NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF BUSINESS ADMINISTRATION

INTELLECTUAL CAPITAL, COMPETITIVE ADVANTAGE AND THE MEDIATION OF INNOVATION QUALITY, SPEED AND BUSINESS INTELLIGENCE

PHD THESIS

Manar NIWASH

Nicosia
February, 2021

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Declaration

I Manar Niwash, hereby declare that this dissertation entitled "**Intellectual capital, competitive advantage and the mediation of Innovation Quality, Speed and Business intelligence**" has been prepared by myself under the guidance and supervision of '**Prof. Dr. Şerife EYÜPOĞLU'** in partial fulfillment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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Manar Niwash

Abstract

Intellectual Capital, Competitive Advantage And The Mediation Of Innovation Quality, Speed And Business Intelligence

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This study aims at investigating the mediating impact of business intelligence, innovation speed and innovation quality on the relationship between the different components of intellectual capital and competitive advantage in the context of Jordanian companies. To achieve this, the study developed a theoretical framework that depicts the mediation through data that were collected randomly, from the pharmaceutical and medical supplies companies, with a total sample of 569 participants. Data were analyzed using structural equation modeling, SEM (CB-SEM), for model fit and Process software for path analysis to estimate the different indirect effects. The findings provide evidence that all mediators serve differently as important mediating mechanisms between the different components of intellectual capital and competitive advantage. Overall, the results of this study show and clarify the mediating mechanism of business intelligence, innovation speed and innovation quality, as mediators through which human capital, structural capital and relational capital improve competitive advantage in the context of Jordanian companies

Key Words: Intellectual Capital; Competitive Advantage; Innovation Quality; Innovation Speed; Business Intelligence.

ÖZ

İşlemsel Liderlik ve İş Doyumu Arasındaki İlişkide Çalışan Sessizliği ve Örgütsel
Bağlılığın Aracı Rolü
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Bu çalışma, iş zekası, inovasyon hızı ve inovasyon kalitesinin entelektüel sermayenin farklı bileşenleri ile rekabet avantajı arasındaki ilişki üzerindeki aracı etkisini Ürdün şirketleri bağlamında incelemeyi amaçlamaktadır. Bunu başarmak için çalışma, toplam 569 katılımcıdan oluşan bir örneklemle ilaç ve tıbbi malzeme şirketlerinden rastgele toplanan veriler aracılığıyla arabuluculuğu tasvir eden teorik bir çerçeve geliştirdi. Veriler, farklı dolaylı etkileri tahmin etmek için model uyumu için yapısal eşitlik modellemesi, SEM (CB-SEM) ve yol analizi için Process yazılımı kullanılarak analiz edildi. Bulgular, tüm arabulucuların, entelektüel sermayenin farklı bileşenleri ile rekabet avantajı arasında önemli aracı mekanizmalar olarak farklı şekilde hizmet ettiğine dair kanıt sunmaktadır. Genel olarak, bu çalışmanın sonuçları, Ürdün şirketleri bağlamında insan sermayesi, yapısal sermaye ve ilişkisel sermayenin rekabet avantajını iyileştirdiği aracılar olarak iş zekası, yenilik hızı ve yenilik kalitesinin aracılık mekanizmasını göstermekte ve açıklığa kavuşturmaktadır.

Anahtar Kelimeler: Entelektüel Sermaye; Rekabet avantajı; İnovasyon Kalitesi; İnovasyon Hızı; İş zekası.

Table of Contents

CHAPTER I

CHAPTER II

CHAPTER III

List of Tables

List of Figures

List of Abbreviations

AGF :	Adjusted Goodness-of-Fit Index
BI	Business Intelligence
BI (items):	Business Intelligence
CADC (items):	Competitive Advantage dynamic capabilities
CAIN (items):	Competitive Advantage innovation
CAMR (items)	Competitive Advantage Market responsiveness
CASC (items):	Competitive Advantage Sustainable competitive advantages
CFA:	Confirmatory factor analysis
CFI :	Comparative Fit Index
CMIN:	Chi Square ($\chi2$) statistic
DC:	Dynamic capabilities
Df :	Degree of freedom
GFI :	Goodness-of-Fit Index
HC:	Human capital
ICH (items):	Intellectual capital human
ICR (items):	Intellectual capital relational
ICS (items):	Intellectual capital structural
IFI :	the Incremental Fit Index (IFI)
INN:	Innovation
INNO:	Innovation
INNQ (items):	Innovation quality
INNS (items):	Innovation speed
IQ:	Innovation quality
IS:	Innovation speed
MR:	Market responsiveness
p-value:	Significance
RC:	Relation capital
RMSEA:	Root Mean Square Error of Approximation (RMSEA)
SC:	Structural capital
SCA:	Sustainable competitive advantage
TLI:	Tucker-Lewis Index

CHAPTER I

Introduction

The success of businesses and their contributions to the transition into a knowledge-based economy, in which the majority of the knowledge is implicit and available in people's brains and relies on their perception, intellectual experience, and abilities, have made the relevance of knowledge in the sphere of business clear. Furthermore, it can be found in the form of useful data on the market, the beneficiaries, communications, and technology. In truth, information is quantifiable and essential to achieving a competitive edge (Al Kubaisi, 2005). In order to provide a service, a good, or a benefit that is different from what competitors in the same industry give, an organization must have a competitive advantage. This validates the organization's distinctiveness and difference from its rivals from the standpoint of clients (Ning & Tanriverdi, 2017). As a result, approaches for improving performance in enterprises have evolved. Previously, these methods were concentrated on the administrative or material aspects of the administrative system, which was frustrating for both beneficiaries and employees since it was losing its human nature. These techniques shifted their attention to the practical human element of the administrative process, emphasizing features of successful leadership, worker empowerment, and intellectual capital (Al-Arif, 2009).

The phrase "intellectual capital" only recently became popular (Youssef, 2005). Along with talent, skills, technical know-how, connections, and tools that can be used to create value, intellectual capital also includes these things. It is the total of all information that all members of the organization are aware of and that gives it a competitive advantage in the marketplace (Nour & Qaraqish, 2010). Al-Maani et al. (2011) divide intellectual capital into structural capital which is made up of things like system applications, patents, and databases. Training, education, and experience all serve as indicators of human capital. Agreements, loyalty, and brand all serve as representations of relational capital. Hopefulness, confidence, hope, and the capacity for resistance among the organization's members are examples of psychological capital. Nevertheless, many academics believe that the relationship between intellectual capital and competitive advantage is influenced by the pace and quality of innovation and business intelligence. Of these scholars, Al-Saqqa, (2017) Balouei

and Mehran (2014), Chen and Siau (2011), Karim (2011), Malkawi (2018), Mukuche (2015), Stefanus et al.,(2013), Volna and Kohnova (2014), Vuori (2009), Woodside and Quaddus (2015), Wu (2008), Youssef (2005), Zerenler (2008) Zhining (2021).

Business intelligence is described as information gathered to support a business segment's decision-making process through the conversion of the available data (Ernie et al., 2013). The rate of progress a company shows in developing and commercializing new items is known as innovation speed. It represents a company's capacity to quicken the operations and tasks involved in new product development (Carbonell & Rodriguez, 2006). The assessment of customer happiness and a company's innovativeness are combined to create innovation quality (Dian, 2019).

Intellectual capital, which is regarded as playing the primary role in innovation, has evolved into the real capital of organizations in light of the information age and competitive economy. The centre of gravity in value creation has shifted from physical resource exploitation to tangible asset exploitation, as well as moving away from the law of diminishing returns and toward the law of rising returns in terms of knowledge and ideas as it is the change agent (Al-Rousan and Al-Ajlouni, 2010). As a result, it can convert knowledge into value, which can then be used to earn a competitive advantage. Therefore, in the contemporary generation of the knowledge revolution and the smart technology revolution, intellectual capital is emerging as one of the key characteristics (Al-Rousan and Al-Ajlouni, 2010).

As a result, there has been a constant rise in studies and research on intellectual capital management in the previous 20 years, as it has come to be seen by both academics and business professionals as the key to giving most companies a competitive edge. Organizational structures and intellectual assets like human capital, trade secrets, and patents are frequently cited as crucial factors in business success and economic growth. Among the organizational strengths that contribute to competitive advantage is intellectual capital (Amiri et al., 2010). According to Choudhury (2010), organizations must develop innovative capabilities in order to gain a competitive edge because innovation and learning have an effect on the advantage's structure. Rapid technological change, increased customer expectations, organizational competitiveness, and unexpected customer behaviour. Newbert (2008) also connected

competitive advantage to resources and capabilities. This implies that an organization will perform better and be in a better competitive environment if it owns and utilizes valuable and scarce resources and capabilities. (Migdock, 2001; Hall, 2005). By fusing these abilities and intangible resources, a company can build and maintain a core function in the form of competitive advantage by doing so in a way that grants access to a range of distinctive and long-lasting market opportunities.

Indeed, some Jordanian businesses may benefit from sustaining competency in the shape of competitive advantage. Taking the pharmaceutical and medical supply industry as an example, it presently occupies a pioneering position in the area and represents a success story for the industrial sector in special and the Jordanian economy in general. In actuality, this is largely due to the growth of export markets, which, in 2019, reached 58. The largest of these was the Saudi market, which, according to experts, is because Jordanian pharmaceutical companies are liable to rigid laws and high monitoring and contest on a global scale because of its several competitive benefits.

It is well apparent that there are gradual changes in the way firms are producing products or delivering their services to customers. Much of the changes now involving companies shifting away from labour intensive to knowledge intensive according to Vuori, (2009) In coincidence with the rapid developments in the environments of internal and external business organizations, most notably the technological sector, and with the accumulation of available information, which has become an important strategic resource, pushing organizations to formulate new plans to help them achieve their vision and objectives and maintain their market position through the modern management concept business intelligence (Karami et al. 2013).

In the business environment, which is interested in finding distinct ways in the provision of information and optimization of exploitation and then embodied in a comprehensive view and insight and also work to stimulate them to aspire to a future vision linked to the intellectual capabilities available within the organization by encouraging active participation among them.

Business intelligence plays an important role in all stages of the organization's strategies and is the starting point for strategic planning that enables senior

management to formulate important plans about the future direction of the organization (Miller,et al. 2006). The ever-changing business environment requires the interdependence of intellectual capital of all kinds in an efficient, more flexible and widespread manner that contributes to the acquisition of a competitive edge. The rapid changes under the unity of competition between organizations for achieving excellence have forced them to develop integrated strategies to attract distinct human capital, which is a crucial part of intellectual capital,, employment, training, as well as maintenance (Buenechea-Elberdin, Sáenz ,Kianto, 2017).

Human resource is the market value that enhances the competitiveness of an organization. The process of human resource development and participation leads to excellence in performance and the enhancement of the competitiveness of the organization (Zerenler, Hasiloglu&Sezgin, 2008). It became clear to the far and wide that the interest in intellectual capital, especially human capital, and invest in it properly and the development of appropriate strategies to attract and maintain one of the biggest challenges facing organizations in our day as it has become one of the organization's most crucial assets and as mentioned above, and in the light of the tremendous and rapid developments in technology and increasing competition Organizations must maximize their human capital in order to gain a competitive advantage. A crucial element of intellectual capital is human capital. (Ahmad ,Mushraf, 2011). The main focus of the organization's human resources management is concerned with the implementation of its high-quality, least-cost and most flexible strategies. Human capital and information about their mission is very important to understand how organizations create competitive advantage (Giniat, 2011).

As is well known, the components of intellectual capital are relational, human, organizational, social, as well, customer capital (Sharabati et al., 2013)(Li, et al., 2019). The interdependence between them is important in creating competitive advantage. In the pharmaceutical industry, which in turn has changed the business landscape, market structures and consumer behavior innovation has become the main focus in enhancing the competitiveness of pharmaceutical companies This is because of the upgrowth of a knowledge economy, fierce global competition, and quick technological advancements and short-term turnover Life of pharmaceutical products, which adds to the challenges faced by pharmaceutical companies that they should not

only track not only the creation of novel goods or services, but they should likewise consider expanding the product range. The creation and sustainability of competitive advantage is highly dependent on the continuous production of innovations (Cepa, 2019).Meanwhile, a number of pharmaceutical companies in Jordan are increasingly becoming under pressure from other firms in the same industries. As a result, it becomes vital for pharmaceutical firms to tap into the advantages of intellectual capital to boost their competitive advantage. The value of intellectual property is attached to its ability to aid firms in attaining their goals (Edvinsson, Malone, 1997).

Research Problem

Several studies investigate the connection with both intellectual capital and competitive edge (Egbu, 2004) (Li et al., 2019). Investigating how other factors, including business intelligence, innovation speed, as well as, quality, affects the connection with both intellectual capital and competitive edge still needs to be done, though. . It is also to the attention of the researcher that some of these researches do not pay attention to specific industries such as the industry for pharmaceuticals and medical supplies which will be this study's primary objective.

Given that, at this time, it occupies a notable and creative role in the area, the pharmaceutical and medical supply sector is a success story for the industrial sector in particular and the Jordanian economy overall. In actuality, this is primarily due to the growth of export markets, which, in 2019, reached 58. The largest of these was the Saudi market, which, according to experts, is because Jordanian pharmaceutical firms are subject to strict regulations and close oversight, and they contend on a global level because of the many competitive advantages they possess. Due to their significant impact, which is demonstrated by the findings of recent studies in the contexts of other industries, this study prioritizes investigating the mediating impact of business intelligence, innovation speed, and innovation quality on the association between intellectual capital and competitive edge in the context of Jordanian firms in this study. As a result, this research aims to respond to the following queries:

1. Is there a positive mediating role for business intelligence in the relationship between intellectual capital and competitive advantage?
2. Is the relationship between intellectual capital and competitive advantage positively mediated by innovation speed?

3. Does innovation quality serve as a helpful intermediary between intellectual capital and competitive advantage?

Aims of the study

As a result, this study aims to analyze some of the elements that contribute to the development of such a competitive advantage. The researcher prioritizes examining the influence of the mediation of specific characteristics, such as business intelligence, innovation speed, and innovation quality, on the relationship between intellectual capital and competitive advantage in the context of Jordanian enterprises due to their considerable impact, as evidenced by the findings of recent studies. Therefore, the main objectives of this study can be listed as:

1. Examining the beneficial effects of the elements of intellectual capital, such as human, relational, and structural capital, on the elements of competitive edge, such as innovation, dynamic capabilities, market responsiveness, as well as, sustainable competitive advantages through the use of business intelligence.

2. Examining the beneficial effects of the various intellectual capital elements such as human, relational, and structural capital on the various competitive advantage elements such as innovation, dynamic capabilities, market responsiveness, as well as, sustainable competitive advantages through the intermediary of innovation speed.

3. Examining the beneficial effects of the various intellectual capital elements such as human, relational, and structural capital on the various competitive advantage elements such as innovation, dynamic capabilities, market responsiveness, as well as, sustainable competitive advantages through the intermediary of innovation quality.

Significance of the study

This study is significant from the following two perspectives:

Scientific importance:

The significance of this study is derived from the significance of both the studied variables and the study's subject, as the subject of intellectual capital dimensions, competitive edge, dimensions and business intelligence and its elements are important topics for researchers in supplying the Arab Library with this type of studies shortage, which called the researcher to conduct this study to be a tributary of the Arab library in this area.

Practical importance:

The tremendous and rapid advances in technology in the world of business today, it is necessary to have intelligent managers with vision of the future and the belief in the importance of participating in decisions to maximize performance excellence and thus achieve competitive advantage in business organizations. The practical significance of this study is that management leaders in business organizations in Jordanian Pharmaceutical Companies can benefit from the results to be achieved, how to achieve competitive advantage through intellectual capital and what is the impact of business intelligence on them.

Chapter II:

Literature Review and Theoretical Framework

This chapter displays conceptual and theoretical perspectives related to the variables in this study. In addition, it present the different related studies related to this study subject matter besides the hypothesis development section

Theoretical Framework

This framework is used reduce the range of relevant data by highlighting the certain variables and specifying the precise viewpoint that will be used in evaluating and interpreting the data to be collected.

Competitive Advantage

Competitive advantage has been around for a genuine revolution in the field of economy in general, as well as, business management, in particular, and the competitive advantage seeks to accomplish the continuous the organization's superiority compared to other competing organizations in the same sector, that is, the important role of competitive advantage in the life of the organization is its importance in maintaining the balance of the organization direction of the other parties. Consequently, there are many views of scientists and economic researchers regarding the concept of competitive advantage, and the reason for this discrepancy may be due to the difficulty of defining concepts related to human activities (Kaleka & Morgan 2017).

Heene & Sanchez (2010) defines competitive advantage as the difference and distinction that allows the organization to provide services and goods that distinguish it from others, thus achieving for the organization more benefits or values that distinguish it from rivals in the eyes of its clients. Competitive advantage is the distinctive benefits that customers obtain from the organization through a set of advantages such as (price, quality) when compared to competing organizations (Woodside & Quaddus, 2015). The term "competitive advantage" refers to the capability of a firm to offer a service, good, or benefit that is different from that of its rivals in the same industry. This confirms the organization's distinction and difference from its rivals from the perspective of customers (Ning & Tanriverdi, 2017).

Chen, Wu, Mao, & Li (2017) shows that competitive advantage is interpreted as the organization's pursuit of continuous excellence to achieve the highest possible returns while working to retain this distinction for the longest possible time, as well as making attempts to enhance and develop this excellence in the future. Nin & Tanriverdi (2017) believes that a true revolution in business management is the idea of competitive advantage, where management is seen as a constant dynamic process designed to address numerous internal and external variations in order to maintain the organization's superiority over rival organizations, , whether they are suppliers, buyers, or any party another that the organization deals with. Additionally, the organization's ability to use its core competencies in the performance of its individual operations to generate value that the other competitors are unable to do so constitutes its competitive advantage.

The concept of competitive advantage refers to an effective tool that facilitates organizations to remain viable in an evolving business environments and thus achieve their goals, progress and success in their industry (Al-Janabi, 2017). Talbani, Agha and Shurab (2012) defined it as the organization's ability to survive and survive in the market through its capabilities, skills, resources and technology, thus offering unique and valuable products to customers that are difficult for imitators to compete in addition to offering products at lower prices than competitors while maintaining the level of competitiveness high quality.

The organization's capacity to take advantage of opportunities available outside the environment and outperform the competitors by possessing a set of features and characteristics that distinguish it from competing organizations for a certain period (Qaryouti et al., 2014).

Zeebaree and Siron (2017) defined it as the result of an organization's strategy formulation process that aims to provide added value (differentiation and low cost) to customers, leading the organization to outperform competitors for a certain period. It is "the continued ability to face different sources of competition in a changing environment, which requires competitive advantage to be maintained and maintained" (Dassie, 2012).

In the pursuit of competitive advantage, organizations must realize that customers do not buy products but buy value, value can be obtained through product quality and price, product designers must understand customer requirements, and also understand how the customer perceives product function and service benefits (Kenyon , Sen, 2015). Achieving competitive advantage in business technology companies depends heavily on the intellectual capital of its various elements and strategic intelligence in its various dimensions in order to obtain superior work outputs from employees. The competitive advantage in companies is interdependent and depends on these variables, which contributes to achieve outstanding performance and build many features Sustainable Competitiveness of Business Organizations (Atani ,Nour, 2014).

Nevertheless, The last decades have witnessed a lot of research and focus on this subject, and organizations have taken coordination with the research authorities, to discover the tactics for obtaining and sustaining a competitive advantage , such as obtaining a resource for scarce resources or finding a way to manage the organization and others (Al-Tai and Al-Alaq, 2009). The importance of the competitive advantage can be determined by the following (Abdeen and Al-Masry, 2017):

1. It is the main tool to face the challenges of the market and the corresponding organization.

2. It represents an important criterion for determining which organizations are successful over others.

3. It represents a positive indication towards the organization's tendency to occupy a strong position in the market by obtaining a larger market share than its competitors.

However, the competitive advantage is the characteristic that distinguishes the organization from other competing organizations, so that the organization achieves a position towards competitors, the organization must adopt one or both of the competitive advantages together, where the competitive advantage is divided into two main types (Makhmoor & Verma, 2017):

- Cost Advantage: Some organizations or companies distinguished by selling the same commodity at a lower price, and this result from reducing the cost of producing this commodity.

- Advantage Differentiation: so that the organization or company produces a good or service, which the competing organizations cannot provide, meaning that they are unique to them.

In fact, the way to judge the metrics used to demonstrate whether an organization has a competitive advantage varies according to the difference in the prevailing activity in the organization, but the most commonly used and common indicators are the indicators of profitability, market share, and annual sales growth, because of the advantages of these indicators such as the data necessary for their calculation and ease of access. Also, all of these indicators are quantitative and therefore can be calculated accurately and easily, in contrast to descriptive indicators such as consumer satisfaction. Among these indicators, as mentioned by (Krajewski & Ritzman, 2005):

- Profitability: A measure used to evaluate the performance of projects by the ratio of net income to assets or investments. Profitability can be maximized by improving project investments, using modern technologies, and making better use of resources.

- Market share: used to calculate the organization's share of sales in the market compared to the main competitors.

- Competitive strategy as a basis for competitive advantage: It focuses on the difference between organizations, and does not focus on the common tasks between them, and that what it focuses on is how to do the job better than competing organizations.

Among the most important characteristics of competitive advantage according to (Makhmoor & Verma, 2017):

- Permanent: that it achieves the organization's excellence and progress not immediately, but over the long term. Renewable: based on the institution's capabilities and internal resources, as well as factors related to the external environment.

- Flexible: that is, other competitive advantages can be easily substituted according to considerations of changes in the improvement of the resources of

the organization or, on the one hand, the external environment and capabilities on the other.

Dynamic Capabilities

The concept of ability refers to the ability to perform work regardless of the speed or accuracy of its performance (Morsi, 2005: 160). As for dynamism, it means change, where the capacity to update skills in order to be compatible with an ever-changing environment is referred to as dynamic (Teece, Pisano and Shuen, 1997: 515). Dynamic ability is described as a collection of skills that support the organization sense the external environment and modify and expand its information and knowledge base, which helps it achieve integration and coordination between all its resources and activities, which is reflected in the reconfiguration of its current capabilities and development in a better way to suit environmental changes (Hamed and Hanan, 2019: 145).

It is also defined as a set of interconnected and coordinated capabilities that enable the organization to reconfigure its operational capabilities to ensure that it renews its strategies, operations, and activities in line with the rapid changes in its external environment (Rashid and Al-Aboudi, 2016: 13). Others see that the Competitive advantage is correlated with dynamic capabilities of organizations and that the dynamic capabilities of the organization represent the principal factor in competitive advantage (Ofoegbu, Obrenovic and Akhunjonov, 2018: 9).

However, there are four dimensions of dynamic capabilities, as follows:

Sensing capability: Dynamic capabilities emerged as a tool for handling tumultuous environments by assisting managers in the transformation and reconfiguration of current operational capabilities into new capabilities that are more environment-friendly (Pavlou and El-Sawy, 2011: 239). Sensing refers to the strategic sensitivity to environmental changes. Sensing is an environmental monitoring process or an organized conclusion of environmental changes and their repercussions on the organization (Al-Masry, 2015: 284). Sensing is the ability to survey the environment and explore, identify and manage the opportunities and threats that it generates in order to formulate the appropriate strategy for it (Rasheed and Al-Aboudi, 2016: 14). Sensing ability is also having the capacity to gather data and turn it into information

through which the organization can understand the periodic changes that occur in the environment in which it operates (Al- Humairi and Khalil, 2018: 103).

Learning capability: Many writers and thinkers in the fields of management have found that the only competitive advantage for organizations in the long run is in the ability to learn, and this thinking has had an impact on many organizations in recent years to search for new ideas, technical means and techniques to help them in the learning process (Al- Shibiny, 2003: 59). Learning capacity is defined as the capacity to update operational capabilities through knowledge acquision (Pavlou and El- Sawy, 2011: 244), which is the ability of organization to generate, acquire and share knowledge (Ofoegbu, Obrenovic and Akhunjonov, 2018: 9). Dynamic capabilities emerge from the co-development of the processes of implicit accumulation of prior experience with explicit cognitive expression and knowledge codification activities (Zollo and Winter, 2002: 344).

Coordinating capability: Organizing and dispersing tasks, resources, as well as activities within newly developed operational capabilities is referred to as coordination (Pavlou and El-Sawy, 2011: 247). Timing of projects is significantly influenced by coordination and their non-conflict or repetition, and plays a role in eliminating any contradiction between work units (Hajji, 2005: 116). Coordination ensures achieving harmony, cooperation and integration between individuals to avoid duplication and conflict, and also achieves linkage and integration between the parts of the organization (Al-Masry, 2015: 165) .

Integration capability: It is the capacity to incorporate new knowledge into practical abilities through the development of shared perception and understanding (Pavlou and El-Sawy, 2011: 247). It is also the competence that the organization enjoys in order to obtain the resources available to it, combine them, and publish them, to fulfill the organization's management goals (Hamed and Hanan, 2019: 146) . Some believe that the ability of integration is the ability to unify the new knowledge and include it in the operational capabilities of the organization through the embodiment of patterns of joint interaction and collective logic (Rashid and Al-Aboudi, 2016: 15) .

Sustainable competitive advantage

The concept of competitive advantage emerged as one of the most important concepts in the modern management literature due to the challenges facing organizations, and this concept occupied a prominent position in most of the literature related to strategic thinking and planning in the fields of strategic management and business economics (Çetin & Knouch, 2018; Hallam et al., 2018). In an environment characterized by constant change, complexity of the contemporary business environment and uncertainty, in addition to the challenge of how to build a competitive advantage, the challenge of how to sustain this advantage, where the quest to achieve the sustainability of competitive advantage is now considered a necessary strategy that enterprises aim to accomplish (Latukha, 2018).

One of the most important definitions of sustainable competitive advantage was offered by Barney (1991), who defined it as the application of a value-creating strategy that is not imitated in the market and cannot be imitated in the future by any current or prospective competitors, and when additional organizations are unable to replicate the benefits of this strategy, i.e. It is the unique mindset that an organization adopts toward its competitors (Jensen et al., 2016; Mahdi et al., 2018).

Maury (2018) pointed out that the assessment and measurement of sustainable competitive advantage done by analyzing the sources of advantage such as the organization's position in the market or the organization's own resources and capabilities, or by measuring the results of competitiveness efforts through the performance of organizations. Whereas (Walsh & Dodds, 2017) indicated that there are two major main approaches to studying, understanding, and analyzing sustainable competitive advantage, which are:

1.   The external entrance directed from the outside to the inside of the organization: Kumar et al. (2011) indicated that market-oriented organizations can achieve a competitive advantage. The strategic management research also indicated that the organization does not work in isolation from its environment. Accordingly, the importance of the business environment for the organization and its impact on it becomes clear, as the success of any organization stems from the interaction of the organization's strategies with external forces, as the organization that pays attention to the external environment is more able to know Understand and keep pace with external

developments and respond to their requirements faster than their competitors, and thus can achieve a sustainable competitive advantage (Evans, 2016).

2.   The internal entrance directed from inside the organization to outside it: which has become the forefront in the field of strategic research over the past years. This approach is based on the resource theory or the resource-based viewpoint referred to by Barney (1991), as it is possible to achieve a sustainable competitive advantage if the organization has resources that have certain characteristics, which are value, scarcity, difficulty imitation or difficulty imitation, and difficulty substitution. This theory is considered the most explanatory of sustainable competitive advantage and is relied upon by most researchers (Torres et al., 2018; Mamun et al., 2018; McWilliams, 2018; Annunziata et al., 2018). Also, the Resource Based View (RBV) has become among the most influential theories on sustainable competitive edge and as a well-known and popular theory. This theory focuses on the organization's resources as an essential element to achieve competitive advantage. This theory is considered a notable example prominent theories are employed to clarify and understand the sources of competitive advantage based on resources, as it is considered one of the most popular methods for studying the sustainability of competitive advantage (González-Loureiro et al., 2015).

Market responsiveness

Market responsiveness is defined as the organizational capacity that allows an organization to quickly alter its mindset in response to changes in market demand. It is believed that responsive organizations have a tendency to adjust to changes in the external environment quickly. Due to their extreme ambiguity and uncertainty, these shifting market conditions frequently force businesses to adapt, a situation which already exists in cases of market pioneering. Understanding that changing market conditions require action is aided by the concept of market responsiveness. As a result, market responsiveness can be seen as a fundamental component for market pioneers who seize opportunities brought about by shifting market circumstances (Garrett et al., 2008).

Additionally, the effectiveness and strength that the market responsiveness radiates allow for the conception, interpretation, and achievement of market stimulation. Therefore, market responsiveness occurs when an organization is able to

act based on market stimuli while also acknowledging the necessity. In order to determine the best trade mix based on the knowledge of customers, suppliers, competitors, and regulatory agencies, a retailer must be able to recognize changes in customer demands and adapt these changes to retail spaces (Griffith et al., 2006). According to estimates by Slater and Narver (1999), among others, a firm can use a strategic resource in the market by knowing its past, present, and potential competitors, suppliers, and regulatory bodies. As a result of effectively developing the retail mix, a retailer that is more knowledgeable about its existing and prospective customers can meet those needs. Additionally, it is asserted that when businesses are as knowledgeable about their rivals as possible, they are better able to strengthen their own competitive advantages against those of their rivals, use differentiation to neutralize their advantages, and imitate their advantages in an effort to internalize them. Therefore, taking into consideration market responsiveness, which helps to increase customer value, either supplies differentiating products in targeted sections or develops market tenders at a lower cost, or both of them, makes firms able to take advantage of these opportunities.

Intellectual Capital

Intellectual capital is the one that reflects all the intellectual aspects of the highly distinguished human minds, which reflects the intangible aspects of the organization, and it is the most influential and effective towards progress and high distinction than other tangible aspects and assets (Abdel-Fattah, 2010).

Al-Hilali (2011: 22) also defines it as a set of ideas and creative knowledge possessed by individuals, stemming from the philosophy of society, in line with the objectives of the institution, and not available to their counterparts from other similar institutions, and therefore: It contributes to developing the performance of the institution, and achieving returns (financial, and morale) that distinguishes it from other similar institutions. Intellectual capital is linked to human knowledge and can be converted into value. It consists of two components; Human capital, which includes specialized knowledge that is not owned by the institution, but is related to the individual, and is preserved in his mind, and intellectual assets, which include coded

knowledge owned by the institution, and are independent of the personality of the employees.

The total of knowledge-based intangible assets, mechanisms, relationships, and organizational structures, which cannot be specifically disclosed in the financial statement of an organization, but reflect its true value is known as intellectual capital (Yildiz, S., et al, 2014: 614).

Knowledge, customer satisfaction, innovation, research and development, and employee training are some examples of intellectual capital (IC), a non-financial asset or resource without physical substance (Meritum, 2002; Lev & Zambon, 2003). Later on,Ralph Stayer developed intellectual capital is a term used in 1992, where he pointed out that the elements of production related to minerals in the land and fish in the water and this is one of the most crucial sources of the country's wealth in addition to the assets of organizations of capital (current assets) and machinery (fixed assets).

According to the researcher, the term "intellectual capital" refers to the skills, talents, knowledge, experience, work systems and organizational structures that the organization possesses that enable it to achieve its objectives.

The value of intellectual capital depends on the real wealth of organizations represented by the intelligence that employees enjoy and enables them to make intellectual contributions that enable the organization to attain high performance levels and increase its productivity, which is the basis for the creation of successful business (Quaddus, Woodside, 2015). For organizations in the business world today because organizations face continuous and rapid changes require skills and knowledge compatible between intellectual and technical capabilities in order to keep pace with these changes, intellectual capital is able to exploit the ideas of others and benefit from them. Therefore, it is present in all strategic levels of the institution. Capable of developing them.

Nevertheless, the concept of intellectual capital includes several different dimensions, which are as follows (Hayjan, 2014: 48):

1. The institution's human capital includes intellectual capital and is not synonymous with it, as not all employees of the institution constitute its intellectual capital.

2. Intellectual capital consists of a group of workers who possess cognitive capabilities that can be employed without other members of human capital.

3. Intellectual capital aims to produce a set of novel concepts or develop old notions to achieve the quality of services provided by the institution.

4. Intellectual capital does not require a certain degree of academic certificates, in addition to the fact that the training component is one of the motivating factors for providing and investing in knowledge aspects.

5. The difficulty of finding an alternative for workers who represent the intellectual capital in any organization, as their good reputation often represents the biggest factor in attracting customers.

However, Al-Hilali (2011: 23) defined the set of characteristics of intellectual capital as follows:

1. Organizational traits: These are influenced by the context of the workplace, which involves:

1. Intellectual capital's presence at all levels of strategic management.

2. Flexibility in the quality of structures that help the continuous renewal through individuals.

3. Far from the administrative center significantly.

4. Professional characteristics: They are connected to the practice of human resources in the company, which include:

5. Maintaining quite some professional skills and cumulative experience that it is challenging to substitute them. Enjoy a highly extensive organizational learning.

2. Behavioral and personal characteristics: They are associated with the self-reinforcing human element, and include:

1. Intellectual capital tends to take the risk of starting a business to a considerable extent, and of undertaking unknown and uncertain business and activities.

2. Benefit from the experiences of others, and take the initiative to present constructive ideas and proposals (openness to experience).

In fact, Intellectual capital is divided into the following types in conformity with Al-Maani et al (2011: 243):

- Structural capital is reflected in databases, systems, and patents.

- Human capital is reflected in experience, education, and training.

- Relational capital (customer) is symbolized by agreements, adherence to a brand, and customers.

- Psychological capital: It really is exemplified by members of the organization's optimism, confidence, hope, and willpower.

Structural capital

Everything supports human capital but stays in the organization when employees leave and return home (Yassin, 2007). Additionally, it includes conventional items like structures, computer hardware, software, procedures, patents, and trademarks, aiding employees in carrying out their tasks (Attia, 2008).

Structural capital is a component of the business that can be characterized as the company's infrastructure and its procurement procedures (Gogan, Artene, Sarca, Draghici, 2016). It refers to the company's intangible assets, including its effectiveness and efficiency as well as its culture, knowledge, strategies, tactics, and patents (Abazeed, 2017).

Structural capital consists of the following according to (Boumenjel and Raqiqiah, 2011):

- General culture: includes ways to build the company's culture, and how well employees fit in with the company's plans for growth.

- Organizational structure: This includes the efficiency of the control system in place at the company and the transparency of the association between responsibility and authority. Organizational learning: The creation of an internal information network, as well as its response, and the creation of an organizational learning inventory, as well as the scope of its use. Operations: In addition to the effectiveness and efficiency of operational operations, it also includes the deadlines for business operations, a variety of activities, and the level of product quality.

- Information system: It covers knowledge sharing to the extent possible, employee coordination, mutual support, and data and information pertaining to the organization's activities.

Some divided structural capital into two components (Ratul and Masnoaa, 2011):

- Operations capital (manufacturing): includes national operations, activities, and infrastructure employed in the processes of creativity, participation, dissemination of knowledge for the purpose of contributing to deepening the productivity of workers in various fields.
- Modernization and development capital: This part of knowledge capital represents national capabilities, and actual investments for future growth, such as research and development activities, scientific knowledge rights, brands, and new companies that are the primary key to future national competitiveness.

Human capital

It is a mixture of knowledge elements associated to skills, experience gained over time, creativity, innovation, and the capability of the facility's personnel to do their tasks. Over time (Rawabih and Triki, 2009). Human capital is a major element of intellectual capital, and consists of the sum of the capabilities, skills, knowledge, and experience necessary to create value for the organization and to accomplish competitive advantage (Al Qurashi, 2013). It is a broad concept that encompasses many types of investment in individuals, incorporating the skills and abilities acquired through personal development, education, training, as well as experience (Matovac, Bilas& Franc, 2010), (Gabrita and Bontis, 2008).

Human capital consists of the following according to (Boumenjel and Raqiqiah, 2011):

- Staff capacity: includes the strategic leadership of the organization's management, the degree of quality of workers, the possibility of learning, and the extent of the employees' contribution to decision-making.
- Creativity of employees: It includes the ability of creativity and innovation among employees, and the return achieved from smart ideas for employees.

- Employee Attitudes: It includes the compatibility of the employees' orientations with the organization's values, the degree of employee satisfaction, the rate of work turnover, and also the average (rate) of the organization's employees' service.

Relational **capital** (customer)

It covers all interactions between the company and its constituents, including those with vendors, partners in the public sector, investors, clients, and partners in business partnerships that the company has forged (Mazlan, 2005). It includes all assets pertaining to an organization's external relationships, such as its interactions with clients, vendors, and research and development partners (El-Gendy, 2005).

One of the organization's assets is its relational capital which is the organization's relations with external stakeholders, as well as with suppliers, customers, and government and business partners in the same industry (Hatane, Angeline, Wedysiage ,Saputra, 2018). As the organization's conduit for communicating with both external and internal stakeholders , employees, suppliers, strategic alliance partners and industry associations (Lenart, 2014).

Relational capital consists of the following according to (Thomas, 2004):

- Basic Marketing Capabilities: These include preparing and utilizing a customer database, supplying the essential tools for meeting customer requirements, and having the ability to ascertain those requirements.
- Market Density: This factor takes into account the market share and potential market size of the company, the number of units that have been sold, the number of clients served, the revenue generated from each client, the standing of the brand, and the company's trade name.
- Indicators of customer loyalty include average customer turnover, the amount invested in cultivating relationships with customers, and customer satisfaction or complaint rates.

Business Intelligence

In the nineteenth and twentieth centuries, the practice of intelligence evolved into a form that is now known in the context of current practice. A broadly problematic and detailed description of threats, risks and opportunities in a manner that helps define programs and policies.Karami, et al, (2013) illustrated that Business intelligence is the tools or technologies the organization use it to collect, analyze, and provide information to management in order to help them in their decision making.

Business Intelligence (BI) is the employment of group of tools, processes, technology and software applications in using accurate information of high quality related to the same field of work and highly reliable data available from several sources, and applying what has been gained experience to improve and develop the level of decisions taken through the managers of the organization, so that managers can direct Assumptions, or drawing conclusions, as well as acquiring and accessing knowledge, as they symbolize one of the most valuable the organization's assets, allowing the organization the possibility of transforming into a learning organization (Al-Azzawi, 2015: 450).

According to its definition, business intelligence is the method of collecting, storing, and analyzing data through various technologies and applications, which helps in decision-making (Shollo, 2013: 11). Others define it as a term used to describe the applications, technologies, and processes necessary to gather, store, access, as well as analyze data to assist its users in making more informed decisions (wixom and watson, 2010: 13). It is also defined as the process of transforming the collected data to help decision-making units obtain a better and more comprehensive knowledge of the operations of the institution, and thus better business decisions can be made (Al-Jumaili and Al-Jubouri, 2019: 470).

In 1958, Luhn (IBM Researcher) was the first to use the term business intelligence system which is defined as "the ability to understand the relationships between facts presented in just such a way as to regain control toward a desired goal." (Lahn, 1958). As I mentioned before, the BI is a tools or technologies that the organizations used it to collect and analyze the data and provide useful information to management in order to support their decision making. In Business intelligence, intelligence is defined as the discovery and elucidation of latent, underlying, and

suitable decision contexts in sizable organizational data sets that gives a company a competitive advantage by enabling better business planning (Herschel, Jones, 2005). AInoukari, Hanano (2017) believes that it focuses primarily on supporting strategic decision-making by providing a great insight into the business environment, and strategic intelligence contributes to strategic management by collecting and analyzing data.

Some studies, such as the study of Al-Murad and Al-Tawi (2017) indicated that there are two main dimensions of business intelligence, which are organizational capabilities and technical capabilities. The term organizational capabilities emerged as one of the terms that business organizations began to pay attention to because it is the tool that achieves its competitiveness and distinction, especially after it was proven that the mere possession of tangible or intangible resources and the efficient use of them is not sufficient to ensure their excellence and superiority in the context of intense competition and in Temporary framework of competitive advantages, but certain mechanisms are necessary to mix these types of resources with methods of use that distinguish the organization from others, and to employ what is known as organizational processes or organizational routines, and the historical experience of organizations to be able to generate organizational capabilities that achieve their goals of profitability, growth and survival (Hamed and Al-Maadidi, 2018: 46). Organizational capabilities are defined as the outcome of incorporating a set of resources and skills that exist at any level of the organization (Hamed and Al-Maadidi, 2018: 49) . In addition, what is suitable for an organization that engages in productive activity may not fit or suit another organization that practices service activity, due to the different capabilities that it adopts and which organizations seek to possess first, and the different nature of their work, and the different circumstances and challenges that surround them, and their different goals, and what works From capabilities according to a specific classification of an organization, it may not be so in another period of time or another organization (Al-Shalma and Al-Obaidi, 2018: 242_243).

Business intelligence helps to comprehend the current state of the workplace, which is characterized by intense competition, and which, as a consequence of its fast change, has grown more complicated, by monitoring instantaneously, and trying to anticipate the direction that the concerned field of work may take in the future, and

identify opportunities that can be invested, or risks that should be avoided in an to at least maintain competition while working, or to improve the business institution's standing in the workplace (Hussein, Nima and Salim, 2016: 205), where business intelligence is a comprehensive concept of using modern technologies within a systematic administrative system and a distinctive cultural environment (Al-Sawair, 2017: 28), and organizational capabilities as assets that support the effectiveness of the application of business intelligence in the organization (Al-Murad and Al-Tawi, 2017: 156) .

Technical capabilities is the organization's ability to benefit from data and information is part of building and sharing knowledge in light of the increase in the volume of data generated for both internal and external sources, in light of what business practices are witnessing and the critical role of knowledge in the business organizations' success, with its role in the transformation of those organizations into a knowledge economy that It emphasizes intellectual and cognitive capital and human capabilities in the transition towards knowledge societies. The requirements of the contemporary environment are characterized by the intensity and speed of change, and knowledge as an intangible core asset that poses challenges to organizations to find promising solutions that enable them to manage them successfully (Al-Murad and Al-Tawi, 2017: 134-135) .

Technical capabilities are defined as capabilities that express databases, repositories, and platforms that can be subscribed to (Al-Murad and Al-Toury, 2017: 156) . It is also defined as successive procedures and practices for the formation or creation of technological knowledge by interacting with the accumulated experiences and skills existing in the organization (Al-Hadidi, 2019: 173). Business intelligence is an advanced system that makes use of the technological and organizational capabilities of advanced information and applications in the use of accurate information of high qualitative value related to the field of work itself and data with high reliability and accuracy by collecting it from its sources with great care, and with the application of what has been gained experience with the aim of improving the processes and decisions that It should be taken based on this information (Abbas, 2018: 256).

Innovation

Innovation is ideas that are characterized as new, useful, and related to an optimal solution to problems, the development of methods or goals, the deepening of a broader vision, and the restructuring of known patterns in administrative behavior into distinctive and advanced forms that express their owners forward (Kandil, 2010: 125).

Innovation is a transition in the resources' output, or in economics parlance, a transition in the consumer's understanding of the quality and satisfaction of the resources they use (Ozaid, 2010: 34). Innovation is the application of new ideas that lead to a noticeable improvement in products, production methods, organization and marketing in a way that aims to have a favourable and successful influence on the organization's performance (Nasreddin, 2010: 227). Innovation is the possession of a novel idea, and A new idea must meet the following four standards: It needs to be unique, meaningful, personal, and practical. Innovation is also the ability to imaginatively and quickly visualize various original solutions in facing problems (Al-Bergaoui, 2015).

Innovation is the process of coming up with something new, and seeing what others do not see, which is the organization of ideas and their appearance in a new building based on existing elements, and the ability to assemble ideas, things and methods in a new style and technology. It is the astonishing energy to understand two separate realities and to work to extract a flash from putting them side by side. It is a tremendous mental energy, innate in its methods, social in its development, societal and human in its affiliation (Al- Dulaimi, 2013: 128).

There are pressing motives imposed on organizations and their management at various levels to adopt innovation as a method and approach, and perhaps this is due to the following most important reasons (Khasawneh, 2011: 41_42):

- Changes in the competitive environment and the increasing environmental developments faced by organizations; This requires modernization and the need to respond by adopting policies and activities that support innovation in order to keep pace with environmental changes and challenges and to find and develop new solutions and ideas that enable them to grow and sustain.

- The increasing challenges and pressures of intense competition, and the openness of the world to each other, resulting from globalization, the information revolution and new worldwide transformations, which led to an increase in opportunities for choice and diversity in goods and services for the consumer.

- The scarcity of resources, which requires finding appropriate creative ways to achieve the desired organizational goals in light of the available resources.

- Social responsibility, given the principle of social entity and the overlapping and mutual relations between organizations, the organizations have become more aware and flexible, and are working to increase their contribution to supporting and improving the conditions and capabilities of their employees by adopting activities that support their creativity, based on their being part of the social entity experienced by the organization.

- Government facilities and assistance provided to support creative processes, whether in the form of technical or financial assistance, as no country is without organizations that sponsor innovative institutions, especially small ones.

Nevertheless, the innovative ability has basic components or elements, and without them it is not possible to talk about effective innovation, they are as follows:

- Fluidity: It means the ability to produce the largest number of creative ideas. Regardless of the possibility of adopting them or not, the individual must have the ability to accept any idea that comes to his mind without evaluating it, and after reaching the largest number of ideas, they are subjected to filtering and evaluation. In other words, it is the ability to fluidity of ideas and ease of generation (Bruby, 2010: 53).

- Flexibility: It is the ability to generate diverse ideas, direct and transform the course of thinking with the requirements of the situation. Flexibility can be divided into two types (Al- Bashabsha, 2008: 42_43):

- Adaptive flexibility: the ability to change the mental orientation in which a solution to a specific problem is viewed.

- Automatic flexibility (Innovation speed): The ability to quickly produce the largest possible number of different ideas that are related to a specific situation.

- Authenticity (Innovation quality): It is the ability to produce new solutions. The original innovator does not repeat the ideas of those around him, and does not resort to traditional solutions to problems. Authenticity or quality is renewal or uniqueness

of ideas, and it is the most important component of innovative thinking (Al-Mashout, 2011: 28_29).

- The ability to analyze: The innovative person characterized by his ability to analyze the elements of things and his understanding of the relationships between the elements, and his ability to obtain, collect, classify, evaluate and keep information when needed, and can also reorganize ideas and things according to studied foundations, and through this he can make a change or renew of the practical reality, and hecan deal with a simple idea or a simple outline of a model, then expand it and draw its steps that lead to its being practical (Ali, 2007: 19).

- Departing from the ordinary: It is the ability to break free from traditional tendency and common perceptions, and the ability to deal with (rigid) regulations and laws and adapt them to practical reality. Going out of the ordinary means unwillingness to abide by the rules and behavioral patterns that have been worked out in solving problems and the desire for innovation.

- Courage or self-confidence: It is one of the positive and effective qualities in building a creative personality, as it is characterized by self-audacity to express opinion and defend thought and attitudes, and not to submit or succumb to situations of failure or deteriorating reality in giving for its creative ambitions (Al-Mashout, 2011: 30_31) .

     In fact, there have been many studies that dealt with innovation in general, and this diversity followed by a diversity of approaches to study this phenomenon, and the approaches are represented in the following points (Galdah and Abawi, 2006: 53):

- Focusing on the innovative process or innovative mechanism: where the innovative process begins with the individual or organization's feeling of a problem that causes a kind of imbalance, and this leads to the search for a solution that restores the organization's balance, and this process goes through four stages, namely preparation, incubation, illumination and solution.

- Focusing on the outcome of the innovative process: where the value of innovation lies in the benefit derived from it, and the benefit may be an increase in productivity, ingenuity in performance, thus, the outcome is judged more than the mechanism or process by which the work goes.

- Focusing on the personal qualities of innovative people: It includes the psychological qualities and characteristics of risk taking, perseverance, flexibility, openness to internal and external experience and strength of communication, and more specifically,

among the innovative qualities: curiosity, research and dissatisfaction with the current situation.

Related studies

This section presents the related studies related to intellectual capital, business intelligence, innovation speed and quality and competitive advantage

Intellectual capital

Herzallah,& Abu Lebdah. (2020). This study that aimed to measure the intellectual capital and its role in attaining institutional excellence at Al-Quds University. The intellectual capital or the dimensions of institutional excellence. It was descriptive analysis and to fulfill the goals of this study, the researchers developed a questionnaire applied on a stratified random sample of (213) academic staff members the study followed following the descriptive and analytical method. The outcomes showed that the reality of the intellectual capital at Al-Quds University came to a moderate degree, as the capital of human capital is cleared to a greater degree.In the intellectual capital, followed by the structural capital, the wealth of relationship capital. The results also showed that the level of institutional excellence at the University. Jerusalem came in an average degree in Tata, as leadership distinction strengthens, purifies, with a greater degree of institutional excellence. Utilitarian. The results also demonstrated that there was a statistically significant impact of intellectual capital funds on institutional excellence at Al-Quds University.

Nzewiet al (2019). The purpose of this study was to ascertain how intellectual capital and selected commercial banks in Anambra State's competitive advantage relate to one another. This study used a survey research design and was a descriptive analysis. 100 employees of the chosen banks made up the study's population. The study came to a variety of results, the most important of which was that employee innovation and human capital are strongly correlated. The most important conclusion from the study is to research ICM in other organizations, including nonprofits or governmental organizations, in order to gain a competitive advantage..

Ratia (2018). (2018). This study determined the use of BI tools and IC dimensions in the private healthcare industry. It also measured intellectual capital and BI tools in the process of creating value in the private healthcare industry. A case study research approach was used in this study's execution of qualitative research techniques. Because several case studies employing qualitative research techniques are suitable for assessing complicated and context-dependent research issues, this approach was chosen as the research strategy (Yin, 2003). For the study, a total of 26 theme interviews were performed between January and October 2017. The companies were chosen to represent varying sizes of private healthcare enterprises. The study's most important finding was the dissemination of insightful information and a complete understanding of how BI tools and IC dimensions affect value generation in private health care in Finland. It will also shed light on areas of value creation that are future-focused and might encourage creative business concepts for private healthcare organizations. Advanced data utilisation capabilities will improve the value creation capacity of private healthcare sector enterprises. However, just as vital as technology and data are human capital, or the capacity to apply BI tools, and data-driven decision-making. The study offered a number of suggestions, the most important of which was that we should look into the essential capabilities of BI tool selection in order to pinpoint the precise tool specifications and functional aspects that are essential for the private healthcare sector. To understand data-driven value creation better, we should also examine it from the standpoint of the consulting sector.

Malkawi (2018). In order to give pharmaceutical companies in Jordan a competitive advantage, this study set out to quantify intellectual capital as a core function. This study is a descriptive one that examines pharmaceutical companies' responses to a correlation survey. The study came to a number of conclusions, the most significant of which is that pharmaceutical companies depend heavily on intellectual capital, their competitive advantages are also substantial, and there are statistically significant effects of intellectual capital on competitive advantages overall. The study provided several recommendations, the most important of which is that management and employees at pharmaceutical businesses should improve the use of intellectual capital at all levels and functions and use it as the main source of competitive advantage in all its sectors.

Sunarti, Huang and Salleh (2018). This study sought to measure the Intellectual Capital Management: Pathways to Sustainable Competitive Advantage. It also sought to investigate the CICM model for Malaysian businesses, which will enhance the current models. By using the model, it is anticipated that there will be a connection between Malaysian companies' sustainable competitive advantage and the management of their intellectual capital. Theoretical literature was a source for this study. The study came to a number of conclusions, the most significant of which was the growing importance of sustainability among sizable economic entities. In order to achieve sustainable competitive advantage, it was also concluded that organizations must effectively manage their intangible resources, such as knowledge, innovation, and intellectual property. The study made a number of recommendations, the most crucial of which is to research ICM in other organizations, like nonprofits or governmental institutions, in order to gain a competitive edge.

Alnachef (2017). The purpose of this study was to evaluate how intellectual capital factors affected competitive advantage in Syrian pharmaceutical firms. This study, which is descriptive in nature and depends on a correlation survey, includes 306 participants from 47 Syrian pharmaceutical companies. The most significant finding of the study was that there is a substantial positive relationship between human capital, structural capital, and relational capital, as well as a competitive advantage. Moreover, there is a favourable correlation between relational and structural capital as well as a competitive advantage. The study made a number of recommendations, the most crucial of which is to conduct additional research to foster better interpersonal relationships because the results do not corroborate the idea that spiritual capital is positively correlated with a competitive advantage.

Alserhan (2017) employed a study sample of 90 participants from the Jordanian private universities in the northern region (Jadara university, Irbid national university, Jarash university, Philadelphia university) to examine the function of intellectual capital and its components (human capital, relational capital, and structural capital), as well as the achievement of a competitive advantage and its dimensions (quality, efficiency, innovation, and responsiveness). In order to validate theoretic models for the independent variable, intellectual capital, and its relationship to the dependent variable, a competitive advantage, a questionnaire was developed.. The

statistically substantial association between creating a competitive advantage and intellectual capital in all three of its characteristics is one of the study's most noteworthy findings. The study finds that social and human capital are more freely available than structural capital, which means that both of them contribute more to competitive advantage. The theories were investigated using statistical analysis techniques..

Gogan et al. (2016) aimed to investigate the relationship between intellectual capital's dimensions—human capital and capital—and the organizational performance of four companies that distribute drinking water between 2010 and 2014. This study aims to investigate the relationships between the three components of intellectual capital and how these relationships impact performance. The study's data set was derived from a questionnaire. Its implementation in four businesses in Romania that distribute drinking water demonstrated the significance of the link between organizational performance and intellectual capital in terms of its dimensions. According to the study, more research is needed to examine the relationship between intellectual capital and other factors like organizational competitiveness and competitiveness (Foley, Guillemette, 2010).

In knowledge-based organizations, the relationship between organizational intelligence and intellectual capital was measured by Balouei (2014). This investigation is a descriptive study supported by a correlation survey. All Tehran, Iran's educational institutions are included in the research population. Using the random cluster sampling technique, the sample size was set at 200 individuals. This survey evaluates three types of capital: human, structural, and relational (customer). The study came to a number of conclusions, the most crucial of which is that organizational intelligence and intellectual capital should be positively correlated in order to acquire a competitive advantage. The study outlined a number of recommendations, the most significant of which is the recommendation to research the organizational intelligence components and subcomponents that improve organizational intelligence and boost the effectiveness and efficiency of knowledge-based organizations. More scientific research must be conducted in research centres in order to accomplish this goal.

Soheyli, Moeinaddin, & Nayebzadeh. (2014). The purpose of this study was to identify the elements of intellectual capital and look into how they relate to Yazd Tile Company. The research model for "company performance" was created using productivity, profitability, and market value as dependent variables and variables from human, structural, and relational capital as independent variables. According to its intended use, the research methodology used in this study, which is based on the descriptive correlation method, is practical. Data collection for this study involved the use of questionnaires and data survey methods. Yazd Tile Factories were chosen as the statistical population for this study using a straightforward random sampling technique. Structural equation modelling was done after collecting and analyzing data from 55 valid questionnaires with the LIZREL program. The findings of this study show that, among the various elements of intellectual capital, only human capital is directly correlated with performance and that this relationship is both direct and significant.

Kalkan, Bozkurt and Arman (2014) looked at the effects of organizational strategy, innovation, and intellectual capital on firm performance. The study of (Eidizadeh et al. 2017) investigate the connections between innovation, intellectual property, organizational strategy, and performance.

Volna and Kohnova (2014) did a study whose purpose was to explain the role of intellectual capital in terms of its components: human, structural, and relational capital in the company's innovation processes as an important factor in achieving and sustaining organizational competitive advantage. The outcomes of the study indicated that effective management of intellectual capital in the organization leads to increased innovation activities (Gonzales, 2011). This is mainly achieved by creating new products or services with higher value for the customer and thereby increasing the efficiency of processes (Sutherland et al. 2012).

Karami et al. (2013). This study intended to improve hospital performance by combining business intelligence with intellectual capital. This study conducted in hospitals that are using intellectual assets and business intelligence. They found that the hospital who use this type of business would be able to response to environmental changes rapidly, identify a new market opportunities, and achieve the highest costs

and identify abuses and frauds by matching costs with delivered care. BI provides an opportunity for hospitals such as operation, finance, and quality.

Koçoğlu (2009). The objective of this study was to evaluate the connection between firm intellectual capital and competitive advantage. This study sought to obtain the conceptual framework that underlies the connection between intellectual capital and competitive advantage and is based on a thorough review of the literature. This study's main objective was to thoroughly examine intellectual capital as a critical factor generating a competitive advantage for organizations in volatile markets, as opposed to the traditional tangible assets - land, facilities, workforce, physical capital, and financial capital - considered as capital. The most significant finding of the study was that human capital, organizational capital, and relational capital all positively impact competitive advantage. Additionally, innovation has a positive impact on competitive advantage, and the relationship between relational capital and innovation has a positive impact on both intellectual capital and competitive advantage. A potential area for future research is the statistical testing of hypotheses using the survey approach. The most significant recommendation from the study's summary is This study adds to the body of knowledge by putting forth a theoretical framework that takes into account how intellectual capital contributes to the creation of competitive advantage in knowledge-intensive organizations.

Van Hoaet al. (2003).The study aimed examination of the relationship between relational capital and intellectual capital management at companies in developing nations in Vietnam. This study founded that relational capital is the power of companies, with a customer relationship and supplier relationship of the most important performance factors. Recommended to improve relational capital management capacity in countries in transition (Wieder ,Ossimitz, 2015). A cross-cultural strategic intelligence solution was carried out by Capatina et al. (2016) to take advantage of open innovation opportunities in the two target countries (Japan and Romania).

MacGillivray (2000). Measurement of Sustaining Intellectual Capital through Business Intelligence was the goal of this study. This study sought to determine how business intelligence tools supported a collaborative knowledge-sharing process that assisted British Columbia parks staff in establishing management priorities. The

descriptive and analytical framework served as the study's foundation. The study was based on theoretical writings. The study produced a number of conclusions, the most significant of which is that computer-savvy staff members can meaningfully explore and analyze these and numerous related data sets; others can easily access reports customized to specific management decisions. These tools have the potential to create links between the more system-based organizational structures of the future and the mechanistic organizational structures of the past when used as a catalyst for open communication and improved tacit knowledge.

Competitive advantage

Negulescu (2019):This study aimed to develop and implement the organization's strategy to gain a competitive edge in the environment of competition in which the organization operates. The purpose of the paper was to outline the primary sources of competitive advantage and to compare the primary competitive advantage analysis models with potential management strategies. A conceptual model of the competitive advantage is then put forth. The study is supported by theoretical investigation and first-hand observations. Depending on the competitive advantage that the company has or is aiming for, its strategy will be geared toward maximizing the potential of that advantage in order to satisfy the interests of all stakeholders, the needs of the firm's customers, gain additional sustained profit from competitors, and ultimately, achieve organizational performance.

This study by Vahdati, Nejad, and Shahsiah (2018) aimed to evaluate generic competitive strategies for achieving dynamic and sustainable competitive advantage. In terms of research nature and methodology, the current study is applied research with a causal effect. In terms of data collection, it was a descriptive survey with quantitative data. All Tejarat bank branch customers in Khorramabad in 2015 made up the study's statistical population. Information from these customers was gathered through a questionnaire. The outcomes of structural equation modelling demonstrated the significant and advantageous effects of general competitive strategies on dynamic and long-lasting competitive advantages. Along with a range of rivalry tactics like cost leadership, differentiation, and focus on the creation of dynamic competitive advantage. The cost leadership strategy at Tejarat Bank is given higher priority and has a suitable chance of producing long-lasting and dynamic competitive advantages.

Business Intelligence

In her exploratory study on the use of business intelligence tools to support managerial decisions in Portuguese organizations, Sousa (2020) sought to quantify the findings. The descriptive and analytical framework served as the study's foundation. The questionnaire was also a tool used to arrive at the conclusions. It was quantitatively constructed using data from a poll of 43 human resource managers and specialists. The most significant of the study's findings is that business intelligence is positively related to HRM decision-making and can be used to predict HRM decision-making significantly. The study gave hints about gaps and practices in business intelligence tool processes as well as human resource management practices. It highlights the various elements that must interact for decision-making to be effective. The study outlined a number of recommendations, the most crucial of which is that any organization that wants to survive in the market competition must take advanced steps by implementing a business intelligence system.

Business intelligence measurement as a source of competitive advantage for SMEs was the goal of this study (English, 2018). This study sought to highlight the gap that needs to be filled and to raise awareness of business intelligence (BI) as a potentially important factor in sustaining competitive advantage in SMEs, which is supported by the inequitably of cloud applications that were previously in the purview of multinational corporations. This research was supported by theoretical literature. The study's findings support the thesis of this paper, which is that the SME's ability to truly benefit from data depends on associations, strategic alliances, and internal business capabilities. It requires the firm as a whole to correctly interpret what they find and operationalize their findings in order to create a customer offering that is distinct and difficult for competitors to replicate. This goes beyond simply using an algorithm to identify hidden patterns or predictive analytics from a dataset.

Mukuche (2015). This study sought to determine the relationship between business intelligence and competitive advantage in Kenyan insurance firms. The study concentrated on how business intelligence aids organizations in maintaining and creating distinct competitive advantages by utilizing the whole company and its networks to produce actionable insights about the environment, which includes customers, rivals, regulators, technology, and many other stakeholders. The purpose

of the study was to determine how business intelligence applications and competitive advantage in Kenyan insurance firms relate to one another. In this study, a descriptive survey design was used. The study's sample included 43 Kenyan-listed insurance companies. Utilizing questionnaires, primary data was gathered. The respondents worked for insurance companies as managers of information technology (IT), marketing, customer service, finance, and sales and marketing. The data were analyzed using descriptive statistics because the study was based on a descriptive framework. To assess the impact of firms' competitive strategies, mean scores on a similar scale were used. The researcher also carried out a multiple regression analysis. Tables and charts were used to present the findings. The study also discovered that Kenyan insurance companies have used different forms of business intelligence to their advantage. When using business intelligence to their advantage, insurance companies in Kenya face a number of difficulties. The study also discovered that using business intelligence for different organizational applications helped organizations gain a competitive edge.

Guarda et al (2013) intend to present a framework that enables SMEs to utilize available data and carry out a variety of business intelligence-supported initiatives (BI). Small and medium-sized businesses (SMEs) may need to adapt their systems to the level of databases and applications as a result of the adoption of BI. This will allow for a more consistent analysis of data to support the decision-making process as well as an additional perspective on information.

Chen (2011) aimed to focus on how corporate information and flexible IT infrastructure effect performance in a competitive market. This study built a research model to examine how organizational agility, which in turn influences an organization's competitive performance, is affected by the flexibility of BI and IT infrastructure. IS managers will be the main participants in this study. The data will be analyzed using PLS. This study also aimed to theoretically assess the value of BI and empirically test its significance in generating corporate value. Its goal was to develop a theoretical framework based on strategic management and information systems theories to investigate the connections between competitive advantage, organizational agility, and business intelligence.

Karim (2011). The purpose of this study was to evaluate the contribution that a competitive business intelligence system (CBIS) can make to fostering competition on a global scale. The descriptive and analytical approach is the foundation of the study. The questionnaire was another tool used by the study to arrive at its conclusions. It was disclosed that 122 questionnaires were given out to various experts with varying educational backgrounds who work for various organizations in various nations. The most significant finding of the study is that businesses that have not handled competitive business intelligence systems correctly will eventually lose their position in the competitive market.

AL-Shubiri (2012) made an effort to evaluate how performance is impacted by business intelligence. The study was built on a descriptive and analytical methodology. Another instrument the study utilized to get its data was the questionnaire. The study sample consists of 50 industrial companies listed on the Amman Stock Exchange between 2007 and 2011. The most important finding of the study was that the Knowledge Economy variable, as assessed by intellectual capital, is more substantial and has an impact on performance. This study has demonstrated the need for providing proper BI support because, unlike learning and growth or financial factors, customers play a much smaller part in the competitive market than BI does in supporting decision-making in businesses of all sizes. The results demonstrate the need for providing proper BI support, as BI supports decision-making in enterprises of all sizes more effectively than learning and growth or financial factors, although there is no significant level for customer variables. Intellectual capital is demonstrated to be a more significant and effective performance for the knowledge economy variable.

Thakur (2012). This study aims to define the role of expert systems and artificial intelligence in corporate competitiveness. This study depended on a theoretical literature review. This study sought to define the function of expert systems and artificial intelligence in business competitiveness. A review of the theoretical literature was necessary for this study. The findings of this study showed that it is challenging for businesses to understand the general applicability of AI.

Mediating Effect of Business Intelligence

The disparate effects attained by researchers who need to examine such a mediating factor, however, may be attributable to the paucity of studies examining this relationship between the three different intellectual capital components on competitive advantage through the mediation of business intelligence. This establishes the basis for this study's hypothesis that human capital, relational capital, structural capital, and competitive advantage are all positively correlated.

H1- Business intelligence (BI) positively mediates the between intellectual capital(IC) and competitive advantage (CA); innovation (INN), , dynamic capabilities (DC), sustainable competitive advantage (SCA) and market responsiveness (MR) in the pharmaceutical and medical supplies companies in Jordan

H1a- *BI positively mediates the impact between HC and DC .*

H1b- *BI positively mediates the impact between HC and INN*

H1c- *BI positively mediates the impact between HC and SCA*

H1d- *BI positively mediates the impact between HC and MR .*

H1e- *BI positively mediates the impact between SC and DC .*

H1f- *BI positively mediates the impact between SC and INN*

H1g- *BI positively mediates the impact between SC and SCA*

H1h- *BI positively mediates the impact between SC and MR .*

H1i- *BI positively mediates the impact between RC and DC .*

H1j- *BI positively mediates the impact between RC and INN*

H1k- *BI positively mediates the impact between RC and SCA*

H1l- *BI positively mediates the impact between RC and MR .*

Innovation Speed and Innovation Quality

Zhining et al. (2021) investigated how intellectual capital affected business performance while taking into account the mediating effects of innovation speed and quality. After analyzing the data, the study discovered that human, relational, and structural capital, which are components of intellectual capital, have a positive link with the pace of innovation and quality, supporting the company's financial and operational performance.

As a brand-new innovation indicator at the firm level, Prihadyanti (2019) seeks to provide innovative quality. The quality of innovation is calculated as the product of customer satisfaction and firm innovation. By measuring innovation production, outputs, impact, and satisfaction over time, innovation quality can be put into numerical form. The computation can then be condensed into a quantitative model. The model has a lot of room for development and application.

Le and Lei (2018) sought to confirm the relationship between organizational learning as well as two specific dimensions of innovation—innovation quality and speed—and competitive advantage.

The factors related to types of innovation that improve SME competitiveness were covered by Stefanus et al. (2013). It was revealed that innovation can sometimes lead to brought about creative destruction, especially for SMEs who have limited access to innovation resources.

Stopa and Lewandowska (2013) sought to investigate viewpoints on the extremely complex innovation phenomenon, particularly regarding innovation quality. They came to the conclusion that by taking into account the particularities of the larger context, specifically the socioeconomic circumstances of the Podkarpackie region, there is a chance to more fully comprehend the variables influencing innovation's level of quality and potential obstacles to the continued use of strategies focused on implementing innovation in enterprises.

A framework linking quality, competitive advantage, and organizational success is conceptualized and built by Lakhal (2009). Structural equation modelling was used to test the claimed connections made by the framework using data collected from 74 organizations. The results imply that raising quality might result in a stronger competitive edge and better organizational performance. The study contributes by

offering empirical proof of quality's direct and indirect effects on organizational performance and competitive advantage in Tunisia.

Researchers Carbonell and Rodriguez (2006) looked examined how managers' views of positioning advantage and new product success were impacted by innovation pace. They also look into the moderating impact of market variables. The results of a survey of 178 manufacturing companies show that, both directly and indirectly, by creating positions of advantage, innovation speed plays a critical role in improving new product performance. The results also show that market uncertainty, market potential, and competition have an impact on the effects of innovation speed on positioning advantage and new product performance.

Previous research has found a direct or indirect relationship between intellectual capital and competitive advantage. For instance, Zerenler et al. (2008) suggested that there may be additional elements that influence the administration, planning, and control of intellectual capital, such as organizational culture traits and communication practices.

There is also no evidence to show a direct link between intellectual capital and organizational performance, according to Juma and Mc Gee (2006).

In order to comprehend intellectual capital, Chen (2008) and Wu et al (2008) emphasize the importance of focusing on various comparisons based on various industries, nations, and characteristics like learning, value, and culture. More specifically, Wu et al. (2008) stressed the necessity for innovation in human resource practices while examining the connection between the dynamic features of intellectual capital and innovative capital.

Taking into account the significance of innovation and a learning culture, Hardeep and Purnima (2014) conducted research on the connections between intellectual capital and competitive advantage and corporate performance. They emphasize the necessity of a longitudinal study to improve the conceptualization of intellectual capital. Many researchers, like Zhining et al., 2021, have also studied this relationship. Zhining et al. (2021) investigated how innovation pace and quality affected both intellectual capital and company performance.

As a result, it is possible to propose the following link between human capital, relational capital, and structural capital:

H2- innovation speed (INNS) positively mediates the impact between the three different components of intellectual capital and the four different components of competitive advantage in the pharmaceutical and medical supplies companies in Jordan

H2a-   *INNS*   *positively mediates the impact between HC and DC .*

H2b-   *INNS*   *positively mediates the impact between HC and INN*

H2c-   *INNS*   *positively mediates the impact between HC and SCA*

H2d-   *INNS*   *positively mediates the impact between HC and MR .*

H2e-   *INNS*   *positively mediates the impact between   SC   and DC .*

H2f-   *INNS*   *positively mediates the impact between   SC   and INN*

H2g-   *INNS*   *positively mediates the impact between   SC   and SCA*

H2h-   *INNS*   *positively mediates the impact between   SC   and MR .*

H2i-   *INNS*   *positively mediates the impact between   RC   and DC .*

H2j-   *INNS*   *positively mediates the impact between   RC   and INN*

H2k-   *INNS*   *positively mediates the impact between   RC   and SCA*

H2l-   *INNS*   *positively mediates the impact between   RC   and MR .*

According to Zhining et al., the elements of intellectual capital—namely, human, relational, and structural capital—have a favorable association with both the speed and quality of innovation (2021). This facilitates the company's ability to function profitably. Organizational learning and the two distinctive characteristics of innovation—speed and quality—have an effect on competitive advantage, claim Ba and Lei (2018).

Stopa and Lewandowska (2013) concluded that by paying attention to the peculiarity of the larger perspective, i.e. the socio-economic conditions of the Podkarpackie region, it is able to more clearly understand the elements that influence the quality of innovation and potential barriers to the application of methods targeted at the implementation of innovation in organizations.

According to Marc's (2017) theory, intellectual capital enhances knowledge to support innovation success. Different types of intellectual capital have varying degrees of facilitation of knowledge augmentation and innovation success depending on the dynamics of the industry.

Thus, as previous studies have shown and as highlighted by Marc (2017), intellectual capital is crucial to an organization's ability to innovate, i.e., efficiently develop innovative and improved goods and services. The relationship between intellectual capital and innovation success has, however, not been well studied, nor has it been determined whether all forms of intellectual capital are necessary for innovation success along through industries. As a result, the researchers hypothesize that human capital, relational capital, and structural capital are positively correlated with innovation quality.

H3 - innovation quality (INNQ) positively mediates between intellectual capital and competitive advantage in the pharmaceutical and medical supplies companies in Jordan

H3a- INNQ positively mediates the impact between HC and DC .

H3b- INNQ positively mediates the impact between HC and INN

H3c- INNQ positively mediates the impact between HC and SCA

H3d- INNQ positively mediates the impact between HC and MR .

H3e- INNQ positively mediates the impact between SC and DC .

H3f- INNQ positively mediates the impact between SC and INN

H3g- INNQ positively mediates the impact between SC and SCA

H3h*- INNQ   positively mediates the impact between   SC   and MR .*

H3i*- INNQ   positively mediates the impact between   RC   and DC .*

H3j*- INNQ   positively mediates the impact between   RC   and INN*

H3k*- INNQ   positively mediates the impact between   RC   and SCA*

H3l*- INNQ   positively mediates the impact between   RC   and MR .*

In addition, the study hypothesized, as well, the following:-

H4a- The direct effects of HC, SC and RC, individually on competitive advantage are significant.

H4b- The total indirect effect of (HC, SC and RC), individually, through all mediators are significant

H4c- The total (direct and indirect) effects of HC, SC and RC, individually, on CA are significant

The conceptual model of the above-mentioned hypothesis is illustrated in the following section showing all the different relations and paths between the study variable

Conceptual framework and hypotheses

The conceptual structure of this study, as shown in Fig. 1, highlights the numerous indirect relationships between the various dimensions of intellectual capital and the various factors of competitive advantage by employing business intelligence, innovation speed, and innovation quality as intermediaries.

Figure 1.

The model of the study: prepared by the researcher
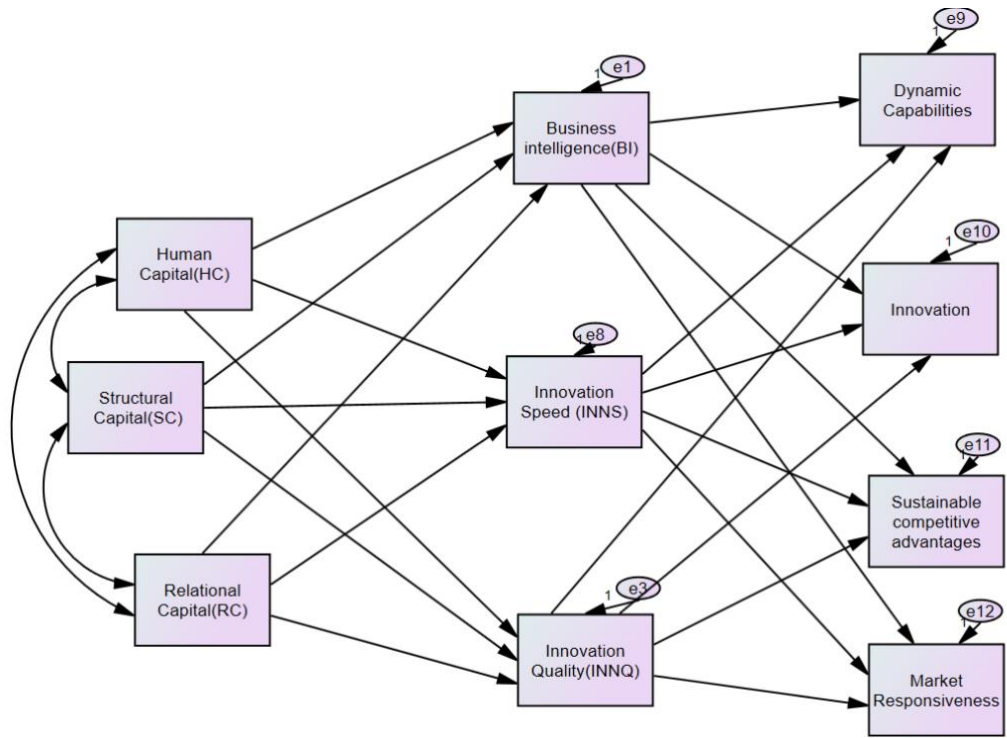
Chapter III

Methodology

The study's goals were attained by the researcher using an empirical approach. The research design, demographic and sample, data collection tool, data collection process, and data analysis plan are all included in this chapter.

Research Design

Research is an organized and methodical attempt to explore a particular issue in order to offer a solution. Research can be classified as quantitative, qualitative, or mixed techniques. Quantitative research uses conventional, positivist, experimental, or empiricist techniques to look into a problem that has been recognized. A theory is tested, quantified, and statistically analyzed using procedures in quantitative research, with a focus on objectivity and reproducibility. Quantitative approaches are used to test the accuracy of prediction generalizations made by theories.

Quantitative research is therefore more interested in how much, how well, or to whom a particular issue pertains. In fact, the major objective of quantitative research is to describe cause and effect, and this is done through deducing conclusions from actual observations. Descriptive or experimental methods can be used in quantitative research (Cohen et al., 2007).

Better knowledge of phenomena, fresh perspectives, and the formulation of a more focused study subject or hypothesis are the aims of descriptive research. Contrarily, experimental research aims to verify the existence of cause-and-effect connections between different factors. As a result, this study is experimental in nature, and all of the study variables are discussed in the part that follows.

Study variables

The study is based the different variables and their combination that have been mostly studied by different researchers where some of them are listed below:

The *independent* variables: intellectual capital (human capital, relational capital, structural capital)

- Alserhan, H. F. (2017),Dahash, Q., and A. Al-Dirawi. (2018) ,Soheyli, F., Moeinaddin, M., &Nayebzadeh, S. (2014). Herzallah, A., & Abu Lebdah, S. (2020). Hejazi, R., Ghanbari, M., &Alipour, M. (2016).
- The mediating variable (business intelligence, innovation speed and quality)
- Zhining Wang, Shaohan Cai, Huigang Liang, Nianxin Wang & Erwei Xiang (2021), Chen, Xiaofeng (2012), Thakur, J. (2012), Sprague and R. H., & Watson, H. J. (Eds.). (1986).

The dependent variable: competitive advantages (dynamic capabilities, innovation, sustainable competitive advantages and market Responsiveness)

- Dahash, Q., and A. Al-Dirawi. (2018), VAHDATI, H., NEJAD, S. H., & SHAHSIAH, N. (2018), VAHDATI, H., NEJAD, S. H., & SHAHSIAH, N. (2018), Gupta, S. D. (2015). Koçoğlu, İpek, SalihZekiİmamoğlu, and Hüseyinİnce. (2009) ,Malkawi, Nazem MM, Kalid Al Omari, and AzmiHalasa. (2018) and Chen, Xiaofeng (2012)

The population and Sample of the Study

According to Jordan Chamber of Commerce (2021) records, there are 130 Jordanian pharmaceutical and medical supply active enterprises that make up the study's population, as seen in appendix (3). This sector's reliance on Jordanian labour may be its most notable feature, since it employs 27 thousand people, with 10,000 men and 10,000 women working at administrative and technical levels, accounting for more than 99% of the total workforce. However, since there are only about 2500 people in the managerial level population, which is the primary concentration of this study, 334 measurements or surveys are required in order to have a 95% confidence level that the real value is within ±5% of the measured or polled value. However, after the survey was made available online, the researchers were able to collect 600 questionnaires; however, data checking, which included missing data, univariates, as well as, multivariate outliers, which account for 95% of the gathered questionnaires, resulted in only 569 cases being valid for analysis.

Data Collection Tool

The quantitative data that serves this study is collected through a questionnaire. The questionnaire is divided into four parts. Part 1 covers demographic parameters such gender, age, education level, work experience, and managerial position; Part 2 deals with intellectual capital. The instruments used to evaluate social, human, and structural capital were directly adapted from Zhining et al (2021).

The dependent variable "Competitive Advantage" is covered in Part 3. Four factors—dynamic capacities, innovation, sustainable competitive advantages, and market responsiveness—are used to measure competitive advantage. Ofoegbu and Onuoha use the instrument used for dynamic capacities (2018). The innovation tool has been adapted from Wu et al (2008). The measure of market responsiveness is taken from Chen, and the measure of durable competitive advantages is taken from Julio and Severo, 2017. (2012).

Part 4 is for the mediators, and it adopts the "Business Intelligence" measurement tool from Chen (2012), the "Innovation Quality" measurement tool from Zhining et al. (2021), and the "Innovation Speed" measurement tool from Zhining et al (2021). SPSS and AMOS were used for data analysis. The questionnaire is shown in Appendix (2).

Table 1.

List of Constructs and Removed items after CFA

Constructs	Number of Items	Removed items
Section 1	Demographic variables	
Section 2 : Intellectual Capital	15	*4*
Human Capital	5	1
Relational Capital	5	1
Structural Capital	5	2
Section 3 : Competitive Advantage	45	*11*
Dynamic capabilities	25	3
Innovation	10	4

Constructs	Number of Items	Removed items
Sustainable competitive advantages	6	3
Marketing responsiveness	4	1
Section 4: Mediators	23	*8*
Business intelligence	13	4
Innovation Quality	5	2
Innovation Speed	5	2
Total	83	23

Data Collection Procedure

The information was gathered at random from a population of 2500 administrative personnel in Jordanian pharmaceutical and medical supply companies using online tools. Data were gathered using a questionnaire based on a 5-Likert scale, where 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. In addition to the part on demographic factors, this covered things like age, gender, education level, and experience and management level.

The questionnaire includes three additional sections with five measurement tools to capture the five various study variables, as stated in table (1). The questionnaire was translated into Arabic for the understandability issue in compliance with the requirements for translation from one language to another, specifically the recommendations from (Brislin, 1980). Additionally, ample time was given to the study's participants because the questionnaire was accessible online and the data collection process took 18 days.

A request for involvement and an explanation of the study's objectives were included in a letter of consent (appendix, 1), that was sent with the survey, importance, and assurances of secrecy to reduce the possibility of "common method bias" (CMB) (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Data Analysis Plan

Following that, the data was entered for analysis into IBM SPSS AMOS (23). In order to fit the model and evaluate the validity and trustworthiness of the data, structural equation modeling, or SEM (CB-SEM), with path analysis was utilized. Path analysis was then used to quantify the various indirect effects. However, a number of metrics were used, such as the Chi-square, the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Comparative Fit Index (CFI), as well as, the Root Mean Square Error of Approximation (RMSEA)(Byrne, 2012). For the purpose of identifying the model, the first regression route in each measurement component was fixed at (1). The model testing for the initial confirmatory factor analysis initially included all items from all components. Items were assessed using item loading, estimations of the error variance, and proof that they needed to cross-load on many component factors.

Limitations and scope of the study:

The study is limited to looking at how different intellectual capital components, such as human capital, relational capital, and structural capital, positively affect different competitive advantage components, such as dynamic capabilities, innovation, sustainable competitive advantages, and market responsiveness, using business intelligence, innovation speed, and innovation quality in Jordanian pharmaceutical and medical supply companies.

- Time limits: It is the expected period of time required to conduct the fieldwork.
- Human Frontiers: The study will be conducted on employees at lower, middle and upper administrative levels in Jordanian Pharmaceutical and medical supplies Companies.
- Place of study: Jordanian Pharmaceutical and medical supplies Companies.
- Novelty of the study

What distinguishes the present study from earlier studies is that it has been conducted in the Arab region where most of other studies related to the study variables are applied in western business environments. In addition, it is the only studies that links such variables and apply them in the Jordanian Pharmaceutical and medical supplies companies.

Chapter IV
Results

The outcomes of data analysis are presented in this chapter. It includes demographic data description, confirmatory factor analysis and path analysis

Demographic data

The demographic variables taken into account in this study included gender, age, education level, work experience, as well as, management level. Although there were 600 participants in the sample, only 569 cases were found to be valid for analysis following examining the data for outliers in univariate and multivariate forms, as well as missing values.

55.2% of the participants were men and 44.8% were women. 91.9% of the sample's participants held a bachelor's degree, compared to 8.1% of those with a master's or doctoral degree. Employees with less than 5 years of experience made up the largest group in the sample (39.5%), followed by those with 5 to 10 years of experience (37.3%), while those with 11 years or more of experience (23.2%) made up the lowest group.

However, as indicated in table (2), 62.4% worked in supervisory, operational, or first-line management positions (lower level), followed by 23.4% in executory jobs (middle level), and 14.2% in administrative positions (upper level).

Table 2.

Distribution of demographic variables

Group	Frequency	Percentage %
Gender Male Female	 314 255	 55.2 44.8
Level of Education Bachelor Master and Doctorate	 523 46	 91.9 8.1
Experience Less than 5 Years 5 to 10 years 11 years and up	 212 225 132	 37.3 39.5 23.2

Group	Frequency	Percentage %
Management Level		
Supervisory / Operative / First-line managers	355	62.4
Executory	133	23.4
Administrative	81	14.2

Summary of the Respondent s' Answers

The averages and standard deviation of the 569 participants' responses are displayed in Table 3 below. Additionally, it displays Kurtosis and Skewness.

Table 3.

Statistics for Respondents' Answers

Variables	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Structural Capital	2.9308	.55315	-.409	.102	-.039	.204
Human Capital	3.1898	.50221	-.548	.102	1.519	.204
Relational Capital	2.9381	.75952	-.468	.102	-.143	.204
Innovation Quality	3.4359	.80236	-.183	.102	-.365	.204
Innovation Speed	3.0752	.42621	-.126	.102	.179	.204
Business intelligence	3.3086	.51967	-1.253	.102	1.907	.204
Dynamic capabilities	2.5153	.84319	-.038	.102	-.866	.204
Innovation	3.3429	.52974	-.116	.102	1.111	.204
Sustainable competitive advantages	4.0621	.56783	-.643	.102	1.385	.204
Marketing responsiveness Valid N (569)	2.6059	.53886	.201	.102	.888	.204

According to the respondents' responses, sustainable competitive advantages received the highest overall score, with a mean of 4.0621 and a standard deviation of .56783. Indeed, this creates more focus for a business enabling it to attain greater sales and better profit margins. Innovation quality came next, with a mean and standard deviation of 3.4359 and .80236 respectively, followed by innovation, business I ntelligence, human capital, innovation speed, relational capital, and structural capital. Marketing responsiveness and dynamic capabilities scored the lowest overall, with a mean and standard deviation of 2.6059 and .53886 and 2.5153 and .84319, respectively.

The distribution of the variables appears to be appropriate in terms of normalcy, which relates to how the data for a given variable are distributed. There are two guidelines for skewness, though: (1) When the skewness value is greater than 1, it indicates that the data is positive (right) skewed; when it is less than -1, it indicates that the data is negative (left) skewed; and when it is in the middle, it indicates that the data is fine. However, some published thresholds are a little more lenient and allow for up to +/-2.2 instead of +/-1, which indicates that our data is fine.

If the absolute value of the kurtosis is less than three times the standard error, then there are no major differences between it and the normal distribution; otherwise, there are kurtosis difficulties. A score of 2.200 or below for the overall kurtosis, however, indicates that our data is acceptable.

Structural Equation Modeling

The measurement model, also referred to as the confirmatory factor analysis (CFA), and the structural equation model are the two primary components of structural equation modeling research (SEM). In social research, confirmatory factor analysis (CFA) is a type of statistical factor analysis that is frequently used (Kline, 2010). It is employed to determine whether measurements of a specific construct, often referred to as a factor, are consistent with the researcher's understanding of the construct's characteristics. Confirmatory factor analysis (CFA) actually seeks to determine the suitability of a proposed measurement model..

Measurement Model

The following ten first-order constructs were measured in the current study using 83 items: structural capital, human capital, relational capital, innovation speed, innovation quality, business intelligence, dynamic capabilities, innovation, sustainable competitive advantages, and marketing responsiveness. The initial standardized loadings or regression weights for each of the 83 items are shown in Tables (4) and Tables 5, which are both parts of the initial CFA model..

Table 4.

Unstandardized loadings or regression weights

Item		Construct	Estimate	S.E.	C.R.	P
ICR4	<---	RC	1.000			
ICR3	<---	RC	1.000	.060	16.801	***
ICR2	<---	RC	.563	.047	11.985	***
ICS3	<---	SC	.674	.084	8.059	***
ICS2	<---	SC	.693	.082	8.430	***
ICS1	<---	SC	.553	.073	7.611	***
ICH5	<---	HC	.302	.091	3.306	***
ICH4	<---	HC	.720	.095	7.568	***
ICH3	<---	HC	.927	.112	8.309	***
ICH2	<---	HC	1.000			
ICH1	<---	HC	.717	.094	7.616	***
INNS2	<---	IS	.864	.136	6.334	***
INNS3	<---	IS	-.832	.127	-6.534	***
INNS4	<---	IS	1.000			
INNQ5	<---	IQ	.060	.027	2.248	.025
INNQ4	<---	IQ	.202	.033	6.181	***
INNQ3	<---	IQ	.931	.016	57.226	***
INNQ2	<---	IQ	.958	.016	61.360	***
INNQ1	<---	IQ	1.000			
BI3	<---	BI	.774	.041	18.984	***
BI4	<---	BI	.818	.043	19.098	***
BI5	<---	BI	.832	.045	18.655	***
BI6	<---	BI	.889	.047	18.889	***
BI7	<---	BI	-.237	.030	-7.813	***
BI8	<---	BI	1.000			
CADC1	<---	DC	.844	.058	14.421	***
CADC2	<---	DC	.942	.060	15.694	***
CADC3	<---	DC	.963	.061	15.689	***
CADC4	<---	DC	.917	.061	15.014	***
CADC5	<---	DC	.868	.060	14.438	***
CADC6	<---	DC	.861	.060	14.337	***
CADC7	<---	DC	.909	.061	14.912	***
CADC8	<---	DC	.960	.063	15.312	***
CADC9	<---	DC	.868	.059	14.644	***
CADC10	<---	DC	.897	.060	15.038	***
CADC11	<---	DC	.879	.059	14.896	***
CADC12	<---	DC	.868	.060	14.511	***
CADC13	<---	DC	.891	.061	14.638	***
CADC14	<---	DC	.929	.064	14.569	***
CADC15	<---	DC	.912	.063	14.563	***
CADC16	<---	DC	.934	.064	14.581	***
CADC17	<---	DC	.900	.062	14.413	***

Item		Construct	Estimate	S.E.	C.R.	P
CADC18	<---	DC	.933	.063	14.838	***
CAIN1	<---	INN	.279	.065	4.270	***
CAIN2	<---	INN	.483	.076	6.320	***
CAIN3	<---	INN	.961	.114	8.403	***
CAIN4	<---	INN	1.000			
CAIN5	<---	INN	.617	.088	7.007	***
CAIN6	<---	INN	.647	.094	6.859	***
CAIN7	<---	INN	.360	.065	5.569	***
CAIN8	<---	INN	.120	.071	1.683	.092
CAIN9	<---	INN	.871	.113	7.681	***
CASC1	<---	SCA	.575	.074	7.727	***
CASC2	<---	SCA	.854	.097	8.818	***
CASC3	<---	SCA	.810	.084	9.656	***
CASC4	<---	SCA	.938	.103	9.150	***
CASC5	<---	SCA	.798	.084	9.448	***
CAMR4	<---	MR	.729	.086	8.452	***
CAMR3	<---	MR	.945	.100	9.488	***
CAMR2	<---	MR	.927	.097	9.541	***
CAMR1	<---	MR	1.000			
BI1	<---	BI	.398	.036	11.063	***
BI2	<---	BI	-.248	.028	-8.972	***
ICR1	<---	RC	.847	.062	13.581	***
INNS1	<---	IS	-.890	.132	-6.730	***
ICR5	<---	RC	.531	.050	10.549	***
ICS4	<---	SC	1.000			
ICS5	<---	SC	.620	.080	7.729	***
INNS5	<---	IS	-.867	.130	-6.653	***
BI9	<---	BI	.581	.034	16.869	***
BI10	<---	BI	.832	.042	19.646	***
BI11	<---	BI	.832	.043	19.418	***
BI12	<---	BI	.793	.041	19.189	***
BI13	<---	BI	-.234	.031	-7.641	***
CAIN10	<---	INN	.772	.097	7.950	***
CADC19	<---	DC	1.000			
CADC20	<---	DC	.849	.063	13.532	***
CADC21	<---	DC	.822	.059	13.973	***
CADC22	<---	DC	.725	.056	12.848	***
CADC23	<---	DC	.804	.057	14.218	***
CADC24	<---	DC	.897	.062	14.555	***
CADC25	<---	DC	.792	.062	12.870	***
CASC6	<---	SCA	1.000			

Unstandardized loadings, standard errors, critical values, and p are displayed in Table (4). ICR4 increases by 1 when RC increases by 1, as can be shown. This regression weight wasn't estimated; it was set at 1.000. ICR2 increases by 0.563 when RC increases by one. The standard error of this regression weight estimate,.563, is roughly.047. The result is z =.563/.047 = 11.985 when the regression weight estimate is divided by the estimate of its standard error.

The regression weight estimate is, in other words, 11.985 standard errors above zero. This indicates that there is a less than 0.001 chance of obtaining a critical ratio with an absolute value of 11.985. In other words, at the 0.001 level, the regression weight for RC in the prediction of ICR2 differs considerably from zero (two-tailed).

In actuality, the probability of attaining a critical ratio as large as that displayed in the table in absolute value is less than 0.05 for all elements. In other words, the regression weight for each construct in the prediction of its items deviates considerably from zero at the 0.05 level for each construct (two-tailed). Given that there is a 0.092-percent chance of achieving a critical ratio with an absolute value of 1.683, the regression weight for innovation in the CAIN8 prediction is not significantly different from zero at the 0.05 level (two-tailed).

Table 5.

Standardized Regression Weights

Items	constructs	Estimate	Items	constructs	Estimate
ICR4	RC	.827	CADC18	DC	.656
ICR3	RC	.778	CAIN1	INNO	.226
ICR2	RC	.542	CAIN2	INNO	.355
ICS3	SC	.469	CAIN3	INNO	.528
ICS2	SC	.501	CAIN4	INNO	.586
ICS1	SC	.433	CAIN5	INNO	.404
ICH5	HC	.176	CAIN6	INNO	.393
ICH4	HC	.477	CAIN7	INNO	.305
ICH3	HC	.601	CAIN8	INNO	.086
ICH2	HC	.630	CAIN9	INNO	.459
ICH1	HC	.482	CASC1	SCA	.425
INNS2	IS	-.442	CASC2	SCA	.508
INNS3	IS	.469	CASC3	SCA	.583
INNS4	IS	-.513	CASC4	SCA	.536
INNQ5	IQ	.753	CASC5	SCA	.563
INNQ4	IQ	.341	CAMR4	SCA	.488
INNQ3	IQ	.974	CAMR3	MR	.591
INNQ2	IQ	.979	CAMR2	MR	.597
INNQ1	IQ	.983	CAMR1	MR	.638
BI3	BI	.827	BI1	BI	.569
BI4	BI	.828	BI2	BI	-.414
BI5	BI	.814	ICR1	RC	.611
BI6	BI	.820	INNS1	IS	.500
BI7	BI	.696	ICR5	RC	.480
BI8	BI	.778	ICS4	SC	.678
CADC1	DC	.637	ICS5	SC	.443
CADC2	DC	.696	INNS5	IS	.486
CADC3	DC	.696	BI9	BI	.753
CADC4	DC	.664	BI10	BI	.842
CADC5	DC	.638	BI11	BI	.835
CADC6	DC	.633	BI12	BI	.826
CADC7	DC	.660	BI13	BI	-.363
CADC8	DC	.678	CAIN10	INNO	.483
CADC9	DC	.647	CADC19	DC	.691
CADC10	DC	.665	CADC20	DC	.596
CADC11	DC	.659	CADC21	DC	.616
CADC12	DC	.641	CADC22	DC	.565
CADC13	DC	.647	CADC23	DC	.628
CADC14	DC	.644	CADC24	DC	.643
CADC15	DC	.644	CADC25	DC	.566
CADC16	DC	.644	CASC6	SCA	.616
CADC17	DC	.637			

The 83 items within the 10 various constructs are shown in Table (5) along with the standardized loadings or regression weights. The least significant loadings were for CAIN8 on innovation (.086), ICH5 on HC (.176), CAIN1 on innovation (.226), CAIN7 on innovation (.305), INNQ4 on IQ (.341), CAIN2 on innovation (.355), and CAIN6 on innovation, according to Table (5) was (.393). However, INNQ1 had the highest loading (.983), followed by INNQ2 (.979), as well as, INNQ3 (.983) for intellectual innovation (.974). BI10 on BI was (.842), BI11 on BI was (.835), BI12 on BI was (.826), BI13 on BI was (.827), BI14 on BI was (.828), BI15 on BI was (.814), BI16 on BI was (.820), as well as, ICR4 on relational capital was (.827), while the remaining loadings for the items were.4 and.8. Figure (2) presents the initial CFA Model for the 83 Items with their standardized loadings   besides the goodness of fit indices. That included CMIN/DF, GFI, AGFI, CFI, TLI AND RMSEA

Figure 2:

The Initial CFA Model with the 83 Items with goodness of fit indices
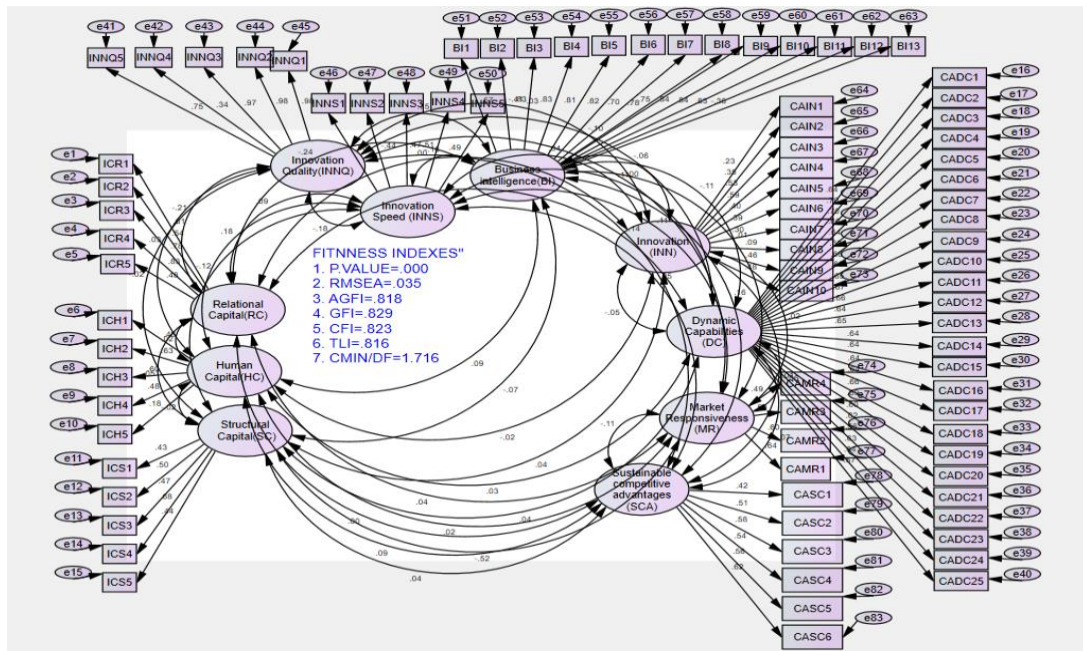
The Chi-square, the Adjusted Goodness-of-Fit Index (AGFI), (GFI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) were all used to analyze the goodness-of-fit test findings for the 83-item model (RMSEA). Based on the cut-off values in Table (4), this will be done. The initial measures, however, were as follows without any adjustments: Chi-square = 5620.137; Chi-square/df = 1.716; df = 3276; P=0.00; GFI =.829; AGFI =.818, CFI =.823; TLI =.816, CFI =.823; RMSEA =.035. Indeed, based on the cut-off values shown in the table, these values are not advised (6).

Table 5.

Goodness of Fit Cut-Off Values

Fit index	Recommended Values	Acceptable Values	Source
Df	***		
CMIN (χ2)	***		
p-value	> 0.05	≥ 0.000	(Hair, Anderson, Tatham & Tatham, 2006) Black, 1998)
χ2/df	≤ 3.00	≤ 5.00	(Bagozzi & Yi, 1988), (Jöreskog, 1969).
GFI	≥ 0.90	≥ 0.80	(Kline, 2010)
AGFI	≥ 0.80	≥ 0.80	(Kline, 2010)
CFI	≥ 0.90	≥ 0.90	(Byrne, 2013)
TLI	≥ 0.90	≥ 0.90	(Hair, Anderson, Tatham & Tatham, 2006) Black, 1998), (Bagozzi & Yi, 1988), (Jöreskog, 1969).
IFI	≥ 0.90	≥ 0.90	(Hair, Anderson, Tatham & Tatham, 2006) Black, 1998), (Bagozzi & Yi, 1988), (Jöreskog, 1969).
RMSEA	0.05 to 0.08	≤ 0.10	(Schumacker & Lomax, 2010)

Goodness of fit improvement

Using item loadings with a cutoff of 0.4 weight, the error variance estimate, and items cross-loading on multiple component factors, 23 items were removed in order to increase the model's fitness. The updated model, however, is shown in Fig (3) with only 69 components still present. The Chi-square, (GFI), Adjusted Goodness-of-Fit Index (AGFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA) were used to analyze the goodness of fit test results for the remaining 69 items model. The updated metrics were as follows: GFI =.901, AGFI =.891, CFI =.975, TLI =.974, RMSEA =.016. Chi-square = 2043.508, Chi-square/df = 1.150, df = 1777, p=.000. In actuality, this model fits the analysis's standards because it is far superior to the original model's 83 components. For the majority of the constructs, especially those with deleted elements, the internal reliability did, however, rise. Cronbach's Alpha was used to determine reliability for the factors of the three constructs, and the results were extremely acceptable, ranging from 0.71 to.89. Fig (3) and Table (7) show the new acceptable

structural model with the revised normalized weights and goodness of fit indicators.

Figure 3.

Structural equation model for the remaining items
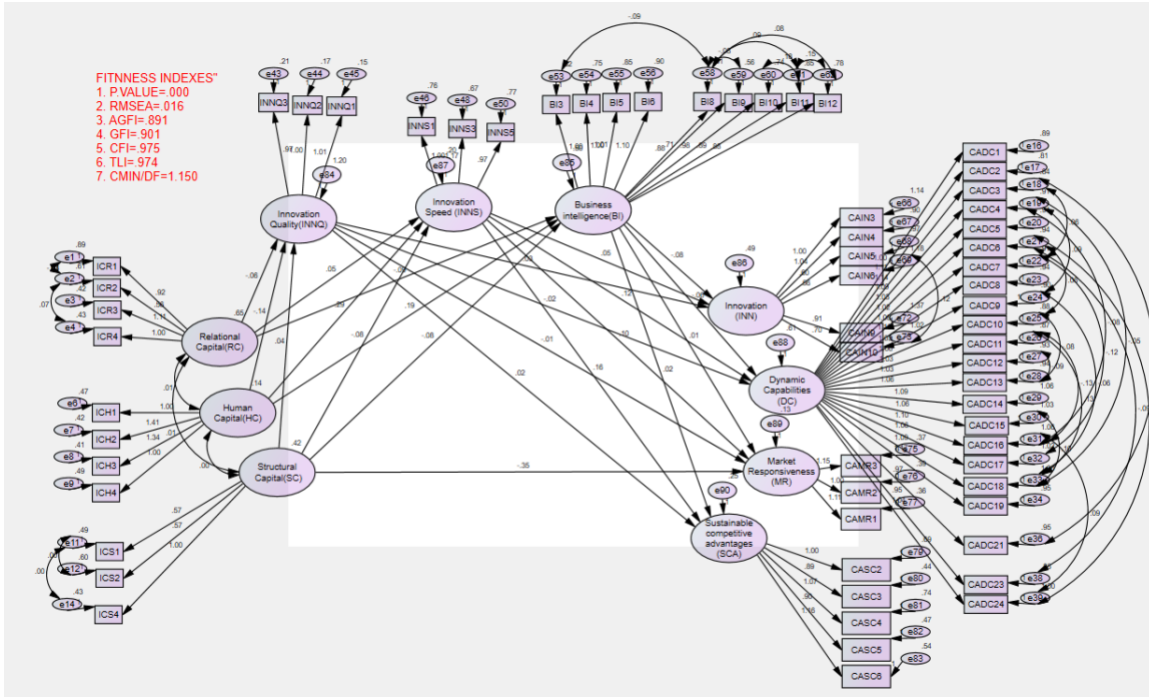
Table 6.

standardized loadings or regression weights

	CONSTRUCT	Estimate
IQ	RC	-.064
IS	RC	.118
BI	RC	-.102
IQ	HC	-.034
IS	HC	.219
BI	HC	.099
IQ	SC	.237
IS	SC	-.242
BI	SC	.001
INNO	IQ	.045
DC	IQ	-.022
MR	IQ	-.026
SCA	IQ	.042
INNO	IS	.026
DC	IS	.076
MR	IS	.207
SCA	IS	.136
INNO	BI	-.083
DC	BI	-.054
MR	BI	.052
SCA	BI	.026
ICR4	RC	.773
ICR3	RC	.812
ICR2	RC	.495
ICS2	SC	.665
ICS1	SC	.090
ICH4	HC	.467
ICH3	HC	.614
ICH2	HC	.629
ICH1	HC	.474
INNS3	IS	.540
INNQ3	IQ	.923
INNQ2	IQ	.940
INNQ1	IQ	.948
BI3	BI	.656
BI4	BI	.614
BI5	BI	.615
BI6	BI	.649
BI8	BI	.579
CADC1	DC	.639
CADC2	DC	.697
CADC3	DC	.698

	CONSTRUCT	Estimate
CADC4	DC	.666
CADC5	DC	.640
CADC6	DC	.637
CADC7	DC	.663
CADC8	DC	.674
CADC9	DC	.649
CADC10	DC	.663
CADC11	DC	.655
CADC12	DC	.642
CADC13	DC	.650
CADC14	DC	.637
CADC15	DC	.634
CADC16	DC	.643
CADC17	DC	.637
CADC18	DC	.650
CAIN3	INNO	.550
CAIN4	INNO	.607
CAIN5	INNO	.392
CAIN6	INNO	.343
CAIN9	INNO	.479
CASC2	SCA	.519
CASC3	SCA	.564
CASC4	SCA	.534
CASC5	SCA	.553
CAMR3	MR	.655
CAMR2	MR	.540
CAMR1	MR	.624
ICR1	RC	.618
INNS1	IS	.482
ICS4	SC	.297
INNS5	IS	.431
BI9	BI	.567
BI10	BI	.633
BI11	BI	.573
BI12	BI	.589
CAIN10	INNO	.438
CADC19	DC	.685
CADC21	DC	.617
CADC23	DC	.630
CADC24	DC	.634
CASC6	SCA	.626

Path Analysis

In order to assess causal models, path analysis, a sort of multiple regression statistical analysis, looks at the links between a dependent variable and two or more independent variables. The strength and significance of causal links between variables can be estimated using this method.

The direct effect

This part, the researcher examined only the direct relationships between the independent variables and the mediators, the direct relationships between the mediators and the direct relationships between the independent variables the dependent variables. However, the magnitude and significance of causal relationships

The magnitude of the causal relationships between the independent variables and the mediators, the direct relationships between the mediators and the direct relationships between the independent variables the dependent variables are shown in table (8).

Table 7.

The magnitude of the direct impact

	HC	RC	SC	INNS	INNQ	BI
INNS	.344	.082	-.630	.000	.000	.000
INNQ	-.150	-.111	1.171	.000	.000	.000
BI	.269	-.106	.015	.000	.000	.000
MR	-.048	.032	-.343	.228	.004	.041
Sustainable_competitive_advantages	.004	-.005	.175	.273	.017	.022
Innovation	-.067	-.022	.075	.101	.026	-.094
Dynamic_Capabilities	.040	.026	-.106	.200	-.008	-.072

The significance of the causal relationships between the independent variables and the mediators, the direct relationships between the mediators and the direct relationships between the independent variables the dependent variables are shown in table (9). However, HC shows significance relationship with INNS and BI. RC shows significance relationship with INNS and BI. SC shows significance relationship with INNS, INNQ and MR. INNS shows significance relationship with MR and

Sustainable_competitive_advantages. INNQ shows no significance relationship with any
variable. BI shows significance relationship only with the Innovation

Table 8.

The Significance of causal direct relationships

	HC	RC	SC	INNS	INNQ	BI
INNS	.009	.012	.005	...	...	...
INNQ	.438	.108	.004	...	...	...
BI	.003	.008	.868	...	...	...
MR	.305	.083	.007	.016	.748	.053
Sustainable_competitive_advantages	.991	.901	.071	.003	.468	.414
Innovation	.702	.336	.599	.187	.251	.034
Dynamic_Capabilities	.787	.611	.519	.067	.641	.214

The indirect effect and path analysis

The indirect effects theory is, according to its definition, the evaluation of the
"impact of one variable on another, as that variable's influence operates through one or
more intervening factors." (Holbert and Stephenson 2003). The indirect effect is the
effect that an IV(independent variable) has on a DV (dependent variable) via its
association with a third variable M (Mediator).

Dynamic capabilities, innovation, sustainable competitive advantages, and
marketing responsiveness were the dependent variables of competitive advantage. The
indirect impact of the independent variables of intellectual capital (human capital,
relational capital, and structural capital) on these variables was estimated using the
structural equation model of path analysis after it was determined that the data fit the
model well using the measurement model or confirmatory factor analysis (CFA). To
accomplish this, path analysis, for indirect relationship, from SEM was employed where
Fig (1) shows all the different paths. This figure was drawn based on the structural
equation model presented in Fig (3). To compute the specific indirect effects between
intellectual capital components and competitive advantage components via BI, INNS

AND INNQ, all parameters included in the computations were labelled . Fig (4) contains labels for paths that will be included in the computation of the specific effects. (Note: the labeling is arbitrary, but there are constraints

Figure 4:

Path analysis for the proposed structural model
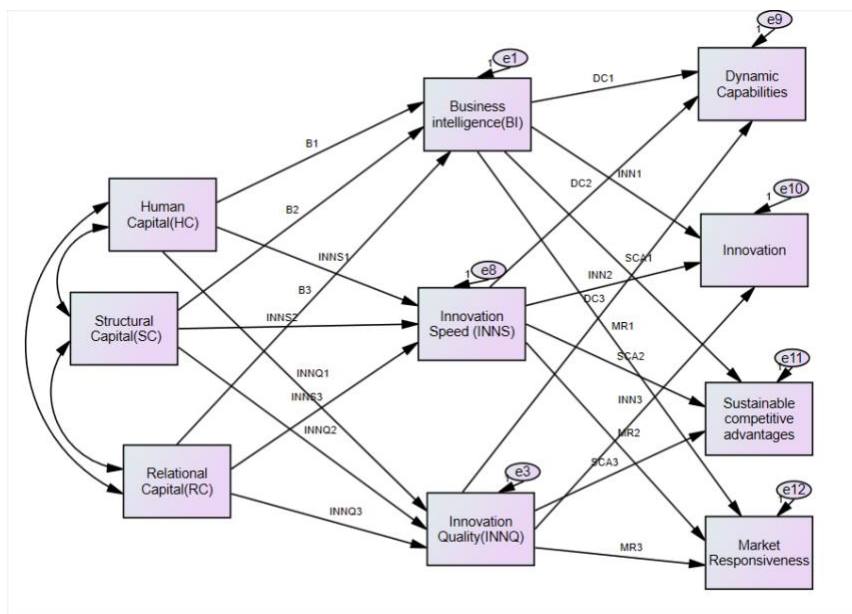
The results of path analysis are portrayed on Fig (5). However, these results shows only the direct effects on the different paths.

Figure 5:

The results of path analysis
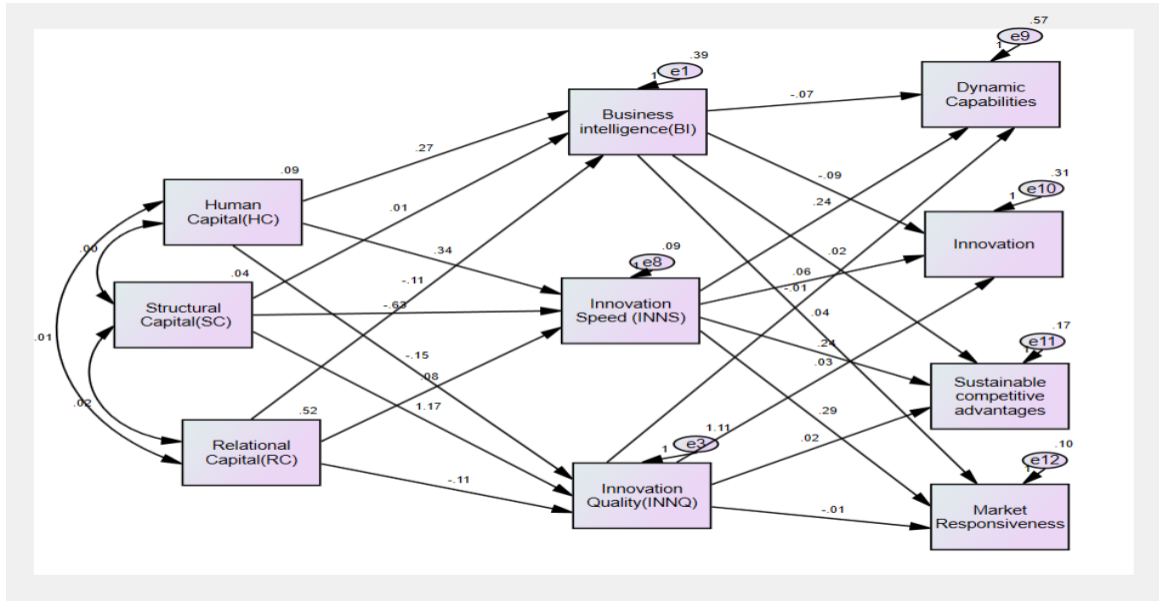
To calculate the precise indirect impacts between the elements of intellectual capital and the elements of competitive advantage through the mediators, a User-Defined Estimands was created and applied to the model created as shown in table (10).

Table 9:

User-Defined Estimands

'Business Intelligence Estimands	SC on INN via BI=B2*INN1
HC on DC via BI=B1*DC1	RC on INN via IBI=B3*INN1
SC on DC via BI=B2*DC1	
RC on DC via BI=B3*DC1	HC on SCA via BI=B1*SCA1
	SC on SCA via BI=B2*SCA1
HC on INN via BI=B1*INN1	RC on SCA via BI=B3*SCA1

HC on MR via BI=B1*MR1

SC on MR via BI=B2*MR1

RC on MR via BI=B3*MR1

'Innovation Speed Estimands

HC on DC via INNS=INNS1*DC2

SC on DC via INNS=INNS2*DC2

RC on DC via INNS=INNS3*DC2

HC on INN via INNS=INNS1*INN2

SC on INN via INNS=INNS2*INN2

RC on INN via INNS=INNS3*INN2

RC on DC via INNQ=INNQ3*DC3

HC on INN via INNQ=INNQ1*INN3

SC on INN via INNQ=INNQ2*INN3

RC on INN via INNQ=INNQ3*INN3

HC on SCA via
INNQ=INNQ1*SCA3

SC on SCA via INNQ=INNQ2*SCA3

RC on SCA via
IINNQ=INNQ3*SCA3

HC on MR via INNQ=INNQ1*MR3

SC on MR via INNQ=INNQ2*MR3

RC on MR via IINNQ=INNQ3*MR3

HC on SCA via INNS=INNS1*SCA2

SC on SCA via INNS=INNS2*SCA2

RC on SCA via IINNS=INNS3*SCA2

HC on MR via INNS=INNS1*MR2

SC on MR via INNS=INNS2*MR2

RC on MR via IINNS=INNS3*MR2

'Innovation Quality Estimands

HC on DC via INNQ=INNQ1*DC3

SC on DC via INNQ=INNQ2*DC3

Table (11) provides a summary of the outcomes of various Estimands analyses. This table lists the estimates of the different indirect effects, the lower and upper boundaries of bootstrap confidence intervals for indirect effects and the two-tailed significance levels (P). For example -.019 is the estimate for the indirect effect of human capital on dynamic capabilities through the mediation of business intelligence, where -.060 is the lower endpoint of a two-sided bias-corrected bootstrap confidence interval for the indirect (mediated) effect of human capital on competitive advantage and .007 is the upper endpoint with .013 P value.

Table 10.

The results of paths analysis summary

Parameter	EST.	LO	UP	P
HCONDCVIABI	-.019	-.060	.007	.105
SCONDCVIABI	-.001	-.041	.022	.770
RCONDCVIAIBI	.008	-.004	.027	.155
HCONINNVIABI	-.026	-.074	-.005	.012
SCONINNVIABI	-.001	-.040	.021	.842
RCONINNVIAIBI	.010	.002	.025	.022
HCONSCAVIABI	.006	-.006	.034	.252
SCONSCAVIABI	.000	-.011	.020	.843
RCONSCAVIAIBI	-.002	-.012	.003	.363
HCONMRVIABI	.010	.001	.033	.036
SCONMRVIABI	.001	-.011	.014	.656
RCONMRVIAIBI	-.004	-.011	.001	.072
HCONDCVIAINNS	.082	.006	.168	.033
SCONDCVIAINNS	-.150	-.287	-.021	.024
RCONDCVIAINNS	.019	.001	.038	.042
HCONINNVIAINNS	.021	-.030	.079	.376
SCONINNVIAINNS	-.039	-.132	.059	.431
RCONINNVIAINNS	.005	-.006	.018	.361
HCONSCAVIAINNS	.083	.046	.145	.002
SCONSCAVIAINNS	-.152	-.241	-.079	.004
RCONSCAVIAIINNS	.020	.009	.036	.004
HCONMRVIAINNS	.098	.064	.135	.009
SCONMRVIAINNS	-.180	-.256	-.120	.009
RCONMRVIAIINNS	.023	.012	.038	.012
HCONDCVIAINNQ	.002	-.005	.027	.424
SCONDCVIAINNQ	-.015	-.093	.038	.580
RCONDCVIAINNQ	.001	-.003	.014	.424
HCONINNVIAINNQ	-.004	-.024	.004	.379

Parameter	EST.	LO	UP	P
SCONINNVIAINNQ	.034	-.022	.093	.205
RCONINNVIAINNQ	-.003	-.012	.001	.170
HCONSCAVIAINNQ	-.003	-.022	.002	.248
SCONSCAVIAINNQ	.026	-.006	.065	.210
RCONSCAVIAIINNQ	-.002	-.011	.000	.182
HCONMRVIAINNQ	.001	-.003	.010	.434
SCONMRVIAINNQ	-.008	-.040	.021	.583
RCONMRVIAIINNQ	.001	-.002	.006	.499

Testing the results shown in table (11) for significance is founded on the null hypothesis, which stipulates that if zero occurs within the lower and upper bounds of the 95% confidence interval, the null hypothesis will remain true, indicating that the effect is minor. The null hypothesis would be rejected, indicating that the effect is substantial if zero were to fall outside of the lower and upper bounds.. Below is a summary for the impact and its significance through the different mediators:

The impact of business intelligence as a mediator

Based on the analysis of the data, the study concluded that the impact of human capital (HC) on dynamic capacities (DC) through business intelligence (BI) is -.019 and negligible since the lower and upper bounds of the 95% confidence interval are -.060 and.007, respectively, and P =.105. Consequently, when HC increases by 1, Dynamic Capabilities decrease by 0.0019. Since the 95% confidence interval's lower limit is -.041 and it's upper bound is.022, and P =.770, the effect of social capital (SC) on dynamic capacities (DC) through business intelligence (BI) is -.001 and inconsequential.

Given that the lower bound of the 95% confidence interval is -.004 and the upper bound of the 95% confidence interval is.027, where P =.155, the impact of relational capital (RC) on dynamic capabilities (DC) through business intelligence (BI) is.008 and inconsequential.

Since the lower and upper bounds of the 95% confidence interval are -.074 and -.005, respectively, and P is.012 the impact of human capital (HC) on innovation (INN) via business intelligence (BI) is -.026 and significant. Given that the lower bound of the 95% confidence interval is -.040 and the upper bound is.021, and P =.842, the effect of social capital (SC) on innovation (INN) through business intelligence (BI) is -.001

and insignificant. Relational capital (RC) has a.010 significant influence on innovation (INN) through business intelligence (BI), where P is.022 and the lower and upper bounds of the 95% confidence interval are both .002 and .022, respectively. Business intelligence (BI) has a.006 impacts on sustainable competitive advantage (SCA), which is negligible given that P is.252 and the 95% confidence interval's lower and upper bounds are -.006 and.034, respectively. Given that the lower bound of the 95% confidence interval is -.011 and the upper bound is.020, and P =.843, the impact of social capital (SC) on sustainable competitive advantage (SCA) through business intelligence (BI) is.000 and negligible. The relationship between relational capital (RC) and sustainable competitive advantage (SCA) as measured by business intelligence (BI) is -.002, which is negligible given that P is.363 and the lower and upper bounds of the 95% confidence interval are both -.012 and.003, respectively. Business intelligence (BI) has a.010 effect on market responsiveness (MR), which is significant given that P is.036 and the 95% confidence interval's lower and upper bounds, respectively, are.001 and.033. Since the 95% confidence interval's lower and upper bounds are -.011 and.014, respectively, and P is.656, the effect of social capital (SC) on market responsiveness (MR) through business intelligence (BI) is.001 and negligible. As the lower bound of the 95% confidence interval is -.011 and the upper bound of the 95% confidence interval is.001, where P is.072, the effect of relational capital (RC) on market responsiveness (MR) through business intelligence (BI) is -.004 and insignificant.

The impact of innovation speed as a mediator

The study concluded that the impact of human capital (HC) on dynamic capabilities (DC) via innovation speed (INNS) is.082 and significant because the lower bound of the 95% confidence interval is.006 and the upper bound of the 95% confidence interval is.168, where P is.033. This conclusion was based on the analysis of the data obtained. The lower bound of the 95% confidence interval is -.287, and the upper bound is -.021, where P equals.024. The influence of social capital (SC) on dynamic capabilities (DC) through innovation speed (INNS) is -.150 and significant.

Relational capital (RC) has a.019 significant impacts on dynamic capabilities (DC) via innovation speed (INNS), where P is.042 and the lower and upper bounds of the

95% confidence interval are .001 and .038, respectively. The relationship between human capital (HC) and innovation (INN) via innovation speed (INNS) is .021, which is negligible given that P is .376 and the 95% confidence interval's lower and upper bounds are -.030 and .079, respectively.

The impact of social capital (SC) on innovation (INN) through innovation speed (INNS) is -.039 and negligible because the 95% confidence interval's lower and upper bounds are -.132 and .059, respectively, and P equals .431.

Relational capital (RC) has a .005 negligible effects on innovation (INN) via innovation speed (INNS), where P is .361 and the lower and upper bounds of the 95% confidence interval are both -.006 and .018, respectively.

Since the lower and upper bounds of the 95% confidence interval are .046 and .145, respectively, and P is .002, the impact of human capital (HC) on sustainable competitive advantage (SCA) through innovation speed (INNS) is .083 and significant.

Since the lower and upper bounds of the 95% confidence interval are -.241 and -.079, respectively, and P is .004, the effect of social capital (SC) on sustainable competitive advantage (SCA) through innovation speed (INNS) is -.152 and significant.

Relational capital (RC) has a .020 significant influence on sustainable competitive advantage (SCA) via innovation speed (INNS), where P is .004 and the lower and upper bounds of the 95% confidence interval are .009 and .036, respectively. Since the lower and upper bounds of the 95% confidence interval are .064 and .135, respectively, and P is .009, the effect of human capital (HC) on market responsiveness (MR) via innovation speed (INNS) is .098 and significant.

The lower bound of the 95% confidence interval is -.256, and the upper bound is -.120, where P equals .009. The impact of social capital (SC) on market responsiveness (MR) via innovation speed (INNS) is -.180 and significant. Since the 95% confidence interval's lower limit is .012 and its upper bound is .038, the effect of relational capital (RC) on market responsiveness (MR) via innovation speed (INNS) is .023 and significant, where P is .012.

The impact of innovation quality as a mediator

Based on the analysis of the data, the study concluded that the relationship between human capital (HC) and dynamic capabilities (DC) via innovation quality (INNQ) is.002 and insignificant, with P equal to.424 and the lower and upper bounds of the 95% confidence intervals being -.005 and.027, respectively. As the lower bound of the 95% confidence interval is -.093 and the upper bound of the 95% confidence interval is.038, where P equals.580, the influence of social capital (SC) on dynamic capabilities (DC) through innovation quality (INNQ) is -.015 and insignificant.

Relational capital (RC) has a.001 and negligible impact on dynamic capacities (DC) through innovation quality (INNQ), where P is.424 and the lower and upper bounds of the 95% confidence interval are -.003 and.014, respectively. The lower bound of the 95% confidence interval is -.024 and the upper bound of the 95% confidence interval is.004, where P =.379. The impact of human capital (HC) on innovation (INN) via innovation quality (INNQ) is -.004 and insignificant.

The impact of social capital (SC) on innovation (INN) through innovation quality (INNQ) is.034, which is negligible given that P is.205 and the 95% confidence interval's lower and upper bounds are -.022 and.093, respectively. Relational capital (RC) has a negative influence on innovation (INN) through innovation quality (INNQ) of -003, which is negligible given that P is.170 and the 95% confidence interval's lower and upper bounds are both.012 and.001, respectively.

The relationship between human capital (HC) and sustainable competitive advantage (SCA) as measured by innovation quality (INNQ) is -.003 and insignificant because P =.248 and the lower and upper bounds of the 95% confidence interval are both -.022 and.002, respectively. The relationship between social capital (SC) and sustainable competitive advantage (SCA) as measured by innovation quality (INNQ) is.026 and insignificant because P is.210 and the lower and upper bounds of the 95% confidence interval are -.006 and.065, respectively.

Relational capital's (RC's) effect on innovation quality's (INNQ's) contribution to sustainable competitive advantage (SCA) is -.002., and insignificant because the 95%

confidence interval's lower bound is -.011. P is.182, and the upper bound of the 95% confidence interval is.000.

The relationship between human capital (HC) and market responsiveness (MR) via innovation quality (INNQ) is.001 and insignificant since the lower and upper bounds of the 95% confidence interval are -.003 and.010, respectively, and P is.434.

The relationship between social capital (SC) and market responsiveness (MR) via innovation quality (INNQ) is -.008 and negligible because P =.583 and the lower and upper bounds of the 95% confidence interval are -.040 and.021, respectively. Relational capital (RC) has a.001 impacts on market responsiveness (MR) through innovation quality (INNQ), which is negligible given that P is.499 and the 95% confidence interval's lower and upper bounds are -.002 and.006, respectively.

Total Effects

Using P software developed by Hayes, the total effects for all the independent variables of intellectual capital (human capital, relational capital and structural capital) on competitive advantage were computed. Therefore, regression of HC, SC and RC on competitive advantage for direct effect showed no significant relationships, as shown in table (12).

Table 11:

Regression of HC, SC and RC on competitive advantage for direct effect.

Direct effect	Coeff*	Se**	t***	P****	LLCI	ULCI
MODEL 1						
HC > CA	−0.0246	0.0228	−1.0774	0.2818	−0.0694	0.0202
SC > CA	−0.0013	0.0360	−0.0358	0.9714	−0.0720	0.0694
RC > CA	−0.0026	0.0090	−0.2868	0.7743	−0.0203	0.0151

In testing for total indirect effect of (HC, SC and RC) through all mediators on competitive advantage, results showed a significant impact for human capital and relational capital, as seen in table (13).

Table 12:

Total indirect effect of (HC, SC and RC) through all mediators

Paths	Indirect Effect	BootSE	BootLLCI	BootULCI	Hypotheses
MODEL 5					
Total indirect effect of (HC, SC and RC) through all mediators					
HC	0.1132	0.0401	0.0351	0.1926	
SC	−0.0033	0.0631	−0.1261	0.1180	
RC	−0.0396	0.0157	−0.0702	−0.0082	

However, testing for total (direct and indirect) effect of HC, SC and RC) on CA showed a significant relationship for human capital and relational capital, as seen in table (14).

Table 13.

Total (direct and indirect) effect of HC, SC and RC) on CA

Direct effect	Coeff*	Se**	t***	P****	LLCI	ULCI
MODEL 1						
TOTAL HC > CA	0.0886	0.0423	2.0974	0.0364	0.0056	0.1716
TOTAL SC > CA	−0.0046	0.0685	−0.0665	0.9470	−0.1390	0.1299
TOTAL RC > CA	−0.0422	0.0175	−2.4154	0.0160	−0.0765	−0.0079

The indirect effects of mediators are nonetheless summarized in Table (15), where (+) denotes a positive influence, (-) a negative impact, and highlighted cells denote significant effects while non-highlighted cells denote negligible effects. This will assist in validating the claim in the chapter's discussion.

Table 14:

Indirect effect summary

****	Business Intelligence				Innovation Speed				Innovation Quality			
	Competitive advantage											
	DC	INN	SCA	MR	DC	INN	SCA	MR	DC	INN	SCA	MR
Human Capital	-	-	+	+	+	+	+	+	+	-	-	+
Structural capital	-	-	+	+	-	-	-	-	-	+	+	-
Relational capital	+	+	-	-	+	+	+	+	+	-	-	+

Table 16 summarize the status of all hypothesis in terms of being accepted or rejected including the direct effects of HC, SC and RC, individually on competitive advantage, the total indirect effects of (HC, SC and RC), individually, through all mediators and the total (direct and indirect) effects of HC, SC and RC, individually, on CA.

Table 15:

 summary of all hypothesis/ acceptance and rejection

Hypothesis	Status
H1a- (BI) positively mediates the impact between (HC) and (DC).	Rejected
H1b- (BI) positively mediates the impact between (HC) and (INN)	Rejected
H1c- (BI) positively mediates the impact between (HC) and (SCA)	Rejected
H1d- (BI) positively mediates the impact between (HC) and (MR).	Accepted
H1e- (BI) positively mediates the impact between (SC) and (DC).	Rejected
H1f- (BI) positively mediates the impact between (SC) and (INN)	Rejected
H1g- (BI) positively mediates the impact between (SC) and (SCA)	Rejected
H1h- (BI) positively mediates the impact between (SC) and (MR).	Rejected
H1i- (BI) positively mediates the impact between (RC) and (DC).	Rejected
H1j- (BI) positively mediates the impact between (RC) and (INN)	Accepted
H1k- (BI) positively mediates the impact between (RC) and (SCA)	Rejected
H1l- (BI) positively mediates the impact between (RC) and (MR).	Rejected
H2a- (INNS) positively mediates the impact between (HC) and (DC).	Accepted
H2b- (INNS) positively mediates the impact between (HC) and (INN)	Rejected
H2c- (INNS) positively mediates the impact between (HC) and (SCA)	Accepted
H2d- (INNS) positively mediates the impact between (HC) and (MR).	Accepted
H2e- (INNS) positively mediates the impact between (SC) and (DC).	Rejected
H2f- (INNS) positively mediates the impact between (SC) and (INN)	Rejected
H2g- (INNS) positively mediates the impact between (SC) and (SCA)	Rejected
H2h- (INNS) positively mediates the impact between (SC) and (MR).	Rejected
H2i- (INNS) positively mediates the impact between (RC) and (DC).	Accepted
H2j- (INNS) positively mediates the impact between (RC) and (INN)	Rejected
H2k- (INNS) positively mediates the impact between (RC) and (SCA)	Accepted
H2l- (INNS) positively mediates the impact between (RC) and (MR).	Accepted
H3a- (INNQ) positively mediates the impact between (HC) and (DC).	Rejected
H3b- (INNQ) positively mediates the impact between (HC) and (INN)	Rejected
H3c- (INNQ) positively mediates the impact between (HC) and (SCA)	Rejected
H3d- (INNQ) positively mediates the impact between (HC) and (MR).	Rejected
H3e- (INNQ) positively mediates the impact between (SC) and (DC).	Rejected
H3f- (INNQ) positively mediates the impact between (SC) and (INN)	Rejected
H3g- (INNQ) positively mediates the impact between (SC) and (SCA)	Rejected
H3h- (INNQ) positively mediates the impact between (SC) and (MR).	Rejected

H3i- (INNQ) positively mediates the impact between (RC) and (DC).	Rejected
H3j- (INNQ) positively mediates the impact between (RC) and (INN)	Rejected
H3k- (INNQ) positively mediates the impact between (RC) and (SCA)	Rejected
H3l- (INNQ) positively mediates the impact between (RC) and (MR).	Rejected
H4a- The direct effects of HC, SC and RC, individually on competitive advantage are significant.	Rejected
H4b- The total indirect effects of (HC, SC and RC), individually, through all mediators are significant	Accepted on HC and RC
H4c- The total (direct and indirect) effects of HC, SC and RC, individually, on CA are significant	Accepted on HC and RC

Chapter V

Discussion, conclusion and recommendations

Discussion

The impact of business intelligence as a mediator

Considering the analysis of the obtained data, the study revealed that the effect of human capital (HC) and relational capital (RC) on dynamic capabilities (DC) via business intelligence (BI) was proportional though not statistically significant, while the effect of social capital (SC) on dynamic capabilities (DC) through business intelligence (BI) was reciprocal. In addition, it was also found that the effect of human capital (HC) and social capital (SC) on innovation (INN) through business intelligence (BI) was reciprocal where the former is statistically significant while the later is not statistically significant. However, the effect of relational capital (RC) on innovation (INN) via business intelligence (BI) was proportional and statistically significant. However, the effect of human capital (HC) and social capital (SC) on sustainable competitive advantage (SCA) through business intelligence (BI) was proportional and not significant, while the effect of relational capital (RC) on sustainable competitive advantage (SCA) through business intelligence (BI) was reciprocal and insignificant. Further, it was also found that the effect of human capital (HC) and social capital (SC) on market response (MR) through business intelligence (BI) was proportional and statistically significant for the former but not statistically significant for the later, where the effect of relational capital (RC) on market response (MR) through business intelligence (BI) was reciprocal and not statistically significant. Business intelligence plays a crucial part in gaining a competitive advantage, as demonstrated by (MUKUCHE & 2015), who provided evidence of this.

Significant results are further corroborated by Chen (2012), who confirmed that business intelligence is implicated in a number of key relationships related to competitive advantage. However, only human capital and relational capital were shown to have a clearly demonstrated significant impact of business intelligence on competitive advantage in the current study. This finding makes clear how human capital and relational capital, when combined, can boost competitive advantage for pharmaceutical and medical supply companies operating in Jordan. This indicates that

pharmaceutical and medical supply companies in Jordan are effectively utilizing business intelligence to strengthen their competitive advantage through the use of human capital and relational capital.

However, a lack of structural capital or the absence of any effect at all could be the cause of the minimal or negative impact of structural capital on gaining a competitive edge through business intelligence. These results suggest that simply focusing on structural capital may not always result in the anticipated competitive advantage. Our findings, however, can only be partially supported by the impact of business intelligence on competitive advantage because no researchers have looked at this mediation of the business intelligence relationship, particularly at the individual level of the various components of intellectual capital (Al-Saqqa, 2017; Balouei, 2014; Chen, 2012; Karim, 2011; MacGillivray, 2002; MUKUCHE & 2015).

However, these results suggest that Jordanian pharmacies and medical supply companies should apply business intelligence to transform unprocessed data into understandable insights that can be applied throughout the entire organization. In fact, the collection, processing, and display of data may serve as the foundation for the final decision-making process. These findings force Jordanian pharmaceutical and medical supply companies to undertake the majority of their tests manually or automatically in order to save time and effort. As a matter of fact, Jordan's pharmaceutical and medical supply companies need business intelligence tools to quicken up information analysis and performance evaluation and thereby boost their competitive advantage. These tools are also necessary to help businesses cut waste, flag potential issues, find new revenue streams, and pinpoint potential growth areas. Actionable insights will result from this, enabling business executives to make precise decisions that may be used for both operational and strategic decisions to increase competitive advantage. As a result, implementing BI in Jordanian pharmaceutical and medical supply firms provides more of benefits, ranging from improved analysis to increased competitive advantage. Apart from this, business intelligence may be a source of long-term competitive advantage for Jordan's pharmaceutical and medical supplier industries to have an advantage over its competitors when it contains some characteristics that allow it to perform better than its competitors. This is possible by connecting strategic efforts with line-of-business activities. More importantly, business intelligence can show pharmaceutical

and medical supply companies in Jordan trends that most managers are unaware of, and new opportunities may open up for pharmaceutical and medical supply companies that were not previously considered, giving them an advantage in the future. As stated by Guarda et al., (2013), pharmaceutical and medical supply firms in Jordan must eventually grasp the data created in the operation of their business if they are to gain a competitive edge.

The impact of innovation speed as a mediator

Additionally, the influence of social capital (SC) on sustainable competitive advantage (SCA) via innovation speed (INNS) is reciprocal and significant, whereas the impact of human capital (HC) and relational capital (RC) is proportional and significant for both of them. However, the influence of social capital (SC) on market responsiveness (MR) via innovation speed (INNS) is reciprocal and substantial, whereas the influence of human capital (HC) and relational capital (RC) is proportional and significant.

Additionally, the influence of social capital (SC) on sustainable competitive advantage (SCA) via innovation speed (INNS) is reciprocal and significant, whereas the impact of human capital (HC) and relational capital (RC) is proportional and significant for both of them. However, the influence of social capital (SC) on market responsiveness (MR) via innovation speed (INNS) is reciprocal and substantial, whereas the influence of human capital (HC) and relational capital (RC) is proportional and significant.

These findings collectively provide further evidence for the existence of the mediating role of innovation speed, which is well demonstrated by the favorable effects of human capital and relational capital. However, these findings highlight how important it seems that relationship and human capital are in enabling competitive advantage. Wang (2021) asserts that this is likely caused by the relationship-focused culture in the Jordanian business environment, which places a strong emphasis on social harmony and interpersonal concord. Because human capital and relational capital increase competitive advantage through innovation speed, pharmaceutical and medical supply firms in Jordan are able to effectively capitalize on this. These findings (by Eric H. Kessler and Alok K. Chakrabarti., 1996) support these results.

This implies that innovation speed is critical in pharmaceutical and medical supply firms, as well as in any small business in Jordan, particularly in the strategic planning phase for establishing a competitive edge. Indeed, large-scale businesses may benefit from economies of scale, lowering manufacturing costs and increasing profit margins. However, because start-up firms do not have the same opportunities, they must typically innovate to get the same achievements. Finally, a well-established company that use innovation as a progressive tool can increase its earnings and efficiency.. Because of the competitive climate, items within the same marketing from each supplier are extremely similar, making it difficult for clients to distinguish between them. As a result, innovation speed capability may be the essential productivity that generates competitive advantage by recognizing or discovering a new, better, or quicker method to compete in an industry and launching it into the market. One success aspect is the relative advantage of innovation. This means, for example, that the rate of innovation has become the most essential asset for pharmaceutical and medical supply firms in Jordan, as well as the first mover advantage when it comes to market acceptability. In the long term, sustaining product innovation pace in Jordan's pharmaceutical and medical supply industries is the best strategy to preserve competitive advantage and promote productivity growth for future competitiveness. This innovation will undoubtedly necessitate the introduction of new process technology, since this appears to provide it with its novelty, which is the key attribute of innovation, through freshly developing ways of doing or manufacturing things.

As a result, Jordanian pharmaceutical and medical supply companies can enter the market first with quick time-to-market and rapid product innovation, resulting in a larger market share and sales volume. This is supported by (Li et al, 2006), who proposed a positive relationship between competitive advantage and organizational performance. In fact, what makes our result significant is the rising understanding that, in constantly evolving business contexts, Innovation capacity of a company is essential to establishing and maintaining competitive advantage. However, despite the fact that invention speed has long been seen to be a key aspect in developing a competitive advantage, Carbonell and Rodriguez (2006) asserted that there has been little empirical study on the advantages of innovation speed and their contextual dependency. More crucially, according to Kessler and Chakrabarti (1996), the question of whether

innovation pace is appropriate, what factors speed up inventions, and how variations in speed affect project outcomes have not been the subject of theoretical development or model construction.

The impact of innovation quality as a mediator

The study discovered that the influence of human capital (HC) and relational capital (RC) on dynamic capacities (DC) through innovation quality (INNQ) is proportional and insignificant for both of them, where the impact of social capital (SC) on dynamic capabilities (DC) via innovation quality(INNQ) is reciprocal and insignificant. In addition, the impact of human capital (HC) and relational capital (RC) on innovation(INN) via innovation quality(INNQ) is reciprocal and insignificant for both of them, where the impact of social capital (SC) on innovation(INN) via innovation quality(INNQ) is proportional and insignificant as well. However, the impact of human capital (HC) and relational capital (RC) on sustainable competitive advantage (SCA) via innovation quality(INNQ) is reciprocal and insignificant for both, where the impact of social capital (SC) on sustainable competitive advantage (SCA) via innovation quality(INNQ) is proportional and insignificant. Further, the impact of human capital (HC) and relational capital (RC) on market responsiveness(MR) via innovation quality(INNQ) is proportional and insignificant, while the impact of social capital (SC) on market responsiveness(MR) via innovation quality(INNQ)is reciprocal and insignificant.

Additionally, it was discovered that the influence of human capital and relational capital on competitive advantage through the mediation of innovation quality was negligible. These results conflict with those of (Le, 2018); Marc, 2017; and Wang, 2021), who demonstrated the existence of a favorable mediation impact of innovation quality. This indicates that pharmaceutical and medical supply companies in Jordan are not effectively utilizing innovation quality, which increases competitive advantage through human, structural, or relational capital. As a result, according to Lakhal (2009), effective quality improvement has become a potentially useful technique of gaining a competitive edge in Jordan's pharmaceutical and medical supply industries. This is because new product innovation is important to Jordan's pharmaceutical and medical supply industries' competitive edge. According to Kessler and Bierly (2002), there is insufficient and frequently conflicting evidence regarding how the three components of an innovation strategy—cost, quality, and speed—relate

to one another and how they ultimately influence project success. Innovation speed is the subject of much hype but little empirical support. Furthermore, the complexity of the market position, the dynamics of the environment, and the operation of the organization is so vast that demonstrating a significant link between the execution of the innovation and prospective economic effect is nearly difficult.. However, for Jordan's pharmaceutical and medical supply industries, innovation quality is still limited to the degree of effect of innovation output, including innovation ability and innovation performance. However, while "innovation" is strongly associated with newness, inventiveness, and unconventionality, "quality" notions such as standardization, low tolerance, and methodical process are more closely associated with Jordan's pharmaceutical and medical supply industries. However, because indicators are insufficient to analyze all significant innovation factors fully, as mentioned by Prihadyanti (2019), This may result in incorrect conclusions about how effectively innovation in a corporation can result. As a result, this new notion of innovation quality as a new innovation indicator may be effective in Jordanian pharmaceutical and medical supply industries. For this, as well as for improved innovation quality, pharmaceutical and medical supply firms in Jordan must give and focus on measuring innovation production, outcomes, impact, and satisfaction in a defined time frame.

In addition, the total direct effects for all the independent variables of intellectual capital (human capital, relational capital and structural capital), individually, showed no significant relationships, where the total indirect effect of (HC, SC and RC) through all mediators on competitive advantage, showed a significant effect for human capital and relational capital, while the total (direct and indirect) effect of HC, SC and RC) on CA showed a significant relationship for human capital and relational capital, as well.

However, a closer examination of Table (10), highlights the mediator's indirect effects and demonstrates how varied business intelligence, innovation speed, and innovation quality responses to human capital, structural capital, and relational capital lead to different outcomes. The lack of the indicated mediation effect, if there is one, can only be explained by the low level of the related intellectual capital components.

Conclusions

The framework for business intelligence, innovation speed, and innovation quality as intermediaries between the competition, intellectual capital elements and a means of representing it have been introduced in this study. By examining the information gathered from Jordanian pharmaceutical and medical supply companies, the study has put its hypotheses to the test. The study answered all of its questions. The answers showed significant results the mediating effect of business intelligence, innovation speed and innovation quality between the intellectual capital components and the competitive advantage components . Nevertheless, many insignificant relationships appeared. This included the impact of human capital (HC) and relational capital (RC) on dynamic capabilities (DC) via business intelligence (BI). In addition, it was also found that the impact of social capital (SC) on innovation (INN) through business intelligence (BI) was not statistically significant. The effect of human capital (HC) and social capital (SC) on sustainable competitive advantage (SCA) through business intelligence (BI) was not significant. Further, it was also found that the effect of social capital (SC) on market response (MR) through business intelligence (BI) was not statistically significant, where the effect of relational capital (RC) on market response (MR) through business intelligence (BI) was reciprocal and not statistically significant.

In conclusion, these findings show that all mediators between the various elements of intellectual capital and competitive advantage function differently. They also reveal the underlying mechanisms by which intellectual components lead to improved competitive advantage in the pharmaceutical and medical supply companies in the Jordanian context through the mediating mechanisms of business intelligence, innovation speed, and innovation quality. This is crucial since, in this study, the direct relationship between intellectual capital's components and competitive advantage's component was highly limited to market responsiveness alone, suggesting the need for mediators to help intellectual capital's components increase competitive advantage.

More notably, since the relationship between the different components of intellectual capital and competitive advantage is not caused by a direct relationship between the various competitive factors, the paucity of works that examined this relationship through the mediation of business intelligence, innovation speed, and innovation quality may be to blame for the disparate effects and sizes of those relationships found by various researchers. In Jordan's pharmaceutical and medical

supply industries, this means that high levels of human capital, relational capital, and structural capital facilitate and hasten the effects of business intelligence, innovation speed, and innovation quality.

General Implications of Competitive Advantage

Having a competitive advantage is producing goods and services at a cost and standard that is higher than those offered by competitors. Companies always engage in business activities that strengthen their competitive advantage in the market when they wish to gain more clients. To increase their bottom line, businesses always strive to increase their profit margins. Only inventive and creative businesses may, however, achieve a competitive advantage. Businesses must put more of an emphasis on business intelligence to enhance product development and quality assurance. Although there are many ways to increase a company's competitive edge, the two most important ones are cost or differentiation. A company that successfully achieves cost or differentiation superiority is able to compete with its rivals by providing its consumers with goods and services at relatively lower costs or with a higher degree of differentiation. It is essential to pinpoint the characteristics that increase a company's competitiveness because organizations compete on a variety of parameters. For instance, utilizing pricing techniques to compete may not be as successful as focusing on product innovation speed and quality. The product quality is frequently better for customers who are more likely to spend money. Such customers are willing to pay any amount as long as they are assured of receiving high-quality goods. Businesses frequently carry out market research to comprehend consumer preferences and tastes. In such cases, businesses alter their product offering to suit these preferences based on customer input. As a result, it takes a long time for a corporation to comprehend its customers. It entails routine analysis of market trends and performance evaluation of the product

But as the amount of data in the industry has increased, BI has grown to be crucial for every company, regardless of size, and is crucial for decision making. However, despite the fact that invention speed has long been considered to be a crucial component of gaining a competitive edge, as suggested by Carbonell and Rodriguez, there hasn't been much empirical research on the advantages of innovation speed and their contextual dependence. More importantly, no theoretical work has been done to

explore whether innovation speed is appropriate, what factors speed up innovations, or how speed differences affect project outcomes, according to Kessler and Chakrabarti (1996).

Nonetheless, the study's significance is that it offers empirical support for the direct and indirect benefits of business intelligence, innovation quality, and innovation speed on the competitive advantage of Jordanian pharmaceutical and medical supply firms. Furthermore, this is one of the first research to look into how IC may impact CA via the mediating effects of innovation pace and quality, as well as business intelligence. Indeed, this study not only adds to the HRM literature on IC and innovation, but it also provides managers with insights on how to align their HRM strategies and practices to create IC while seeking innovation and CA goals.

In truth, Jordan's pharmaceutical and medical supply firms are at the vanguard of the country's innovation and use of business intelligence, as well as market share and overall economic and financial success. Indeed, business intelligence and innovations have shown to be useful in giving pharmaceutical and medical supply firms in Jordan with a more durable competitive edge.

Practical implications

In-depth knowledge of the elements required to foster competitive advantage in businesses is provided to CEOs and managers by this study.

Recommendation

According to the findings, pharmaceutical and medical supply companies in Jordan should leverage business intelligence to transform raw data into easy-to-understand insights that everyone in these organizations can use. Furthermore, they must do the majority of their analyses manually or automatically, saving time and effort. However, Jordan's pharmaceutical and medical supply companies must use business intelligence tools to accelerate information analysis and performance evaluation, increasing their competitive advantage, as well as assisting companies in reducing inefficiencies, identifying potential problems, identifying novel revenue streams, and identifying areas of future growth. Indeed, applying business intelligence in Jordanian pharmaceutical and medical supply enterprises brings several advantages, ranging from enhanced analysis to greater competitive advantage. They should be

aware, however, that business intelligence may reveal patterns that most managers are ignorant of, and new chances may open up for pharmaceutical and medical supply firms in Jordan that were not previously explored, providing them an edge in the future. As a result, pharmaceutical and medical supply companies in Jordan must eventually comprehending the data produced in the course of doing business if they are to acquire a competitive advantage.

Jordanian suppliers of pharmaceuticals and medical equipment ought to be aware that innovation speed is crucial during the strategic planning phase for developing a competitive edge. As a result, it is advised that they generally innovate in order to accomplish the same results. They must be aware, however, that innovation speed capacity is a critical productivity that provides competitive advantage by recognizing or inventing a new, better, or faster way to compete in an industry and putting it into the market. This is because, in the long run, maintaining Jordan's pharmaceutical and medical supply sectors' product innovation pace is the greatest approach for preserving competitive advantage and promoting productivity growth for future competitiveness.. Companies with a quick time-to-market and speedy product innovation can be the first to market, which would increase their market share and sales volume.

In terms of innovation quality, pharmaceutical and medical supply companies in Jordan should be aware that effective quality improvement has emerged as a potentially valuable strategy for creating a competitive advantage. Furthermore, they must be aware that the complexity of the market position, the dynamics of the environment, and the operation of the organization is so great that showing a substantial relationship between the implementation of the innovation and the anticipated economic effect is practically impossible.

Finally, pharmaceutical and medical supply organizations in Jordan ought to concentrate on and acknowledge business intelligence, innovation speed, and innovation quality as means by which human capital, relational capital, and structural capital enhance competitive advantage. More importantly, businesses in Jordan need to understand that in order to understand the impact's type and extent because it undoubtedly varies depending on the dynamics of the industry, it is crucial to consider the study's whole context. Limitations and future research

The study has a number of limitations. Future research may be guided by these restrictions. In order to first understand the underlying mechanism of IC's impact on a firm's competitive advantage, a cross-sectional approach was adopted in this study. In truth, this cross-sectional design is unable to establish a causal relationship among the many constructs. Future research may therefore employ longitudinal studies to identify more precise causal relationships and explore potential time lag effects of the intervention of three mediators between the development of intellectual capital and competitive advantage. Second, pharmaceutical and medical supply companies in Jordan were the setting for this study. Therefore, depending on how strong or weak the mediation effect is, certain structures may be more or less susceptible to it and produce different findings.

Therefore, to confirm the validity of our research findings, future studies should gather information from diverse businesses. Third, this study investigates the fundamental relationship between intellectual capital and firm competitive advantage by focusing on IC and the mediators. Significantly, both employees and managers make subjective assessments of the scale elements of those dimensions. Therefore, Additional studies may be required in the future unbiased measures of business competitive advantage, such as company performance or client satisfaction.

Business intelligence, innovation speed, and innovation quality are the three main mediators of IC and firm competitive advantage that are the subject of our research. However, there are a number of significant contextual factors, particularly from the perspective of human resources that may lessen their effects. Future research may need to look into the moderating effects of several contextual factors, like HRM strategy, leadership style, and maybe customer happiness, in order to gain further insights.

Additionally, to boost the likelihood of generalization, this study suggests expanding the scope of the original study and applying it to additional situations or industries. More significantly, it suggests expanding the research to examine how business intelligence, competitive advantage, innovation quality and speed, and magnitude are all mediated by intellectual capital. Furthermore, it suggests examining the relationship between intellectual capital and competitive advantage and business success while minimizing the influence of innovation.

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Appendix

Appendix (1): Questionnaire

Dear Participant,

This study is part of a PhD thesis study seeking information on "The impact of the intellectual capital (IC) on the competitive advantage (CA) through the mediation of business intelligence, innovation speed and innovation quality in the Pharmaceutical and medical supplies companies in Jordan". We are kindly inviting your participation in this study, which will involve a questionnaire survey. The survey is completely confidential and is for scientific purposes only and will be kept confidential. Your participation is completely voluntary and you may stop taking part at any time you wish. The survey should take about 15-20 minutes to complete. There are no right or wrong answers. Candid responses based on your personal thoughts are greatly appreciated. If you have any questions concerning the research study, please feel free to contact us using the information stated below. Thank you in advance for your cooperation and assistance.

Research Team:

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Appendix (2): questionnaire

Dear Participant,

The questionnaire consisted of four parts;

• Part 1 is demographical/personal information

• Part 2 measures intellectual capital

• Part 3 measures competitive advantages

• Part 4 measures business intelligence, innovation quality and innovation speed.

Part 1: Personal Information:

Please kindly check with (√) in front of the appropriate option

1. Gender

☐	Male	☐	Female

2. Age:

☐	Less than 30 years	☐	31 – 40years
☐	41 – 50 years above	☐	51 years and

3. Educational Level:

☐	Bachelor Degree	☐	Master Degree
☐	PhD Degree state): --------	☐	Others (please

4. Work Experience:

☐	Less than 1 year	☐	1-5 years
☐	6 – 10 years	☐	11– 15 years
☐	16 years and above		

5. Job Title: please add "

☐	General Manager	☐	Deputy Manager
☐	Head of Department	☐	Head of Division

□   Others (please state)….

Part 2: Intellectual Capital:

Indicate (X) for your level of agreement for each of the statements below in regards to intellectual capital according to the scale below;

(1= Strongly Disagree   2= Disagree   3=Uncertain   4= Agree   5= Strongly Agree)

Human Capital						
	Statement	1	2	3	4	5
1	Employees hold suitable work experience for accomplishing their job successfully in my organization	1	2	3	4	5
2	Employees of my company have excellent professional skills in their particular jobs and functions	1	2	3	4	5
3	My organization provides well-designed training programs	1	2	3	4	5
4	The employees of my organization often develop new ideas and knowledge	1	2	3	4	5
5	Employees are creative in my organization	1	2	3	4	5
Relational Capital						
6	My organization discovers and solves problems through intimate communication and effective collaboration	1	2	3	4	5
7	My organization maintains appropriate interactions with its stakeholders	1	2	3	4	5
8	My organization maintains long-term relationships with customers	1	2	3	4	5
9	My organization has many excellent suppliers	1	2	3	4	5
10	My organization has stable and good relationships with the strategic partners	1	2	3	4	5
Structural Capital						
11	The overall operations procedure of my organization is very efficient	1	2	3	4	5
12	My organization responds to changes very quickly	1	2	3	4	5
13	My organization has an easily accessible information system	1	2	3	4	5
14	Systems and procedures of my organization support innovation	1	2	3	4	5
15	My organization 's culture and atmosphere are flexible and comfortable	1	2	3	4	5

Part 3: Competitive Advantage

Indicate (X) for your level of agreement for each of the statements below in regards to intellectual capital according to the scale below;

(1= Strongly Disagree   2= Disagree   3=Uncertain 4= Agree   5= Strongly Agree)

	Dynamic capabilities					
1	Our company is fast in detecting a major change in our industry (e.g.,competition, technology, regulation)	1	2	3	4	5
2	We often review the possible influence of changes in our operating environment (e.g., government regulation) on customers	1	2	3	4	5
3	We quickly understand new opportunities to serve our clients	1	2	3	4	5
4	We are very good at observing and anticipating technological trends	1	2	3	4	5
5	We regularly check the quality of our functional capabilities in comparison with the competition	1	2	3	4	5
6	We regularly check the quality of our functional capabilities in comparison with companies in different industries	1	2	3	4	5
7	We pay great attention to monitoring the change of functional capabilities	1	2	3	4	5
8	After changing existing capabilities or integrating new capabilities, we pay great attention to monitoring the efficiency of new processes	1	2	3	4	5
9	We frequently acquire knowledge about technologies and market trends from external sources	1	2	3	4	5
10	We strategically identify and acquire external knowledge (e.g., market,technology) very quickly	1	2	3	4	5
11	Employees of our unit regularly visit other branches to learn about new technologies, trends, or business models	1	2	3	4	5
12	Existing knowledge (e.g., market or technology) is readily available to each department within our business unit	1	2	3	4	5
13	Our business unit periodically circulates codified knowledge in the form of documents (e.g., reports, newsletters) to update other units	1	2	3	4	5
14	During major changes (e.g., market or technological development), every department is made to know quickly	1	2	3	4	5
15	Our employees have the capabilities to produce many novel and useful ideas	1	2	3	4	5
16	Within this business unit, we have the capabilities successfully to learn new things	1	2	3	4	5

17	We have the capabilities to effectively develop novel ideas with the potential to impact on product development	1	2	3	4	5
18	When solving problems, we can rely on good cross-departmental support	1	2	3	4	5
19	We effectively transformed available knowledge into new resources (e.g., new organization structure, new technical equipment)	1	2	3	4	5
20	Our employees bring about changes that are outside the available capabilities	1	2	3	4	5
21	Our workers effectively identify priced capability elements, connect, and combine them in new ways	1	2	3	4	5
22	We can effectively recombine existing capabilities into 'novel' combinations	1	2	3	4	5
23	Employees merged existing methods with new ways of doing things without losing their efficiency	1	2	3	4	5
24	We can effectively integrate new externally sourced capabilities and combine them with existing capabilities into 'novel' combinations	1	2	3	4	5
25	We can successfully integrate the new knowledge acquired with our existing knowledge	1	2	3	4	5

Innovation

1	My firm experiences the continued enhancement of current products, processes, and services;	1	2	3	4	5
2	My firm has given its employees the opportunity to undertake innovation training/ education	1	2	3	4	5
3	My firm regularly produces novel methods of managing the business	1	2	3	4	5
4	My firm utilizes business process reengineering	1	2	3	4	5
5	My firm adopts work designs that are innovative	1	2	3	4	5
6	My firm is a leader in innovative pricing, distribution, and promotional methods in the market	1	2	3	4	5
7	My firm continuously widens it potential target market	1	2	3	4	5
8	My firm enhances customer satisfaction by importing innovative warranties and maintenance methods	1	2	3	4	5
9	My firm enhances customer satisfaction by importing innovative claim clearing processes and approaches	1	2	3	4	5
10	My firm adopts innovative follow-up and order management processes	1	2	3	4	5

Sustainable competitive advantages

1	Valuable Resources: key resources represent value for exploring market opportunities or assisting the organization in defending itself against environmental threats through an incre- ase in revenue and/or a reduction in spending.	1	2	3	4	5
2	Rare Resources: key resources are unavailable for other organizations. These resources are very difficult for competitors to acquire.	1	2	3	4	5

3	Imperfectly Imitable Resources: key resources are difficult for competitors to imitate.	1	2	3	4	5
4	Strategically Irreplaceable (Durable): key resources are difficult to replace with another strategic equivalent.	1	2	3	4	5
5	Environmental Sustainability: the company adheres to environmental sustainability in the use of key resources in the productive process and product development The company is also committed to the well-being of workers, society and the environment.	1	2	3	4	5
6	The company responsibly uses key resources in terms of the following aspects: economic (to provide society with goods and services); legal (regarding legal premises); ethics (respect for practices that are expected or prohibited by society); philanthropy (promote the well-being or quality of life of society).	1	2	3	4	5
Market Responsiveness						
1	My organization has the ability to respond quickly to new customer needs compared to our competitors.	1	2	3	4	5
2	My organization has the ability to better tailor products/services to individual customer needs compared to our competitors.	1	2	3	4	5
3	My organization has the ability to quickly enter new product/service markets compared to our competitors.	1	2	3	4	5
4	My organization has a better rate of introduction of new products/services compared to our competitors.	1	2	3	4	5

Part 4: Business Intelligence; Innovational Quality; Innovation Speed

Indicate (X) for your level of agreement for each of the statements below in regards to intellectual capital according to the scale below;

(1= Strongly Disagree   2= Disagree   3=Uncertain   4= Agree   5= Strongly Agree)

Business Intelligence					
1 My organization uses business intelligence systems to extract values of key performance indicators (KPI).	1	2	3	4	5
2 My organization uses business intelligence systems to get operational reporting.	1	2	3	4	5
3 My organization uses business intelligence systems to get tactical reporting.	1	2	3	4	5
4 My organization uses business intelligence systems to get strategic reporting.	1	2	3	4	5
5 My organization uses features of business intelligence systems to compare and contrast different aspects of the data.	1	2	3	4	5
6 My organization uses features of business intelligence systems to test different assumptions against data.	1	2	3	4	5

7	My organization uses features of business intelligence systems to derive insightful conclusions from data.	1	2	3	4	5
8	My organization uses features of business intelligence systems to get regular, standardized reports on key performance indicators.	1	2	3	4	5
9	My organization uses features of business intelligence systems to drill down into data to understand the root causes of exceptions.	1	2	3	4	5
10	My organization uses features of business intelligence systems for on-the-fly analysis of current and past data.	1	2	3	4	5
11	My organization uses features of business intelligence systems for querying.	1	2	3	4	5
12	My organization uses features of business intelligence systems for statistical analysis.	1	2	3	4	5
13	My organization uses features of business intelligence systems to share insights based on data within the organization.	1	2	3	4	5

Innovation Quality					
1	My organization is quick in coming up with novel ideas than that of key competitors	1	2	3	4	5
2	My organization is quick in new product launching than that of key competitors	1	2	3	4	5
3	My organization is quick in new product development than that of key competitors	1	2	3	4	5
4	My organization is quick in new processes than that of key competitors	1	2	3	4	5
5	My organization is quick in problem solving than that of key competitors.	1	2	3	4	5

Innovation Speed					
1	My organization does better in coming up with novel ideas than that of key competitors	1	2	3	4	5
2	My organization does better in new product launching than that of key competitors	1	2	3	4	5
3	My organization does better in new product development than that of key competitors	1	2	3	4	5
4	My organization does better in processes improving than that of key competitors	1	2	3	4	5
5	My organization does better in management improving than that of key competitors.	1	2	3	4	5

Appendix (3): pharmaceutical and medical supplies companies in Jordan

1. Aljadid Lilsinaeat Aldawayiya
2. Aljadid Lilsinaeat Aldawayiyat / Bwans W Khusumat
3. Almustawdae Alnaweiu Liladwi
4. Almutahalifat Altibiya
5. Alsharikat Alaitihadiat Alardiniat Alduwalia
6. Alsharikat Alardiniat Alsiwidiat Lilmuntajat Altibiyat Waltaeqim
7. Alsharikat Alardiniat Liladwit Jpm
8. Alsharikat Aldawliat Lildawa'
9. Alsharikat Aldhahabiat Lil'adwiat Waltijara (Tawzie Hasriun)
10. Alsharikat Alearabiat Lilmustahdarat Altibiyat Walziraeia
11. Alsharikat Alearabiat Lisinaeat Aladawia
12. Alsharikat Almutahidat Lisinaeat Aladawia
13. Alsharikat Almutahidat Lisinaeat Aladawiat Otc
14. Alturath Liltinikulujia Altibiya
15. Alwadaq Liltiknulujya Altibiya
16. Alwatin Lilmukamilat Alghidhayiya
17. Dar Alghidha'
18. Lawazim Tibiya
19. Medway Sharikat Midway Lilajihizat Walmustalzamat Altibiya
20. Milighram Lilmustalzamat Altibiya
21. Muasasat Aibn Hajar Lilmustahlikat Altibiya
22. Muasasat Alhabq Lilmustalzima T Altibiya
23. Muasasat Amanda Lilmustahlikat Altibiya
24. Muasasat Bilal Almashaqibat Lilmustahdarat Altibiya (Tawzie Hasriun)
25. Muasasat Marah Alhayaat Lilajihizat Altibiya
26. Muasasat Rafana Lilmustahlikat Altibiya
27. Muasasat Yasir Safaa Lilmustalzamat Altibiya
28. Muasasatahamad Eabd Aljawad Lilmutahirat (Samih Sabqa)
29. Mustawdae Abu Shikhat Lil'adwiat -Abbot
30. Mustawdae Adawiat Abn Hayaan
31. Mustawdae Adawiat Alard Altayibat / Abu Ealanda
32. Mustawdae Adawiat Alastura
33. Mustawdae Adawiat Alawabin Alduwlii
34. Mustawdae Adawiat Albaraq
35. Mustawdae Adawiat Alduhaa
36. Mustawdae Adawiat Aleami / Jabal Eamaan
37. Mustawdae Adawiat Aleasima
38. Mustawdae Adawiat Alfarabi
39. Mustawdae Adawiat Alhut / Alzarqa'
40. Mustawdae Adawiat Aliabdae
41. Mustawdae Adawiat Aliartiqa'
42. Mustawdae Adawiat Alkindii
43. Mustawdae Adawiat Allaaҳinihaya (Tawzie Hasriun)

44. Mustawdae Adawiat Almajal
45. Mustawdae Adawiat Almihwar Lacabin
46. Mustawdae Adawiat Almizan
47. Mustawdae Adawiat Alnitaq Alshaamil
48. Mustawdae Adawiat Alruwya Altibiya
49. Mustawdae Adawiat Althiqat / Mushtariat Min Eabid
50. Mustawdae Adawiat Aminiat Alshifa'
51. Mustawdae Adawiat Ard Aldawa'
52. Mustawdae Adawiat Eabq Alyasamin
53. Mustawdae Adawiat Eabr Alardin
54. Mustawdae Adawiat Eibraleialma/Albiadir
55. Mustawdae Adawiat Funun Alsaydala
56. Mustawdae Adawiat Husam Alnamir
57. Mustawdae Adawiat Jarsh
58. Mustawdae Adawiat Khaliat Aldawa'
59. Mustawdae Adawiat Kurdiun
60. Mustawdae Adawiat Makat Almukramih
61. Mustawdae Adawiat Muhamad Zariqat
62. Mustawdae Adawiat Nirukh\Curent
63. Mustawdae Adawiat Ruyat Thulathiat Aliaibiead
64. Mustawdae Adawiat Sabaarin / Kash Mae Alnaql
65. Mustawdae Adawiat San Diaju
66. Mustawdae Adawiat 'Uwtar
67. Mustawdae 'Adwiat Aibn Sina
68. Mustawdae 'Adwiat Alayman
69. Mustawdae 'Adwiat Aleamd
70. Mustawdae Adwiat Alghataas
71. Mustawdae Adwiat Alkhalil
72. Mustawdae 'Adwiat Alrabie
73. Mustawdae 'Adwiat Alrieayat Aldawayiya
74. Mustawdae Adwiat Bayt Almuqadas
75. Mustawdae 'Adwiat Khutut Aladawia
76. Mustawdae Adwih Almutanabiy
77. Mustawdae Adwit Aralya / Alsaabie / Kash Mae Alnaql
78. Mustawdae Adwyat Alraazi
79. Mustawdae Adwyt Eabd Alqadir Samara
80. Mustawdae Aleam Liladwia
81. Mustawdae Alnahr Aleazim Lil'adwia
82. Mustawdae Kamilya Lil'adwia
83. Mustawdae Karam Liladuiat Walajihizat Altibiya
84. Sharakuh Jansi Lilmustalzamat Altibiyati(Tawzie Hasriun)
85. Sharikat Aa&Aa Liladwi
86. Sharikat Abn Zahr
87. Sharikat Adawiat Alhikma
88. Sharikat Adwyat Alraaya

89. Sharikat Afrand Litaswiq Almustahdarat Altibiya
90. Sharikat Alealm Alakhdaru Lilmawadi Altibiya
91. Sharikat Alhulul Alsihiyat Altabieia
92. Sharikat Allamsat Alkhadra' Lilmustalzamat Altibiya
93. Sharikat Almasat Alsawda' Lileinayat Alshakhsia
94. Sharikat Alnatasi Liltajhizat Altibiya
95. Sharikat Alrieayat Al'uwlaa Lilmustalzamat Altibiya
96. Sharikat Alshajarat Almubarakat Lisinaeat Almustalzamat Altibiya
97. Sharikat Altaqadum Lilsinaeat Aldawayiya
98. Sharikat Dar Aldawa' Liltanmiat Walaistithmar
99. Sharikat Euman Lilsinaeat Aldawayiyati(Api)
100. Sharikat Jarash Lilsinaeat Aldawayiya
101. Sharikat Jihaz Alnajaat Lilmustalzamat Altibiya
102. Sharikat Kunan Liladuiat Walmustalzamat Altibiya
103. Sharikat Kunuz Lilmustalzamat Altibiya
104. Sharikat Mustawdae Adawiat Alnaajihun
105. Sharikat Mustawdae Adawiat Jrinland
106. Sharikat Mustawdae Adwiat Alaitihad
107. Sharikat Mustawdae Adwiat Altawafur Alhayawii
108. Sharikat Mustawdae Adwyt Abw Hamd
109. Sharikat Mustawdae Adwyt Alhusayni
110. Sharikat Mustawdae Aladawiat Alardini(Krinti)
111. Sharikat Mustawdae Aladawiat Alardniu
112. Sharikat Mustawdae Aladawiat Alearabiu
113. Sharikat Mustawdae Almutawafiqat Alhadithat Liladwi
114. Sharikat Mustawdae Almutawafiqat Alhadithat Liladwi (Tawzie Hasriun)
115. Sharikat Mustawdae Manshistar Liladwi
116. Sharikat Nabd Altabieat Lilmustahdarat Altajmiliat Waltibiya (Tawzie Hasriun)
117. Sharikat Nahn Lilmukamilat Walmustalzamat Altibiya
118. Sharikat Nahr Makinzaa Lilmustalzamat Altibiya
119. Sharikat Sina Lilsinaeat Aladawia
120. Sharikat Thawiaa Altibiya
121. Sharikat Tiqniaat Altaaqat Alhayawia
122. Sharikat Top Health
123. Sharkah W Mustawdae Adawiat Aljanah Alsharqii(Tawzie Hasriun)
124. Sharkah Wamustawdae Adawiat Milatunin
125. Sharkah Wamustawdae 'Adwiat Alsharayiea
126. Sharkih W Mustawdae Adawiat Alrabaan
127. Sharkih Wamustawdae Adawiat Abn Rushd
128. Sharkih Wamustawdae Adawiat Ruhiun
129. Sharkuh Adawiat Nirukh
130. Smart Orders

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

10.12.2021

Dear Manar Nael khaleel Niwash

Your application titled **"The impact of the Intellectual capital (IC) on the competitive advantage (CA) through the mediation of business intelligence, innovation speed and innovation quality"** with the application number NEU/SS/2021/1049 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

INTELLECTUAL CAPITAL, COMPETITIVE ADVANTAGE AND THE MEDIATION OF INNOVATION QUALITY, SPEED AND BUSINESS INTELLIGENCE by Manar Niwash

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cv

Manar Nael Niwash

Mobile & Whatsup : 0798843932

Email: Manarnawash@Yahoo.Com

Nationality: Jordanian

Personal Profile

Seeking Opportunities Where Experience In Staffing, Internal Program Development And Management, Employee Relations.

Career History

Hr Assistant (Online + Direct Work)

Nawash Sweet

2017- Until Now

Work Duties:

- Assist In Monthly Payroll Hr System
- Manage Daily Operations And Coordinate Custom Programs For Enterprise Staff
- Assisting With Employee Relations.
- Manage Daily Operations And Coordinate Custom Programs For Enterprise Staff
- Using Word Processing Software And Printers To Create A Variety Of Documents And Reports.
- Participate In Job Posting For New Vacancies.
- Welcoming New Employees And Arranging Induction For Them.
- Creating Post By Photoshop Program In All Social Media Application.

Hr Assistant *Philadelphia University 2014- 2015*

Work Duties:

- Assist In Monthly Payroll Using Jamsheed Hr System

- Assisting With Employee Relations.

- Reviewing Resumes And Applications Sent In By Candidates.

- Using Word Processing Software And Printers To Create A Variety Of Documents And Reports.

- Participate In Job Posting For New Vacancies.

- Welcoming New Employees And Arranging Induction For Them

Course Coordinator

Ocean Training And Consultant 2011 – 2014

Work Duties:

- Manage Daily Operations And Coordinate Custom Programs For Enterprise Staff

- Working With Hr Departments Who Require Employee Staff Training

- Offer Training For Enterprise, Government, And Large Companies

- Supervise Team Member And Participate In Marketing Efforts

<u>Hr Assistant</u>

Almultaqa Company For Solution 2008 – 2011

Work Duties:

- Assists With The Hiring And Onboarding Process

- Maintains Strict Confidentiality Of Clients, Company And Personnel Information

- Prepares Employee Handbook Updates As Required

- Welcoming New Employees And Arranging Induction For Them

Skills

- Experience In Recruiting, Staffing, Retrenching People Possesses.
- Efficient In Interviewing And Assessing The People.
- Expert In Recruiting The People, According To The Company Policy.
- Proficient In Giving Valuable Decision And Taking The Feedback From The Employees.
- Expert In Taking The Order From The Seniors And Giving The Valuable Suggestions.
- The Development Of The Annual Plans Of The Company
- Expert In Ms Office Applications.

Academic Qualifications

Mutah University 2015 - 2017

Master's Degree In Business Administration (Human Resource)

Philadelphia University 2005 - 2009

Bachelor's Degree In Software Engineer

Training And Certifications

- **Ms Project**
- **Pmp**
- **Photoshop**

Language : English   Very Good

Arabic   Fluently