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Intellectual Capital and Firm Performance Classification and Motivation: Systematic Literature Review

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Abstract

The current investigation aims to provide an up-to-the-minute literature review of intellectual capital to; identify the major themes developed within this research stream; investigate the research directions and highlight the challenges, recommendation and derive insights to guide future research agendas for the benefit of researchers and intellectual capital users. This study reviews the empirical literature of intellectual capital and firm performance. The systematic reviewing procedures followed PRESMA protocol, wherein the time limits between 2014 and 2019. It increases the current understanding by classifying the previous studies within a taxonomy in order to highlight critical issues regarding the research topic. The research identified that primary challenge encountered by all researchers was measuring intellectual capitals. The complexity of the relationships between the elements of intellectual capital as each element consists of sub-element and each element of intellectual capital has different level of importance over the other elements. The investigation concluded in the best method of evaluation and measuring intellectual capital is measuring each element alone based on real data extracted from the firm. However, some studies indicated that human capital is the most important intellectual capital component and companies could gain competitive advantage by incorporating great human capabilities, talents, and creativity since great human talents can make the difference.

Keywords:*Intellectual capital, Firm Performance, Classification and Motivation.*

I. INTRODUCTION

According to some authors such as [1], the first-ever documented mentioning of intangibles was done by Lawrence R. Dicksee in 1896. Although John Kenneth Galbraith used the term intellectual capital in pioneering terms in 1969, “intangibles” have often been used as a synonym of intellectual capital. Various advancements have been witnessed in several aspects of human life within the last few years, with enormous developments recorded in the fields of science, technology, research, and overall economy. The abundance of intellectual resources and other means of documenting these advancements have been of immense advantage to nations and organizations [2]. With the transition from an agricultural to a knowledge-based economy, firms that strive for competitive

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advantage & value creation are channelling their energy towards the development of their knowledge assets as they are critical success-determinant factors [3]. The productivity of businesses has nowadays challenged by the knowledge-based environment as demonstrated by the country's growth. Many industries now consider the importance of value creation towards achieving business competitive advantage.

The intangible & knowledge assets are represented by the intellectual capital and this intellectual capital has three major components which are human capital, structural capital, and relational capital. As for human capital is concerned, it is the explicit and tacit peoples' knowledge, as well as their tangible & intangible assets-generating capability. With this knowledge, people can effectively execute their tasks and incorporate both specific training, formal education, personal experience, and development. Other than knowledge, the other critical dimensions for human capital understanding are abilities and behaviours. Abilities refer to a persons' skills as a result of practice and experience; ability refers to communication, leadership, individual learning and team working. Behaviours guide the way people execute their assigned tasks and they consist of mental models, beliefs, and paradigms such as job satisfaction, creativity, commitment, and self-motivation. Regarding structural capital, it is the intangible assets introduced within the technological infrastructure and organizational structure of a firm that enhances knowledge flow for improving the operational efficiency of the firm. Structural capital is comprised of non-human assets; it offers the framework and technological tools for knowledge flow along the business processes. There may be a technical dimension of these non-human assets, such as efforts in technological infrastructure, research & development (R&D), intellectual property, and industrial property; they may also be associated with organizational values, structures, culture, attitudes, and the information capability of the firm. Relational capital is the ability of a firm to exploit, explore and absorb new information from its environment to increase competitive advantage.

There are two levels of the association between a firm and its environment; one is the association of the firm with its customers, partners, competitors, and suppliers, and two is the association of the firm with the entire society [4]. Among the three intellectual capital components as per the existing literature, the most important component is human capital. It is believed that competitive advantage can be gained and sustained by companies only when great human capabilities and talents exist as they make the difference between success & failure, profit & loss, efficiency & inefficiency [5]. Hence, this study focused on how to evaluate the Human capital in commercial banks in Iraq and how to rank these banks according to this component of intellectual capital. This paper is particularly about whether intellectual capital influences financial performance systematically. The second goal is to investigate which part of intellectual capital is the most significant that can be help to measuring the organization performance. Further, section 2 explains the research approach. While, Section 3 present the finding of this paper. Section 4, Illustrate the discussion of finding. Finally, Section 5 describes the direction of future research and conclusions.

II. RESEARCH APPROACH

The approach to the systematic evaluation procedure on the basis of Systematic Review and Meta-analysis Recommended Reporting Items,' used in this study, is illustrated in this section. PRISMA is a minimal compilation of proof that assists researchers in reporting on a range of systematic evaluations and Meta-analyzes. In the following sub-sections, we presented a short discussion on the systematic evaluation process, the research selection, and sources of knowledge, eligibility requirements, data collection and taxonomy analysis.

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Research Questions

1. What are the levels for analysing intellectual capitals?
2. What is the taxonomy of the studies conducted in the last 5 years in terms of intellectual capital?
3. Do there any differences between various sectors of intellectual capitals?
4. What are the measurements of intellectual capital to enhance firm performance?

III. RESEARCH MOTIVATION

The motivation for this study stemmed from the positive role of the banking sector in improving economies, as well as in the other parts of the world. At the international level, for developed countries to have a more leading economic role, the efficiency of its service sector must be improved. Developing country such as Iraq is endowed with much wealth and this wealth needs to be properly and fully exploited to keep pace with the set national growth targets. The Iraqi banking sector has a great opportunity to improve and help grow the country. Intellectual capital has been identified as the major driver for economic growth and wealth; it has also been regarded as the strong driver of the market value and performance of firms. According to the study by [6], the field of intellectual capital is one of the emerging disciplines in management that has gained wide acceptance among the scientific community. It is an attractive field as evidenced by the growing number of practitioners and academics that are constantly contributing to the development of this area. Firms that seek to achieve efficiency and productivity gains ought to invest more in intellectual capital as it is a crucial component of innovation with respect to business procedures & products [3]. Being a relatively new line of research that is attracting much research interest owing to the continuous growth and advancement of the global knowledge economy, many researchers have been attracted to intellectual capital research and some studies have accordingly been performed on different aspects of intellectual capital [7].

In developed countries like the USA, European Union, and Japan, investment in intangible assets is responsible for the growth in labour productivity [1]. Learning processes that are useful for the understanding of how intellectual capital works in practice can be activated via intellectual capital measurements [8]. The study by [7] submitted that the real value of a firm cannot be estimated based on traditional financial reporting as this approach only measures the short-term tangible and financial assets. However, companies have recently developed an interest in measuring the intellectual capital for reporting to stakeholders as they search for a method for internal intangible assets evaluation. It is also important that banks focus more on intellectual capital. With these identified concerns, this research was conceived to enlighten the Iraqi baking sector on the evaluation of financial performance based on intellectual capital. The study by [9] showed that previous scholars have demonstrated the reliance of firms' values in the existing business environment on the intangibles intellectual capital as they are of the view that intellectual capital will become the lever for sustaining organizational corporate performance and competitive advantage. Furthermore, several organizations in many sectors, such as the construction, banking, and manufacturing sectors have changed their methods of evaluating financial performances, favoring intellectual capital as a better method of evaluating financial performances and efficiency.

According to the literature review, the researchers have been suggested some new research directions in term of intellectual capital components. The important directions illustrated in the following categories;

Regarding to Performance Measuring

It is proposed that the researchers [10] further analyze systemic pathways using difficult indicators like return on assets or return equity for financial performance, and indicators such as fresh trademarks, and new products. While, [11] is suggested that conducting a comparative analysis of other intellectual capital's combined with decision science technique to decide which approach is more suitable or feasible for the practical implementation of a real problem. Since this research is being established with the aim of improving all former approaches to intellectual capital management, this benefit applies more to a conceptual perspective. So, the proposed approach also needs further usage to assess its shortcomings, particularly in the real applications. Therefore, in view of the fundamental impact on the performance of organizations /

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regions / countries, this SLR refers to the essential to continue and expand research efforts on intellectual capital, even concentrating on global and national technique. Since regional and national growth often includes organizational progress, that is, without organizational growth, there is no regional or national growth [1]. Although, the researchers indicated that future studies would also address two relevant questions: How in developed countries will human capital be improved? And is culture and disparities between persons a matter of impact on intellectual capital? where quantitative tests may be more precise forecasts of financial performance and where the need for empirical research is crucial [12]. Furthermore, in a cross-country correlation [13], more studies may be conducted utilizing the same analysis approach. In terms of intellectual capital assessment of researchers [14], it might be important to concentrate on relational and structural capital, trying to find better KPIs, since these intellectual capital sub-dimensions are positively associated with human capital, which is the key intellectual capital factor influencing organizational performance; for this reason, it would be helpful to measure the impact of RC and SC.

Regarding to Competitive Advantage

Future research should take into account cross-industry and cross-geographic environments to conduct a meta-analysis to understand the value-creating potential of intellectual capital in more accurately impacting financial performance [15]. Intellectual capital has a connection with competitive advantage. As stated, study may be performed to test whether organizational learning has a mediator or moderator role in the association between intellectual capital and competitive advantage. Likewise, the meditative impact of innovation on the association between human capital and competitive advantage may also be investigated to decide if the invention is full mediation, partly mediation or non-mediation in various industries or countries with separate respondents to generalize the results [16]. It was proposed that the researchers examine intellectual capital using the form of intellectual coefficient as value addition well as a predictor of intellectual capital. Thirdly, time limitations indicated the study was limited to one year. More studies may explore improvements in the organizational performance-disclosure association s. Despite these limits, by analyzing its connection to corporate performance in developing economies [17]. Further, this research allows a major contribution to the intellectual capital discussion. Similarly, the internal factors of intellectual capital, in particular the value-added working capital and the institutional value-added capital component, have the largest effect on firm valuation. This finding suggests that investors are more involved in structural capital than in human capital, maybe because investors believe structural capital is the result of human capital. More studies are required [18].

Regarding to Innovation performance

The finding show that human capital will not impact innovation performance should be discussed and clarified in greater detail, and could be a challenge for future studies [19]. So, more study using this framework will help to develop public investments and innovation strategies for government and the private sector to realize how capital investments are produced. [20].

Regarding to Earning management

More analysis could analyze the association between intellectual capital disclosure and other aggressive monitoring elements (indicators of key performance and revenue monitoring). Future study may investigate the disclosure of intellectual capital's and their consequences for other areas of company profit such as corporate image. In fact, future study may use various approaches to expand the present analysis of intellectual capital transparency and earnings control through a comprehensive review from another viewpoint. For instance, a future study may perform surveys and interviews to analyze the opinions of directors regarding intellectual capital and how they interpret the role of intellectual capital disclosure in the management of firm earnings [21].

Regarding to Explanation some theories

Future study may take double avenues. Firstly, more comprehensive experiments are required in order to clarify and to offer managers interpretation or significance to the Intellectual capital measures. Secondly, additional inputs are required which can strengthen the current indicator theory [8].

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IV-REVIEW PROTOCOL

This section presents the systematic review used in this study. With the discussion of "the systematic review method, the study selection, search, information sources, eligibility criteria, data collection process, and taxonomy analysis was presented in the following sub-sections".

V- LITERATURE REVIEW PROCEDURES

The literature search was done in January 2019 using the search boxes of the selected databases (Emerald, IEEE Xplore, WoS, and Science Direct) since these databases cover different areas of research in both human and social sciences; a range of management and economic topics are also covered by these databases. This study opted for 4 databases and the search results were integrated to obtain a crossed, robust and reliable data. This phase of the study comprises of a systematic search for the "definition of terms" in research and selected keywords. The aim of the keywords search is to identify all the published scientific articles. Considering the randomly gathered, convenience, non-probabilistic number of 30 intellectual capital articles published in English, a manual examination of the words frequency was performed and from the obtained results, the following keywords (("Intellectual Capital" OR "IC") AND ("financial performance" OR "FP" OR "Intellectual Capital component" OR "Human capital" OR "HC" OR "performance")) were used in different ways (individually or combined using "or/and" operators (refer to Figure 1). More filters were also applied in each search engine to filter out book chapters and other publications other than journal articles and conference papers. Journal articles and conference papers were selected as they are the most likely sources of updated and suitable scientific findings related to the present survey on intellectual capital concept.

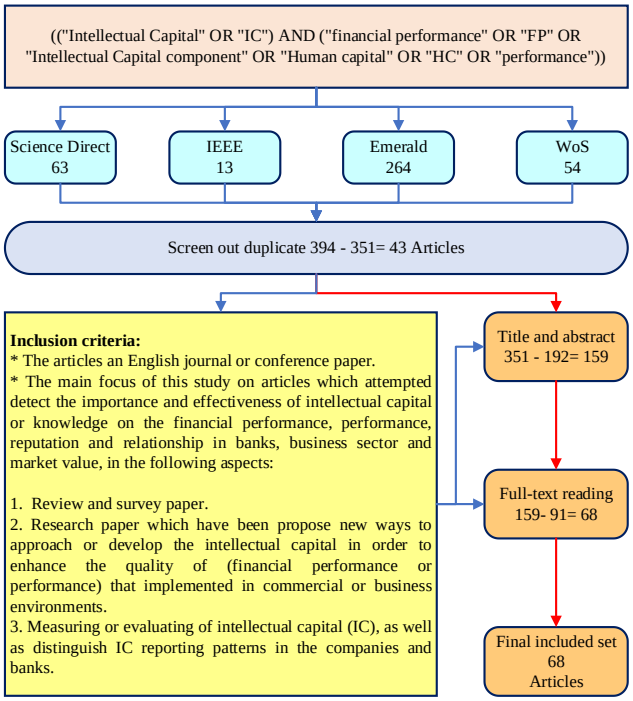

Figure 1 Flowchart of study selection, including the search query and inclusion criteria

VI- SELECTION OF PREVIOUS STUDIES

This paragraph presents all the filters applied to the search engines during the retrieval of the last set of articles in this study. The ordering of the filter processing stages is presented in Figure 1.

I. Journal articles & conference papers: During the first stage, all articles that are yet to be published in journals were excluded manually.
II. Full-text availability: During the second stage, published articles with restricted access to full text were excluded (no such article was encountered).
III. Articles in non-English were excluded during the third process (only five articles have been excluded). Articles written in any other language other than English are excluded.
IV. Duplication: During the fourth stage, articles that appeared across databases were excluded (43 duplicated articles were excluded).
V. Focused on articles that attempted to detect the importance and effectiveness of intellectual capital or knowledge on the financial reports, performance, reputation, and association in banks, firms, business sector, and market value. During the fifth stage, all articles, titles and abstracts that

have no evidence of examining the use of intellectual capital were excluded.

VI. Full-text reading: During the sixth stage, all the relevant articles were selected for full-text reading. A total of 71 articles were selected for full-text reading after applying all the described filtering process.

VII- TAXONOMY

Many researchers have focused on the study of intellectual capital for various purposes. In this study, the articles were first classified according to the type of study as shown in Figure 2 in order to create a taxonomy for these studies. Most of the articles (91.55%; 65/71) were found to focus on the study and analysis of intellectual capital and its components, the associations, and to examine intellectual capital on performance, intellectual capital disclosure, etc... The next largest group of articles (0.06%; 4/71) comprised of reviews and surveys that are referred to satisfy the current study requirement and the importance of investigating intellectual capital in future studies. The final group with the fewest number of articles (0.03%; 2/71) was the conceptual studies that aim to address questions that cannot be answered simply by getting more factual information in terms of intellectual capital. The output of the classification operation is categories and subcategories in order to determine the direction of this study and highlight the research gap and the important information in specific topics related to intellectual capital.

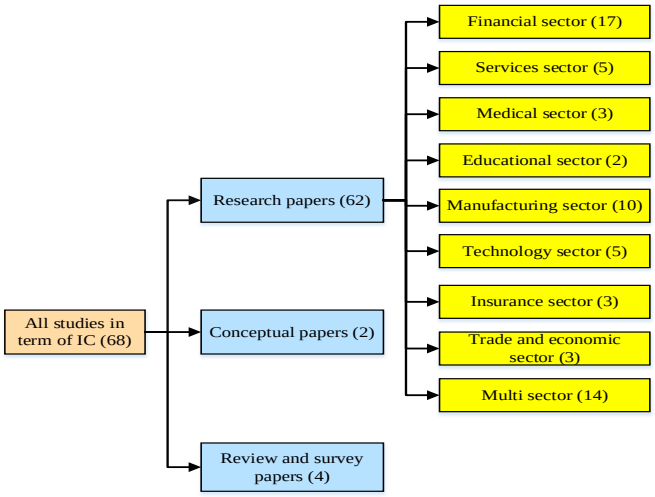

Figure 2 Research Taxonomy in term of Intellectual Capital

Review and survey studies

The first category of articles in this taxonomy consists of reviews and surveys studies in terms of intellectual capital. The study by [22] analyzed and compared the frameworks and guidelines that were established through focusing on externally reporting intellectual capital in order enable organizations offer a clear considerate of the value creation of firm. The study by [23] focused on the intellectual capital disclosure (ICD) and attempted to perform an updated review of intellectual capital discloser literature to recognize the main themes that have been developed within intellectual capital domain. [24]presented an analysis of the techniques of intangible assets evaluation from the business, strategic management, and economic perspectives. Furthermore, [1] focused on the determination of the common intellectual capital classifications based on its components using literature reports on the intellectual capital -performance association and considering multi-dimensional analysis axes (MAAs).

Conceptual studies

In this category, there are two studies that focused on intellectual capital discloser. [25] explored whether intellectual capital discloser is a relevant value to stakeholders, while [26] suggested a conceptual model that will assist companies in developing an efficient voluntary external intellectual capital discloser and valorizes both the stakeholders' and company's roles.

Research studies

This category of articles attempted to develop, evaluate, and measure, etc. in terms of intellectual capital. This type of studies is much important to any new study because the focus on the research gaps and problems and try to fill these gaps and find the solutions to the recognized problems. So, our research direction will start from here. In order to narrow the gate, all the studies under this category will be classified according to the type of sector that intellectual capital was implemented or investigated (see Figure 2).

Implemented in trade and economic sector

This category of studies was implemented in the trade and economy sector. For instance, [6] attempted to provide information on the intellectual capital -corporate performance association among Arab companies, as well as to argue the relevance

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of the "Value Added Intellectual Coefficient (VAIC)" as a determinant of the contribution of intellectual capital to performance. [27]presented an investigation on whether intellectual capital is relevant in performance improvement both in the financial or non-financial sectors. Another study by [28] focused on structural capital and, in specific, as one of the sub-factor that leads to it and its impact on other forms of intellectual capital and financial performance.

Implemented in insurance sector

There are some intellectual capital related studies conducted in the insurance sector as well. for instance, [29] examined Chinese companies the effect of intellectual capital on the operation and competence of non-life insurance firms. [30]estimated the intellectual capital efficiency at 3 levels in the insurance sector over the period of 2005–2012 by means of a development of network data analysis model. The insurance sector experience deficiencies in both human & structural capital phases against the physical capital stage. [31]focused on the identification of the association s between intellectual capital, organizational strategy, innovation, & financial performance. This study mainly investigated the effects of intellectual capital, organizational innovation and strategy on the financial performance operating in Turkey.

Implemented in Technology sector

Some studies under this category focused on the firm's performance. For instance, authors in [32] focused on the exploration and comparison of the extent of influence of intellectual capital and its 4 major elements on Asian countries; the study also examined the association between the intellectual capital of firms, financial performance and market value. few other studies focused on intellectual capital discloser; for instance, [33] focused on the measurement of the quality score of the mean voluntary intellectual capital discloser for some biotechnology firms listed on the Australian stock exchange in 2003, 2006, and 2010 reporting periods. another effort by [34] focused on the evaluation of the extent and quality of voluntary intellectual capital discloser by Chinese and Indian it companies. the last two studies as reported by [35] focused on the development and testing of several conceptual models for investigating the effect of management accounting (MA) on structural capital of firms and the business performance and. lastly, [36] investigated the fit between intellectual capital and KMS and its influence on the performance of firms.

Implemented in manufacturing sector

The manufacturing sector is a big sector that consists of various industries; according to the literature review, there are around 10 studies conducted in this sector. Some studies have been focused on analyzing the intellectual capital factors and the associations between intellectual capital and the most important factors. for instance, authors in [37] empirically investigated the indirect effect of intellectual capital on financial performance and how performance measurement systems mediated the effect. [38]identified the most relevant financial indicators for the selected companies in order to determine a composite performance index for further used in analyzing the correlations between the average degree of intellectual capital discloser and the performance of companies. lastly, [39] assessed the effect of intellectual capital on the traditional sector in India and compare the significance of intellectual capital on the corporate performance in India of the knowledge-based and traditional sectors.

there are two studies that focused on the firm's value; for instance, [40] examined the pattern of unseen values and usage of intellectual capital information discussed about leading companies in Malaysia during the recent financial crisis. The study further analyzed the influence of intellectual capital information on the market value of firms. [18]strived to investigate the effect of intellectual capital on the value of firms with the financial performance of the firms playing a mediating role. Pulic's model was used in this study to measure the intellectual capital of 93 listed manufacturing companies in the Indonesia stock exchange. another two studies were focused on intellectual capital management; for instance, [41] focused on the investigation of the intellectual capital ontology in an integrated reporting context with the aim of exploring the role assigned by those that prepare integrated report (IR) to the elements of intellectual capital , as well as the role played by integrated thinking in this process. [42]focused on the influence of (KSM), information management strategy (IMS), and technology management

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strategy (TMS) on the performance of organizations. the study by [19] investigated the association between intellectual capital and innovation; the study suggested the importance of exploring both the association of intellectual capital as a whole with innovative performance of organizations and have a better understanding of the importance of the intellectual capital components on the innovation performance of companies. authors in [43] focused on business model (BM) disclosure evaluation. Being that the BM portrays how companies create and capture value, its inclusion in the annual report is important for dynamic analysis, interpretation, and evaluation of the contribution of intellectual capital to the competitive advantage of companies. [44]exploited the multi criteria method of analytic network process to develop a new decision-making technique for the evaluation and prioritization of the implementation of the alternatives to environmental management systems in profit firms since the adoption of this type of management system is associated with many relevant intangible benefits.

Implemented in educational sector

This category will describe the studies conducted in the education sector. Authors in [10] used the "dimensions of the learning organization questionnaire and its abbreviated version" to study the associations between learning organization, knowledge performance and financial performance. [45]investigated the building of relational capital by incubated technology entrepreneurs for new venture formations in the Higher Education Institution sector.

Implemented in medical sector

In the medical sector, the authors in [46] examined the influence of the association between KC and intellectual capital on the key organizational performance dimensions. [47]evaluated some Indian pharmaceutical firms for the influence of intellectual capital on their financial performance. The study collected quantitative data of the profiled firms from their audited annual reports over 10 years (2007 to 2017). Lastly, [48] investigated the empirical structural association s between intellectual capital , innovation, and the financial performance of firms. Furthermore, the study elaborated on the influence of intellectual capital and innovation on the financial performance of firms. This study measured intellectual capital using the Value-Added Intellectual Coefficient model (VAIC).

Implemented in services sector

under this category, the studies that focused on intellectual capital performance; for instance, [49] focused on the factors influencing co-operatives' performance by concentrating on the roles of its intangible assets (Intellectual capital and members' participation). [50]analyzed the influence of intellectual capital on financial performance of small and medium-sized hotels over a period of 8 years (2007 to 2015). This study focused on 934 small and medium-sized hotels in Portugal and analyzed the dynamic panel data using the GMM system (1998) estimator. [51]focused on the association between intellectual capital and business performance in the agri-business sector under 4 sub-constructs, namely, "human capital (HC), relational capital (RC), innovation capital (InnC) and process capital (PrC)". Another set of studies focused on intellectual capital discloser as reported by [52]. This study focused on the consequence of being located in a science park on the level of intellectual capital and financial performance. Another study by [53] focused on the analysis of the intellectual capital components in a bid to understand the perception of the Italian senior managers social enterprises about their firms' intellectual capital , particularly about the human capital, organizational capital, and relational capital.

Implemented in Financial sector

As shown in Figures 2, the maximum number of studies was conducted in this sector because of the importance of this sector compared to the other sectors. According to the literature review, there are several studies that have mentioned the importance of this sector. For instance, authors in [7] argued the capability of intellectual capital to improve organizational financial performance, create value, and ensure a sustainable environment for global competitive advantage. This study concluded that the utilization of intellectual capital ought to be a major priority of all organizations. Another study by [54] painted a growing demand for more intellectual capital -related information in terms of information on human capital, employee,

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productive power, information technology amongst users, know-how and skills, etc. Authors in [4] demonstrated that the positive correlation between intellectual capital and financial performance signifies its association with corporate strategy as it improves the ecological responsiveness and ability of firms to implement strategies effectively. Furthermore, the role of the financial sector in an economy via intermediation is essential as Financial Sector Development (FSD) is important for growth and reduction of poverty. In order to investigate this sector in term of intellectual capital and highlight the research gap, the studies conducted under this category needs to be classified into two subcategories as shown in Figure (2) according to the purpose of this study. The next sections explained this classification.

VIII-FIRM PERFORMANCE

The second subcategory of studies focused on firm performance (financial performance) in financial institutes. For more focusing and details, this subgroup was classified into three subgroups based on the method or technique used in the analysis or measuring of the intellectual capital or financial performance. Centrally, when the study measures the intellectual capital that means it measures the financial performance. as per the knowledge-based view (KBV), it is likely that intellectual capital will contribute the possibility of a firm achieving and maintaining superior performance compared to tangible resources [5].

A.Analysis the performance based on VAIC

This group attempted to analyze and measure the financial performance based on Value Added Intellectual Coefficient. The authors in [7] examined intellectual capital performance of banks operating in Tanzania and investigated the association of intellectual capital with financial performance based on VAIC. In the same context, authors in [55], [56] and [57] examined the effect of intellectual capital on firms' productivity in an emerging economy. [58] focused on the association between Value-Added Intellectual Coefficient and corporate performance on the one hand, and the association between VAIC variations and market value variations on the other hand. [2]assessed the intellectual capital performance of banks in India and demonstrated the association between intellectual capital and assets' return. The study also compared the intellectual capital performance of the banks in the private and public sectors.[59]focused on the causal effect of intellectual capital performance on the financial performance of some listed banks in Thailand. [60]empirically applied the behavior of intellectual capital impact on the performance of firms during periods of financial crises after observing that no research has been previously performed on the theoretically predicted sustainable performance of firms created by intellectual capital is applicable during a financially unstable economic situations.

B. Analysis of performance based on the associations between intellectual capital components and other factors

This group focused on studies conducted in order to measure the intellectual capital and firms' performance based on the analysis of the association s between intellectual capital components and other factors inside or outside the firms. The study by [61] explored the effect of using cloud-based accounting/finance infrastructure on the performance of SMEs with the aim of discussing these issues. [62]focused on the performativity of intellectual capital from the eyes of sell-side analysts, a type of actor that creates and consumes intellectual capital information (also plays a significant role in its practice). Studies by [4] and [5] focused on the intellectual capital performance of financial firms in order to empirically evaluate the impact of intellectual capital on financial performance, and to identify the components of intellectual capital that could drive the traditional indicators of the success of firms. The study by [16], [63], [64].

C. Analysis of performance based on measuring intellectual capital components

According to the literature review in this group of studies, the authors focused on the measurement of intellectual capital using different methods. The study conducted by [65] proposed a method to examine intellectual capital in firms with strategic alliances, while [8] analyzed the sense making, sense giving, and sense breaking processes with reference to intellectual capital measurements. [66]focused on the association between (IC) as expressed regarding the market-to-book (MTB) ratio and the potential key intellectual capital value determinants like the intangible assets (IA) and the other factors. [67]suggested a model for the

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evaluation of the extent of intellectual capital maturity in organizations. Lastly, [3] evaluated intellectual capital based on MTB ratio and the possible major factors of intellectual capital value, like IA and other factors.

XI- DISCUSSION

In order to highlight the research gap, this section presents criticisms regarding those studies that attempted to measure intellectual capital as mentioned in the previous section. The strength and weaknesses of each study have been tabulated in Table (2.3). Authors in [5] mentioned that several studies have focused on intellectual capital measurement in order to understand the association between intellectual capital and the performance of firms, as well as provided some inconclusive results. despite the success of various approaches in capturing the complexity of intellectual capital value and knowledge-based processes, there are still some limitations due to the different types of restrictions in them; they only fulfill their expectations partially as demonstrated in some theoretical and practical works [1]. Table (1) presents some of the weaknesses of each method used in intellectual capital measurement. The study conducted by [65], based on intuition and the experience of experts without any real data more so, used the aggregation of the 3 main intellectual capital components regretless of the variation between the components of intellectual capital. Moreover, there is difficult to determine the real contribution of the selected firm and the validity based on newspaper articles. Authors in [8] used sense-making, sense-giving, and sense making processes but perhaps, may not produce accurate results because of the complexity of relation between intellectual capital components. The study conducted by [66] and [67] was based on variables to examine performances in the study. Despite the availability of empirical suggestions on the differences in resource distribution among intellectual capital factors, the advantages associated with each intellectual capital factors, as well as their complexity and diversity towards solving these issues are yet to be addressed in research studies [11].

As mentioned in section, intellectual capital is positively associated to financial performance, so, the accurate measurement of intellectual capital represents a big challenge and has been suggested as future works in many studies since the measurement of intellectual capital in any firm implies the measurement of the performance and productivity in that firm. Authors in [3] argued that there are numerous advantages of intellectual capital to firm value creation but there is a need to have the appropriate measurement tools that will consider the full level of intangible capitals that leads to the level of growth and value of firms. According to that fact, there is a need to have accurate ways of measuring intellectual capital, which means, having the ability to rank firms according to the result of the measurement. moreover, the authors in [6] confirmed several reasons companies must measure their intellectual capital . Critical review of studies attempted to measure intellectual capital in the LR.

X- CONCLUSION

Three primary concerns relating to how intellectual capital affects financial performance are highlighted by the study on empirical study of intellectual capital. Nowadays, many studies were conducted in intellectual capital and its effect on the financial performance. Where, this term referred to the intangible asset that consist of the components are RC and structural capital, human capital. Although there are there are many efforts to evaluate the intellectual capital in different sectors (financial and non-financial) based on analyze the association s between intellectual capital and other factors inside or outside the firms, or relied on value added intellectual coefficient because the positive association between intellectual capital and financial performance and productivity. However, there are few studied conducted to measure the intellectual capital based on analyze the factors of intellectual capital which are (human capital, structural capital and RC). Where, evaluation and measuring intellectual capital are considered a complex task due to existing multiple and conflicting features (criteria). this study aims to evaluate and measure human capital in commercial banks in Iraq as an evidence in this study based on different criteria using multi-criteria decision-making techniques, and rank the banks according to value (quality of human capital) to diagnose the banks that need to enhance human capital. this analysis also reveals that intellectual capital has a significant effect on the performance of an

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organization [7], [60], [68]. Especially, human capital is observed as an important element in maintaining good financial results. Hence, this research also confirms with the performance assessment literature on the extent of the association and intellectual capital component-based interaction.

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