	The bank leans from the feedback.	1	2	3	4	5

Appendix (5): Participants Letter (Arabic Version)

استبيانة حول معرفة تأثير رأس المال الفكري على جودة عملية صنع القرار

حضرة المشارك العزيز:

يتكون رأس المال الفكري من رأس المال البشري، رأس المال الهيكلي ورأس المال يعتبر كاداه لقياس وإدارة حديثة لأداء الأعمال لتحقيق الكفاءة والفعالية .كما أنها واحدة من أفضل الأدوات التي يتم استخدامها لقياس جودة عملية صنع القرار، حيث يحاول مدراء البنوك والمؤسسات الأخرى إيجاد أفضل الطرق لقياس وتقييم جودة منتجاتهم وربطها بالمنتجات المالية والأداء غير المالي، من أجل تحسين وتطوير الأداء العام للأعمال.

الغرض من هذه الرسالة هو معرفة تأثير رأس المال الفكري على جودة عملية صنع القرار آمل أن تقوم بتقييم فقرات هذا الاستبيان، والتي يتم قياس كلماته حسب مقياس ليكرت الخامس (من 1 إلى 5) وتقديم اقتراحات حوله، وإضافة أي تعليقات حول الموضوعات التي تشعر أنها مهمة لهذا الموضوع و/أو لصناعة البنك، وأنا على استعداد لأخذ توصياتك في الاعتبار عند إعادة كتابة ومراجعة الاستبيان.

نحن نقدر مشاركتك وتوجيهك لمصلحة هذه الدراسة.

أكرر شكري لمشاركتك وتوجيهك، وإذا كان لديك أي سؤال أو تعليق، يرجى الاتصال (0799595459).

الباحث: قصي الشرايعة
المشرف: د. عبد العزيز الشرباتي

استبيانة حول معرفة تأثير رأس المال الفكري على جودة عملية صنع القرار

الجنس: □ ذكر □ أنثى

العمر: □ 25 – 30 □ بين31 –35 □بين 36 - 40 □ أكبر من 40

المؤهل العلمي: □ بكالوريوس □ ماجستير □ دكتوراه

المستوى الوظيفي: □ الادارة العليا □ الوسطى □ السفلى

القسم: □ دائرة الفروع □ البحث والتطوير □ المالية والمحاسبة □ المخاطر

سنوات الخبرة: □ أقل من 5 □بين 5-10 □بين 10-15 □ أكثر من 15

(الرجاء التأكّدْ من إجابة كُلّ سؤال ووضع دائرة حول الجواب الصحيحَ استِنادًا إلى مشاعرك وأحاسيسك حول الواقع الموجود وليس بناء على الاعتقاد أو الوضع المثالي لكل فقرة كالتالي: (1 = غير مطبق بقوة.....، 5 = مطبق بقوة)

رقم	السؤال	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
		1	2	3	4	5
رأس المال الفكري: يتضمن رأس المال البشري موهبة الموظفين وتعلمهم وتعليمهم ومعرفتهم ومهاراتهم وخبراتهم العملية وإبداعهم وابتكارهم.						
.1	يعد موظفي البنك موهوبين	1	2	3	4	5
.2	يقوم موظفي البنك بتطوير المعرفة والمهارات	1	2	3	4	5
.3	يتعلم موظفي البنك من بعضهم البعض	1	2	3	4	5
.4	يقوم موظفي البنك باكتساب الخبرة في وظيفتهم	1	2	3	4	5
.5	يتعلم موظفي البنك جيداً من التدريب	1	2	3	4	5
.6	يقوم موظفي البنك بابتكار أفكار جديدة	1	2	3	4	5
.7	يقوم موظفي البنك بتطبيق أفكار جديدة	1	2	3	4	5
رأس المال التنظيمي: النظام والبرامج والإجراءات والبحث والتطوير وحقوق الملكية الفكرية						
.8	يقوم البنك بعقد برامج تدريب متلاحقة	1	2	3	4	5
.9	يقوم البنك بتطبيق نظام حوافز فيما يتعلق بالأداء	1	2	3	4	5
.10	تقوم أنظمة البنك بدعم الابتكار	1	2	3	4	5
.11	يقوم البنك بتخصيص ميزانية مناسبة لدعم البحث والتطوير	1	2	3	4	5
.12	يقوم البنك باستقدام الخبراء لغايات البحث والتطوير	1	2	3	4	5
.13	يقوم البنك بوضع استراتيجيات وإجراءات واضحة فيما يتعلق بحقوق الملكية الفكرية	1	2	3	4	5
.14	يقوم البنك بتدريب الموظفين حول حقوق الملكية الفكرية	1	2	3	4	5
رأس مال العملاء: المعرفة والعلاقة والتحالفات الاستراتيجية مع العميل						
.15	يقوم البنك بإعداد قاعدة بيانات كاملة عن العميل	1	2	3	4	5
.16	يقوم البنك بمشاركة المعلومات مع العميل	1	2	3	4	5
.17	يقوم البنك بإقامة تحالفات استراتيجية مع بعض العملاء	1	2	3	4	5
.18	يقوم البنك بتحديث بيانات العملاء	1	2	3	4	5
.19	يقوم البنك باستخدام وسائل متنوعة للتواصل مع العميل	1	2	3	4	5
.20	يقوم البنك بتقوية العلاقات مع العملاء	1	2	3	4	5
.21	يقوم البنك بتقديم معاملة خاصة لكبار العملاء	1	2	3	4	5
جودة اتخاذ القرار						

رقم	السؤال	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
		1	2	3	4	5
تحديد المشكلة						
.22	يقوم البنك بفحص بيئته الخارجية	1	2	3	4	5
.23	يقوم البنك بتحليل وضعه التنافسي	1	2	3	4	5
.24	يقوم البنك بتحديد المشكلة خلال وقت مناسب	1	2	3	4	5
.25	يقوم البنك بتحديد المشكلة بدقة	1	2	3	4	5
.26	يقوم البنك بالبحث عن أسباب المشكلة	1	2	3	4	5
جمع الحقائق						
.27	يقوم البنك بالبحث عن المعلومات ذات الصلة	1	2	3	4	5
.28	يقوم البنك باستخدام التحليل الرباعي (SWOT) لإيجاد البدائل	1	2	3	4	5
.29	يأخذ البنك عدم اليقين بعين الاعتبار خلال وضع البدائل	1	2	3	4	5
.30	يقوم البنك بتشجيع الموظفين على استخدام أساليب مبتكرة لجمع المعلومات	1	2	3	4	5
.31	يأخذ البنك أهداف الشركة بعين الاعتبار خلال جمع المعلومات	1	2	3	4	5
النظر في البدائل						
.32	يقوم البنك بوضع معايير للتقييم	1	2	3	4	5
.33	يقوم البنك بتقييم البدائل بناءً على المعايير	1	2	3	4	5
.34	يقوم البنك باستخدام وسائل مختلفة لتقييم البدائل	1	2	3	4	5
.35	يأخذ البنك أهداف الشركة بعين الاعتبار خلال تقييم البدائل	1	2	3	4	5
.36	يقوم البنك بتحديد أولوية البدائل بناءً على القيمة المضافة	1	2	3	4	5
اختيار الحل الأمثل						
.37	يقوم البنك بتقليص البدائل	1	2	3	4	5
.38	يقوم البنك باختيار بدائل عملية	1	2	3	4	5
.39	يأخذ البنك القيود المتعلقة بالميزانية بعين الاعتبار خلال عملية الاختيار	1	2	3	4	5
.40	يقوم البنك باستخدام مستشارين خارجيين لاختيار الحل الأمثل	1	2	3	4	5
.41	يقوم البنك باستخدام ادوات مختلفة لاختيار أمثل الحلول	1	2	3	4	5
تطبيق الحل						
.42	يقوم البنك بتحديد خطوات عملية التطبيق	1	2	3	4	5
.43	يقوم البنك بتحديد متطلبات عملية التطبيق	1	2	3	4	5
.44	يقوم البنك باتخاذ نهج تنظيمي لتطبيق الحل	1	2	3	4	5
.45	يقوم البنك بوضع خطة عمل مفصلة للتطبيق	1	2	3	4	5
.46	يقوم البنك بضمان تحقيق خطوات العمل	1	2	3	4	5
المراقبة والتعديل						
.47	يقوم البنك بوضع معايير لمراقبة التطبيق	1	2	3	4	5
.48	يقوم البنك بتدريب الموظفين على كيفية مراقبة التطبيق	1	2	3	4	5
.49	يقوم البنك بالبحث عن الثغرات خلال التطبيق	1	2	3	4	5
.50	يقوم البنك بتقديم خطة تصحيحية بناءً على الثغرة	1	2	3	4	5
.51	يستفيد البنك من التغذية الراجعة	1	2	3	4	5

Appendix (6): SPSS Data Analysis

Normality Test:

One-Sample Kolmogorov-Smirnov Test

		HC	SC	CC	IC	IdS	GF	CA	CBS	IM	MA	DM
N		100	100	100	100	100	100	100	100	100	100	100
Normal Parameters[a,b]	Mean	3.834	3.569	4.231	3.872	3.784	3.634	3.778	3.614	3.816	3.990	3.766
	Std. Deviation	.6261	.7884	.5665	.4851	.8388	.6775	.6324	.6607	.7167	.7109	.4997
Most Extreme Differences	Absolute	.095	.086	.103	.059	.122	.103	.096	.080	.091	.098	.103
	Positive	.095	.075	.087	.059	.074	.103	.096	.077	.069	.098	.103
	Negative	-.092	-.086	-.103	-.045	-.122	-.095	-.090	-.080	-.091	-.095	-.092
Kolmogorov-Smirnov Z		.955	.865	1.026	.585	1.216	1.032	.961	.805	.911	.984	1.027
Asymp. Sig. (2-tailed)		.322	.443	.243	.883	.104	.237	.314	.537	.378	.288	.242

a. Test distribution is Normal.
b. Calculated from data.

Construct Validity:
Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.803
Bartlett's Test of Sphericity	Approx. Chi-Square	227.972
	Df	21
	Sig.	.000

Communalities

	Initial	Extraction
HC1	1.000	.564
HC2	1.000	.602
HC3	1.000	.693
HC4	1.000	.645
HC5	1.000	.444
HC6	1.000	.765
HC7	1.000	.767

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.385	48.355	48.355	3.385	48.355	48.355
2	1.095	15.639	63.994	1.095	15.639	63.994
3	.653	9.324	73.318			
4	.591	8.443	81.761			
5	.553	7.896	89.657			
6	.479	6.848	96.505			
7	.245	3.495	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component	
	1	2
HC1	.739	-.131-
HC2	.742	.227
HC3	.544	.630
HC4	.618	.512
HC5	.649	-.150-
HC6	.793	-.368-
HC7	.747	-.456-

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	303.682
	Df	21
	Sig.	.000

Communalities

	Initial	Extraction
SC1	1.000	.360
SC2	1.000	.456
SC3	1.000	.639
SC4	1.000	.642
SC5	1.000	.587
SC6	1.000	.621
SC7	1.000	.564

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.869	55.275	55.275	3.869	55.275	55.275
2	.977	13.958	69.233			
3	.599	8.553	77.786			
4	.540	7.712	85.498			
5	.449	6.417	91.915			
6	.342	4.883	96.797			
7	.224	3.203	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
SC1	.600
SC2	.676
SC3	.800
SC4	.801
SC5	.766
SC6	.788
SC7	.751

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.771
Bartlett's Test of Sphericity	Approx. Chi-Square	242.208
	Df	21
	Sig.	.000

Communalities

	Initial	Extraction
CC1	1.000	.582
CC2	1.000	.846
CC3	1.000	.703
CC4	1.000	.506
CC5	1.000	.737
CC6	1.000	.565
CC7	1.000	.635

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.365	48.073	48.073	3.365	48.073	48.073
2	1.209	17.268	65.342	1.209	17.268	65.342
3	.801	11.440	76.782			
4	.544	7.768	84.550			
5	.415	5.923	90.473			
6	.383	5.468	95.941			
7	.284	4.059	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component	
	1	2
CC1	.738	.195
CC2	.631	.669
CC3	.685	.483
CC4	.634	-.323-
CC5	.710	-.483-
CC6	.742	-.116-
CC7	.704	-.374-

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.859
Bartlett's Test of Sphericity	Approx. Chi-Square	267.234
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
IdS1	1.000	.706
IdS2	1.000	.497
IdS3	1.000	.786
IdS4	1.000	.696
IdS5	1.000	.752

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.435	68.707	68.707	3.435	68.707	68.707
2	.626	12.517	81.225			
3	.394	7.887	89.112			
4	.284	5.677	94.790			
5	.261	5.210	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
IdS1	.840
IdS2	.705
IdS3	.886
IdS4	.834
IdS5	.867

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	138.756
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
GF1	1.000	.666
GF2	1.000	.566
GF3	1.000	.439
GF4	1.000	.601
GF5	1.000	.468

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.741	54.829	54.829	2.741	54.829	54.829
2	.790	15.799	70.628			
3	.635	12.690	83.318			
4	.451	9.015	92.334			
5	.383	7.666	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
GF1	.816
GF2	.753
GF3	.663
GF4	.776
GF5	.684

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.806
Bartlett's Test of Sphericity	Approx. Chi-Square	179.577
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
CA1	1.000	.604
CA2	1.000	.728
CA3	1.000	.616
CA4	1.000	.674
CA5	1.000	.318

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.939	58.788	58.788	2.939	58.788	58.788
2	.830	16.600	75.388			
3	.513	10.254	85.642			
4	.426	8.521	94.163			
5	.292	5.837	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
CA1	.777
CA2	.853
CA3	.785
CA4	.821
CA5	.564

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.721
Bartlett's Test of Sphericity	Approx. Chi-Square	107.251
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
CBS1	1.000	.489
CBS2	1.000	.565
CBS3	1.000	.578
CBS4	1.000	.337
CBS5	1.000	.486

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.454	49.072	49.072	2.454	49.072	49.072
2	.965	19.292	68.364			
3	.629	12.573	80.938			
4	.554	11.072	92.009			
5	.400	7.991	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
CBS1	.699
CBS2	.751
CBS3	.760
CBS4	.580
CBS5	.697

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.840
Bartlett's Test of Sphericity	Approx. Chi-Square	246.945
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
IM1	1.000	.643
IM2	1.000	.728
IM3	1.000	.766
IM4	1.000	.690
IM5	1.000	.502

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.330	66.590	66.590	3.330	66.590	66.590
2	.636	12.714	79.304			
3	.475	9.496	88.800			
4	.317	6.347	95.147			
5	.243	4.853	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
IM1	.802
IM2	.853
IM3	.875
IM4	.831
IM5	.708

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	224.794
	Df	10
	Sig.	.000

Communalities

	Initial	Extraction
MA1	1.000	.594
MA2	1.000	.688
MA3	1.000	.685
MA4	1.000	.736
MA5	1.000	.602

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.305	66.103	66.103	3.305	66.103	66.103
2	.544	10.878	76.981			
3	.461	9.210	86.191			
4	.385	7.701	93.892			
5	.305	6.108	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
MA1	.771
MA2	.830
MA3	.828
MA4	.858
MA5	.776

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.618
Bartlett's Test of Sphericity	Approx. Chi-Square	25.480
	Df	3
	Sig.	.000

Communalities

	Initial	Extraction
HC	1.000	.567
SC	1.000	.588
CC	1.000	.458

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.613	53.751	53.751	1.613	53.751	53.751
2	.758	25.278	79.029			
3	.629	20.971	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
HC	.753
SC	.767
CC	.677

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	165.468
	Df	15
	Sig.	.000

Communalities

	Initial	Extraction
IdS	1.000	.567
GF	1.000	.467
CA	1.000	.617
CBS	1.000	.439
IM	1.000	.537
MA	1.000	.412

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.038	50.641	50.641	3.038	50.641	50.641
2	.914	15.235	65.876			
3	.666	11.095	76.971			
4	.491	8.180	85.151			
5	.481	8.012	93.163			
6	.410	6.837	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
IdS	.753
GF	.683
CA	.786
CBS	.662
IM	.733
MA	.641

Extraction Method: Principal Component Analysis.

Reliability:

Human Capital:

Reliability Statistics

Cronbach's Alpha	N of Items
.819	7

Social Capital:

Reliability Statistics

Cronbach's Alpha	N of Items
.863	7

Customer Capital:

Reliability Statistics

Cronbach's Alpha	N of Items
.812	7

Intellectual Capital:

Reliability Statistics

Cronbach's Alpha	N of Items
.564	3

Identify Situation:

Reliability Statistics

Cronbach's Alpha	N of Items
.885	5

Gather Facts:

Reliability Statistics

Cronbach's Alpha	N of Items
.790	5

Consider Alternatives:

Reliability Statistics

Cronbach's Alpha	N of Items
.818	5

Choose Best Alternatives:

Reliability Statistics

Cronbach's Alpha	N of Items
.734	5

Implement Solution:

Reliability Statistics

Cronbach's Alpha	N of Items
.873	5

Monitor and Adjust:

Reliability Statistics

Cronbach's Alpha	N of Items
.871	5

Quality of Decision-Making Process:

Reliability Statistics

Cronbach's Alpha	N of Items
.801	6

Frequencies:

Statistics

		Gender	Age	Education	POS	DIVI	EXP
N	Valid	100	100	100	100	100	100
	Missing	0	0	0	0	0	0

Frequency Table:

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	67	67.0	67.0	67.0
	2	33	33.0	33.0	100.0
	Total	100	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	53	53.0	53.0	53.0
	2	39	39.0	39.0	92.0
	3	7	7.0	7.0	99.0
	4	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	69	69.0	69.0	69.0
	2	31	31.0	31.0	100.0
	Total	100	100.0	100.0	

Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	10.0	10.0	10.0
	2	71	71.0	71.0	81.0
	3	19	19.0	19.0	100.0
	Total	100	100.0	100.0	

Divison

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	67	67.0	67.0	67.0
	2	10	10.0	10.0	77.0
	3	16	16.0	16.0	93.0
	4	7	7.0	7.0	100.0
	Total	100	100.0	100.0	

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	14.0	14.0	14.0
	2	60	60.0	60.0	74.0
	3	21	21.0	21.0	95.0
	4	5	5.0	5.0	100.0
	Total	100	100.0	100.0	

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
HC1	100	3.67	.888	.089
HC2	100	3.89	.827	.083
HC3	100	4.33	.753	.075
HC4	100	4.17	.877	.088
HC5	100	3.66	.987	.099
HC6	100	3.53	.948	.095
HC7	100	3.58	.976	.098
HC	100	3.834	.6261	.0626
SC1	100	3.78	1.001	.100
SC2	100	3.78	1.060	.106
SC3	100	3.54	.958	.096
SC4	100	3.40	1.163	.116
SC5	100	3.54	1.039	.104
SC6	100	3.52	1.087	.109
SC7	100	3.37	1.107	.111
SC	100	3.569	.7884	.0788
CC1	100	4.20	.816	.082
CC2	100	3.89	1.004	.100
CC3	100	3.80	1.005	.101
CC4	100	4.51	.703	.070
CC5	100	4.42	.741	.074
CC6	100	4.20	.791	.079
CC7	100	4.61	.650	.065
CC	100	4.231	.5665	.0567
IdS1	100	3.77	.962	.096
IdS2	100	3.89	.898	.090
IdS3	100	3.61	1.034	.103
IdS4	100	3.79	1.076	.108
IdS5	100	3.86	1.083	.108
IdS	100	3.784	.8388	.0839
GF1	100	3.69	.861	.086
GF2	100	3.53	.881	.088
GF3	100	3.52	.937	.094
GF4	100	3.62	.972	.097
GF5	100	3.81	.940	.094
GF	100	3.634	.6775	.0678
CA1	100	3.77	.886	.089
CA2	100	3.66	.831	.083
CA3	100	3.71	.769	.077
CA4	100	3.82	.833	.083
CA5	100	3.93	.832	.083
CA	100	3.778	.6324	.0632
CBS1	100	3.49	.969	.097
CBS2	100	3.64	.894	.089
CBS3	100	3.65	.903	.090
CBS4	100	3.59	1.016	.102
CBS5	100	3.70	.959	.096
CBS	100	3.614	.6607	.0661
IM1	100	3.71	.868	.087
IM2	100	3.83	.853	.085
IM3	100	3.81	.907	.091
IM4	100	3.84	.896	.090
IM5	100	3.89	.875	.087
IM	100	3.816	.7167	.0717
MA1	100	3.94	.874	.087
MA2	100	4.01	.823	.082
MA3	100	3.99	.927	.093

MA4	100	3.92	.929	.093
MA5	100	4.09	.818	.082
MA	100	3.990	.7109	.0711

One-Sample Test

	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HC1	7.543	99	.000	.670	.49	.85
HC2	10.755	99	.000	.890	.73	1.05
HC3	17.666	99	.000	1.330	1.18	1.48
HC4	13.344	99	.000	1.170	1.00	1.34
HC5	6.687	99	.000	.660	.46	.86
HC6	5.593	99	.000	.530	.34	.72
HC7	5.941	99	.000	.580	.39	.77
HC	13.321	99	.000	.8340	.710	.958
SC1	7.794	99	.000	.780	.58	.98
SC2	7.361	99	.000	.780	.57	.99
SC3	5.637	99	.000	.540	.35	.73
SC4	3.438	99	.001	.400	.17	.63
SC5	5.198	99	.000	.540	.33	.75
SC6	4.784	99	.000	.520	.30	.74
SC7	3.342	99	.001	.370	.15	.59
SC	7.217	99	.000	.5690	.413	.725
CC1	14.697	99	.000	1.200	1.04	1.36
CC2	8.865	99	.000	.890	.69	1.09
CC3	7.960	99	.000	.800	.60	1.00
CC4	21.465	99	.000	1.510	1.37	1.65
CC5	19.163	99	.000	1.420	1.27	1.57
CC6	15.164	99	.000	1.200	1.04	1.36
CC7	24.780	99	.000	1.610	1.48	1.74
CC	21.729	99	.000	1.2310	1.119	1.343
IdS1	8.000	99	.000	.770	.58	.96
IdS2	9.914	99	.000	.890	.71	1.07
IdS3	5.901	99	.000	.610	.40	.82
IdS4	7.343	99	.000	.790	.58	1.00
IdS5	7.944	99	.000	.860	.65	1.07
IdS	9.347	99	.000	.7840	.618	.950
GF1	8.014	99	.000	.690	.52	.86
GF2	6.013	99	.000	.530	.36	.70
GF3	5.548	99	.000	.520	.33	.71
GF4	6.378	99	.000	.620	.43	.81
GF5	8.621	99	.000	.810	.62	1.00
GF	9.358	99	.000	.6340	.500	.768
CA1	8.691	99	.000	.770	.59	.95
CA2	7.938	99	.000	.660	.50	.82
CA3	9.229	99	.000	.710	.56	.86
CA4	9.839	99	.000	.820	.65	.99
CA5	11.180	99	.000	.930	.76	1.10
CA	12.303	99	.000	.7780	.653	.903
CBS1	5.056	99	.000	.490	.30	.68
CBS2	7.163	99	.000	.640	.46	.82
CBS3	7.197	99	.000	.650	.47	.83
CBS4	5.807	99	.000	.590	.39	.79
CBS5	7.301	99	.000	.700	.51	.89
CBS	9.293	99	.000	.6140	.483	.745
IM1	8.180	99	.000	.710	.54	.88
IM2	9.725	99	.000	.830	.66	1.00

IM3	8.933	99	.000	.810	.63	.99
IM4	9.377	99	.000	.840	.66	1.02
IM5	10.172	99	.000	.890	.72	1.06
IM	11.385	99	.000	.8160	.674	.958
MA1	10.754	99	.000	.940	.77	1.11
MA2	12.278	99	.000	1.010	.85	1.17
MA3	10.685	99	.000	.990	.81	1.17
MA4	9.908	99	.000	.920	.74	1.10
MA5	13.331	99	.000	1.090	.93	1.25
MA	13.926	99	.000	.9900	.849	1.131

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
HC	100	3.834	.6261	.0626
SC	100	3.569	.7884	.0788
CC	100	4.231	.5665	.0567
IC	100	3.872	.4851	.0485
IdS	100	3.784	.8388	.0839
GF	100	3.634	.6775	.0678
CA	100	3.778	.6324	.0632
CBS	100	3.614	.6607	.0661
IM	100	3.816	.7167	.0717
MA	100	3.990	.7109	.0711
DM	100	3.766	.4997	.0500

One-Sample Test

	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HC	13.321	99	.000	.8340	.710	.958
SC	7.217	99	.000	.5690	.413	.725
CC	21.729	99	.000	1.2310	1.119	1.343
IC	17.974	99	.000	.8720	.776	.968
IdS	9.347	99	.000	.7840	.618	.950
GF	9.358	99	.000	.6340	.500	.768
CA	12.303	99	.000	.7780	.653	.903
CBS	9.293	99	.000	.6140	.483	.745
IM	11.385	99	.000	.8160	.674	.958
MA	13.926	99	.000	.9900	.849	1.131
DM	15.328	99	.000	.7660	.667	.865

Correlations

Correlations

		HC	SC	CC	IC	IdS	GF	CA	CBS	IM	MA	DM
HC	Pearson Correlation	1	.370**	.263**	.724**	.384**	.255*	.248*	.335**	.197*	.337**	.409**
	Sig. (2-tailed)		.000	.008	.000	.000	.010	.013	.001	.050	.001	.000
	N	100	100	100	100	100	100	100	100	100	100	100
SC	Pearson Correlation	.370**	1	.283**	.804**	.488**	.390**	.462**	.377**	.279**	.333**	.550**
	Sig. (2-tailed)	.000		.004	.000	.000	.000	.000	.000	.005	.001	.000
	N	100	100	100	100	100	100	100	100	100	100	100
CC	Pearson Correlation	.263**	.283**	1	.657**	.314**	.292**	.283**	.081	.271**	.520**	.413**
	Sig. (2-tailed)	.008	.004		.000	.001	.003	.004	.421	.006	.000	.000
	N	100	100	100	100	100	100	100	100	100	100	100
IC	Pearson Correlation	.724**	.804**	.657**	1	.544**	.422**	.464**	.377**	.336**	.521**	.626**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.001	.000	.000
	N	100	100	100	100	100	100	100	100	100	100	100
IdS	Pearson Correlation	.384**	.488**	.314**	.544**	1	.489**	.507**	.466**	.390**	.324**	.764**
	Sig. (2-tailed)	.000	.000	.001	.000		.000	.000	.000	.000	.001	.000
	N	100	100	100	100	100	100	100	100	100	100	100
GF	Pearson Correlation	.255*	.390**	.292**	.422**	.489**	1	.488**	.364**	.310**	.270**	.687**
	Sig. (2-tailed)	.010	.000	.003	.000	.000		.000	.000	.002	.007	.000
	N	100	100	100	100	100	100	100	100	100	100	100
CA	Pearson Correlation	.248*	.462**	.283**	.464**	.507**	.488**	1	.394**	.498**	.405**	.756**
	Sig. (2-tailed)	.013	.000	.004	.000	.000	.000		.000	.000	.000	.000
	N	100	100	100	100	100	100	100	100	100	100	100
CBS	Pearson Correlation	.335**	.377**	.081	.377**	.466**	.364**	.394**	1	.381**	.252*	.662**
	Sig. (2-tailed)	.001	.000	.421	.000	.000	.000	.000		.000	.011	.000
	N	100	100	100	100	100	100	100	100	100	100	100
IM	Pearson Correlation	.197*	.279**	.271**	.336**	.390**	.310**	.498**	.381**	1	.538**	.733**
	Sig. (2-tailed)	.050	.005	.006	.001	.000	.002	.000	.000		.000	.000
	N	100	100	100	100	100	100	100	100	100	100	100
MA	Pearson Correlation	.337**	.333**	.520**	.521**	.324**	.270**	.405**	.252*	.538**	1	.650**
	Sig. (2-tailed)	.001	.001	.000	.000	.001	.007	.000	.011	.000		.000
	N	100	100	100	100	100	100	100	100	100	100	100
DM	Pearson Correlation	.409**	.550**	.413**	.626**	.764**	.687**	.756**	.662**	.733**	.650**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	100	100	100	100	100	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	CC, HC, SC[b]	.	Enter

a. Dependent Variable: DM
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.637[a]	.406	.388	.3910	1.826

a. Predictors: (Constant), CC, HC, SC
b. Dependent Variable: DM

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.044	3	3.348	21.895	.000[b]
	Residual	14.680	96	.153		
	Total	24.724	99			

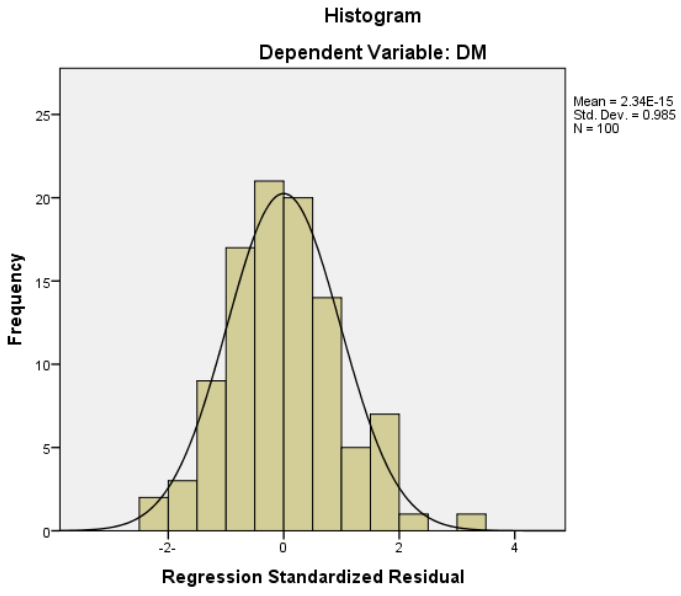
a. Dependent Variable: DM
b. Predictors: (Constant), CC, HC, SC

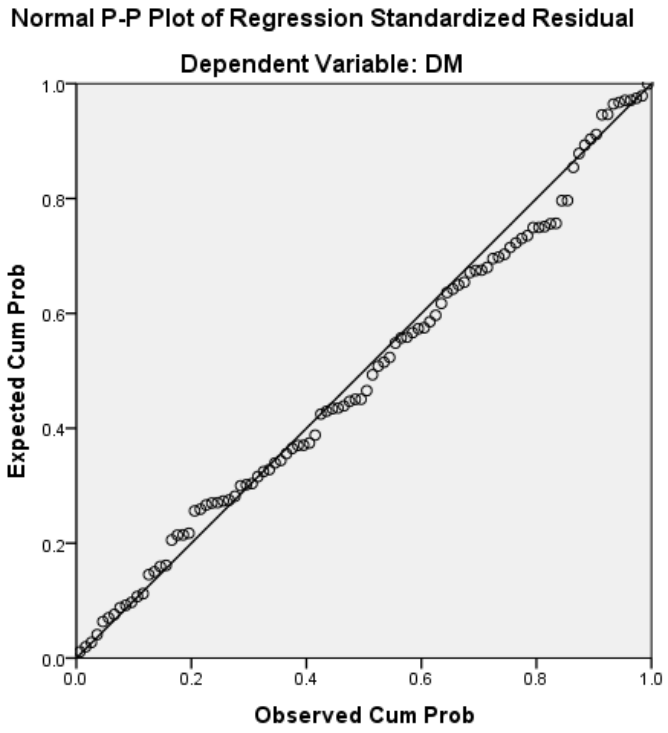
Coefficients[a]

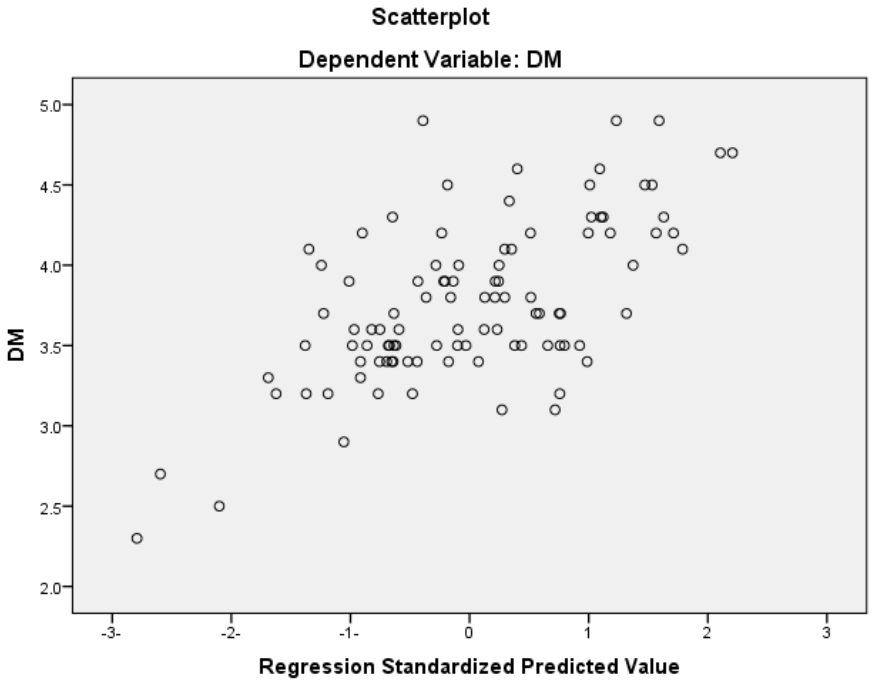
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.328	.344		3.854	.000		
	HC	.154	.069	.193	2.245	.027	.836	1.196
	SC	.259	.055	.409	4.729	.000	.826	1.210
	CC	.218	.073	.247	2.965	.004	.891	1.122

a. Dependent Variable: DM

Charts




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: DM
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: DM
DM
Regression Standardized Predicted Value
2.0
2.5
3.0
3.5
4.0
4.5
5.0
-3-
-2-
-1-
0
1
2
3