RESEARCH ARTICLE
published:31 January 2023
doi: 10.21070/jas.v7i1.1704

The Impact of Intellectual Human Capital on Corporate Social Innovation

Abtihal Nasser Alhasani [1], Marwa Hamed Alhinai [2], Essia Ries Ahmed [3]

[1 2] Collage of Economics, Management and Information Systems, University of Nizwa, Oman
[3] Faculty of Business, Karabuk University, Turkey

The study aims to explore the relationship between Intellectual Human Capital (IHC) and Corporate Social Innovation (CSI) in Oman. This research used a quantitative method. The population of this study was 74 companies on Muscat Stock Exchange (MSX) for the year ended 2021 in Oman. The sample size of this project was 63 from two sectors of listed companies (Financial Sector 31 and Industrial Sector 32). The study findings found there is a positive impact on the relationship between Intellectual Human Capital (IHC) and Corporate Social Innovation (CSI) in Oman. IHC contributes to increasing Social Innovation (SI) in companies, greatly influencing social innovation. Firms that use IHC have high social innovation because the IHC depends on the knowledge of human resources that impacts social innovation as it expands to other areas of the company.

.

Key Words: Intellectual Human Capital, Corporate Social Innovation, Oman.

OPEN ACCESS
ISSN 2548-3501 (online)

**Correspondence:*
Abtihal Naseer ALhasani
e.ahmed@unizwa.edu.om

received:06 January 2023
Accepted:28 January 2023
Published:31 January 2023
Citation: Alhasani and Alhanai (2023) The Impact of Intellectual Human Capital on Corporate Social Innovation

INTRODUCTION

Intellectual Capital (IC) has developed popularly as a driver of organizational performance, social performance, and well-being (Bontis et al., 2018). Hence, IC has an important role as a direction for sustainable corporate value and revolution, that is, how companies can concurrently create value for customers while filling the need of internal stakeholders. This efficiency has not been discovered yet (Hussinki et al., 2019). Human Capital (HC) is the significant or essential aspect of any development in economic growth in any country where the level of efficiency of HC varies across different sectors. Therefore, HC affects the oil, gas, and energy sectors, which are considered the best in the efficiency of HC in several respects (Tran & Vo, 2020). Intellectual Human Capital (IHC) is the key factor supporting the growth of innovation in the region (Hao, Ahmed, Singh, & Amran, 2019). IHC is estimated through a system of indicators that characterize its intellectual core and performance in several areas, such as innovation, research, entrepreneurship, education, culture, and development (Al-amri, Said, Al Kindi, & Ahmed, 2022; Fedotova et al., 2014). Firm performance has got explicit attention by a notable wave of studies in the literature review (e.g. Alabdullah et al., 2021; Alabdullah & Maryanti, 2021; Alabdullah & Ahmed, 2020; Alabdullah & Ahmed, 2021; Alabdullah et al., 2022; Alabdullah et al., 2018; Jebna et al., 2022; Ahmed et al., 2020; Alabdullah et al., 2019; Abushammala et al, 2015; Alabdullah & Ahmed, 2018; Alabdullah et al., 2020; Alabdullah & Ahmed, 2019; Alabdullah et al., 2021; Ahmed et al., 2020; Alabdullah & Ahmed, 2020; Ahmed et al., 2020; Alabdullah et al., 2020; Alabdullah et al., 2018; Alabdullah et al., 2018).

The knowledge-based economy is based on the availability of capital that has shifted from material to intellectual. Therefore, it is considered a major factor in raising the company's value and maintaining its competitive advantage. Note that IC is especially applicable to knowledge-intensive industries such as banking. IC is essential for the company's development, consolidation, management, and improvement through related policies and strategies (Al-Musalli & Ismail, 2012). Social Innovation (SI) has become so popular among doctors and researchers that its meaning is still far off (Marques et al., 2018). Other than that, SI has a different concept than other innovations. Therefore, this concept serves as a social need or the solution to a social problem.

Consequently, this concept stands for innovative actions and services stimulated by solving social problems as they are more widely spread in companies that include basic social goals. This concept has attracted business people and companies that conduct their activities to succeed in innovation and change (Al-Alawi, Alkindi, Al-Shukaili, & Ahmed, 2022; Foroudi et al., 2021). The emergence of SI expresses social dissatisfaction with innovation and its great versatility in achieving fair and lasting results.

Nevertheless, SI is a vague concept among company members, which raises uncertainty about whether it offers any real enhancements or replacements. SI is distinguished as a collaborative concept if key features are identified. This concept seeks to initiate a resultant practice that makes various contributions as part of a progressive conversation about SI and relevant evaluating ideas and evidence from policies and projects. SI contributes to creating impacts on societal well-being (Ravazzoli et al., 2021). SI has become crucial to societies because markets and institutions have failed, so support is being given in these places (Kluvankova et al., 2021). An innovative culture in Corporate Social Innovation (CSI) is essential to rewarding new ideas. Organizational change is implemented by social entrepreneurs who play their role perfectly within large organizations, so they must be rewarded. Entrepreneurs are characterized by the ability to inspire individuals in different fields, alliances are built with different departments, people with the necessary expertise are discovered within the company, and social entrepreneurs can influence the implementation of ideas. It is vital to share with partners different perspectives to align internal and external reward systems with goals to achieve success in various ways (Szegedi et al., 2016).

CSI is achieved through research for company reports discovering patterns of attitude, creativity, development, efficiency, and effectiveness to achieve sustainable businesses and societies (Amran et al., 2021). The SI company achieves the research and development of the company, which is carried out by the IHC in particular (employees). Subsequently, the community and sustainable business related to SI depend on the creativity, development, efficiency, and retention of the company's employees in several areas (Amran et al., 2021). Besides, SI is closely related to global strategy because society has high expectations about international corporate social responsibility (Herrera, 2015).

Corporate Social Innovation (CSI) is a necessary modern meaning of the achievements of the twenty-second century. Therefore, Intellectual Human Capital (IHC) is vital in companies striving to achieve CSI goals. Subsequently, the IHC represents the knowledge of human resources (employees) greatly affects social innovation companies, which leads to increased productivity and a higher rate of Social Innovation (SI) in the company. Therefore, IHC is crucial as it gives the company a competitive advantage, making it in the ranks of advanced companies, which contributes to the expansion of SI from a small stage to a larger stage to include all social problems facing society in various fields. Therefore, all companies in Oman must use

IHC to create SI. In the relationship between IHC and CSI, there have been literature gaps and inconsistent results (Amran et al., 2021). In the past few decades, some companies are still stuck in traditional value creative thinking. They do not have modern, undeveloped methods because they are trapped within an ordinary traditional mold. Therefore, it clarifies that many people are stuck in the mentality of (social responsibility) because they consider social issues more important and do not give the company a basic or strategic interest. Due to social issues and the increasing expectations of stakeholders, companies are forced to reconsider their business. Therefore, every company is under pressure. Companies need solutions to prevent increasing environmental risks and societal problems from causing sustainability issues before they occur (Amran et al., 2021). Hence, implementation and value creation (affair) refers to the amount that may result in a lack (low) of knowledge that contributes to directing IC. There is another problem related to investments that do not generate additional value due to innovation or high productivity, all of which result in waste and exaggeration in the cash stock and the exploitation of human resources. This problem is seen as a detriment to the use of HC. The Corona pandemic causes isolation or isolation from society, where there are no social sessions, which leads to an increase in the usual work in repetitive and routine respect.

Consequently, the pandemic causes the inability to promote employees, and a decrease in creativity, in which HC still requires improvement and leadership through individuals in the company (Pokrovskaia et al., 2021). To engage or join in innovative and complex projects, small businesses must provide resources as they lack these necessary resources, such as HC and financial resources (Chierici Tortora, Del Giudice, & Quacquarelli, 2020). The problems of creating HC include the following: The country's economy cannot thrive without educating the workforce (workers and employees) and without them having skills (Alsarmi & Ahemed, 2022). Also, high scores for HC are determined by the long (extremely) high professional teaching scores due to the development in information (data) and communication technologies in the technological world (Abdurakhmanova et al., 2020). Besides, SI arose mainly from lacking a theoretical principle or law. Therefore, SI faces obstacles in its measurement due to the lack of appropriate information data. Hence, research on measuring SI encounters difficulties in accessing internationally available or accredited data sources (Mihci, 2020). Thus, the main objective for this study is to examine the relationship between intellectual human capital on corporate social innovation practices in Oman.

The current research adds knowledge to the literature review by filling the gap that could be considered as observation in the literature regarding Intellectual Human Capital and corporate social innovation at the theoretical and empirical levels. It adds knowledge to the current literature via testing its variables, where there has been a lack in the literature review in testing such variables. It helps policy makers focus on some important control of Intellectual Human Capital that should be applied by the management of the corporate social innovation practices in Oman and reflects the empirical contribution perspective.

The rest of the paper are organized as follows: literature review that represented section 3 as previous studies. While section 4 explains the hypothesis. In addition, section 5 illustrates the method of the current research. Also, section 6 explains the results and findings. Sections 7 and 8 provide both discussions, implications, and conclusions of the present study.

The idea of intellectual capital (IC) mainly incorporates the activities of directors, employees, intelligent human beings and organizational stakeholders that create value (Mahmood, & Mubarik, 2020). the inception of human capital theory and the theory of organization exposed the importance of human capital both at the organization and country levels. Drawing from the HC theory and resource-based theory, this study defines human capital as the skills, knowledge and abilities of the employees that contribute to increasing institutional outcome. The previous studies will cover studies for the last five years. Most studies found a relationship between Intellectual Human Capital (IHC) and Corporate Social Innovation (CSI). For example, Akkas and Asutay (2022) study the purposes of estimating the impact of Intellectual Capital (IC) through Human Capital (HC), Structural Capital (SC), and Employed Capital (EC) on the financial activity of Islamic banks in the Gulf Cooperation Council (GCC) countries. The value-added intellectual coefficient (VAIC) is used to measure IC, as it was from 2012 to 2020 by 24 Islamic banks and 32 conventional banks. The results indicate identical results for Islamic banks in terms of the VAIC, Human Capital Efficiency (HCEF), and Capital Operation Efficiency (COE) in conventional banks. Accordingly, Islamic banks failed compared to conventional banks regarding the influence of the Capital Structure (CS) on the effectiveness of money in the countries' banks.

Note that HC is a critical component of CSI. Moreover, Bataglin and Kruglianskas's (2022) study aims to map out scholarly submissions and intellectual bodies within the scope of SI. Furthermore, a bibliometric examination was carried out with index-containing data information made available through the SCOPUS database from 2006 to 2021. Consequently, Virtual Operating System viewer (VOS) 1.6.15 software was used to analyze the articles totaling 1192 articles to map the articles graphically. The results indicate a significant development in SI, which has allowed the

assignment of lead authors, discourses, topics, companies, and territories (countries) to this scope.

Moreover, IC is a vital component in companies to achieve green output and address environmental issues through SI. In addition, Alkan et al. (2022) study highlights SI as an appropriate decision to challenge during the Corona period. A study was conducted in 26 successful institutions working in different fields in Turkey, in which the author adopted a design that helps Social Innovation (SI) address Corona's risks. The result showed that there are different and unique forms of SI to control the increased diversity during the pandemic; SI provides management diversity and can implement needs during the pandemic. Therefore, Amran et al. (2021) strategically aim to achieve sustainability in business and society through CSI. Their study seeks knowledge of the role of IHC in CSI, as institutional research and development activities associated with SI companies are applied to sustainability issues. The results show that the link between IHC can be analyzed CSI, business continuity, and society through the resource-based view theory. Other than that, Alqershi et al. (2021) examine the effect of IC on Malaysian car manufacturing companies' achievement (performance). A quantitative model is used in this study, which includes an initial sample of 228 companies in Malaysia. The results of the analysis indicated that the structural equations modeling (SEM) of partial least squares (PLS) is as follows: The performance of companies is affected very significantly by HC and Relational Capital (RC).

Moreover, the efficiency of HC has implications for company performance in many empirical studies. Together with Ravazzoli et al. (2021), their study aims to bridge the gap and measure different aspects of the impacts of SI in European regions where marginalization processes occur. The impact of SI is assessed in regions using the updated assessment scope developed in the Horizon 2020 project for SI in Marginalized Rural Areas (SIMRA). The results indicate that SI has improved societal prosperity and reduced forms of marginalization, particularly in places where SI has occurred. Alternatively, Sheikh's (2021) study aims to achieve Green Intellectual Capital (GIC) and link it to SI. This study is founded on a quantitative research approach. Therefore, the data (information) is collected from the managers of 509 manufacturing units operating at J&K in India, where this process was done using a postal survey. The results indicate that GHC and Green Structural Capital (GSC) are key components that have significantly contributed to the impact of social innovation. Note that GIC has a positive effect on social innovation.

According to Alfalih (2021), to identify and quantify the link between entrepreneurship and SI through Corporate Social Achievement (CSA), the quantitative pattern was used to collect data distributed through a questionnaire to 180 small and medium companies in the Kingdom of Saudi Arabia. The results indicate that the mediating effect of social performance in companies occurred between SI, extrinsic motivation, and entrepreneurship outcomes. The results also identified a basic trend of SI to facilitate the definition of this concept (SI) and seek to operationalize the process of its creation. Likewise, Dahiyat et al. (2021) aim to improve and test (audit) the current pattern of IC, which depends on stocks and flows. They developed and tested (examined) a skeletal pattern using a composite survey data series of 295 questionnaires collected from pharmaceutical manufacturing in Jordan. The results indicated a positive impact of HC, Social Capital (SC), and knowledge transfer on Organizational Capital (OC).

Additionally, Izzo et al. (2021) propose to fill the gap in the causal relationship between IC and the performance of the Italian company Fintech where HC is measured. These firms (Fintech) use an innovative test using principal element analysis and authors of non-Pahari regression patterns to examine the effects of IC on the performance of Italian companies. The results related to models (styles) describe regression that Working Capital (WC) and HC are very positive in the performance of companies. Subsequently, Ali and Anwar's (2021) goal is to examine how IC affects SC. They used a method to assess the impact of IC, in which they decided to take large samples and distribute 110 questionnaires. From these samples, the results showed that companies should use debt as a last resort in terms of IC to improve research, use more samples and use new methods. Accordingly, Ren and Song (2021) investigate the relationship between IHC, OC, and innovation in Chinese companies that contributed sample stocks from 2007 to 2017 and the collection of patent data information by China Research Data Services (CRDS).

Consequently, the Chinese stock market and accounting research results showed that HC and OC have a significant positive impact on investment in research and improvement, as well as the relationship between IC and innovation, influenced by the drivers of the economy in general. IC has a stimulating effect on corporate innovation in emerging countries. Meanwhile, Adel et al. (2021) aim to investigate the direct and indirect links between Social Responsibility (SR) and Social Innovation Strategy (SIS) to fill the gap that was discovered in SI by collecting data from 109 colleges in 11 Egyptian governorates. The results indicate a positive effect between SR, SI, and sustainable competitive advantage development (SCAD). Other than that, the significant positive impact of SI on the competitive advantage has been developed sustainably. Apart from that, Pless et al. (2021) investigate the background of leaders to see if they contribute

to SI. Methodologically, the authors surveyed and researched the relationship between SI, care, and sympathy. They then proposed a sequence of studies relating to the relationship between diverse management forms and multiple SI modes. The results showed a positive relationship between SI and the characteristics or qualities of a unified leader who is considered by a high degree of care and compassion to remove societal obstacles in all areas. Unique survey data were collected from 164 cooperative and social samples in Italy. The results show that SI positively correlates with the uses (investments) of the product (the good), service, and business innovation.

Besides, Li et al.'s (2020) study scrutinize the role of human capital efficiency (HCEF) in corporate achievement over 12 sectors in the Vietnamese economy from 2011 to 2018. The technique used in this study is the Generalized Moments Method (GMM). The empirical results indicate that the company's positive contribution comes from the strength and efficiency of HC in different sectors. These results suggest that the highest amount of HC collection is not found in the banking sector, as previously believed. The energy, oil, and gas sectors are considered the best in the efficiency of HC. Another study done by Tran and Vo (2020) collects the link between corporate governance and IC in Vietnam. The Modified Intellectual Value-Added Factor (MVAIC) pattern was used to determine the amount and measurement of IC. Subsequently, the data is studied using 45 Vietnamese companies imported from 2011 to 2018. The GMM regression technique was used in this study. The results show that the Board of Directors concluded that the basic characteristics of corporate governance might negatively affect the effective or excessive use of IC.

Likewise, Dalwai and Mohammadi (2020) aim to empirically investigate the link between IC and corporate governance for the financial sector in Omani companies and its various sub-sectors. The data is collected from the Muscat Securities Market (MSM), which includes 31 companies from 2012 to 2016 and uses a multiple regression pattern. The Public Intellectual Value-Added Coefficient (VAIC) efficiency scale was used to measure IC. The results showed that the efficiency of the IC associated with the Omani financial sector is highly correlated with the size of the Board of Directors and the follow-up of the audit committee sessions. Besides, Tabares (2020) analyzes and details the contributions, key debates, and trends in the literature that manage (lead) the study outline in CSI. In addition, a procedural review of the undergraduate and gray literature was applied, with the results analyzed after detailing the bibliometric and explanatory content. The study provides recent insights into CSI research by referring to the discussion to agree on the definition of CSI collectively.

Consequently, Nirino et al.'s (2020) study aims to audit (test) IC as an experimental factor in the relationship between Corporate Social Responsibility (CSR) and its financial performance. The effectiveness of the IC broker was evaluated by carrying out the pilot study on 345 European companies included in the STOXX Europe 600 Index. The results showed a positive impact when applying CSR strategies in developing the IC of companies, which contributed to enhancing the competitive advantage of companies and long-term financial performance plans. According to Carberry et al. (2019), their study objective is to know the role of SI in social institutions. They used green information systems that transformed community organizations into more viable entities and relied on data distributed to 400 US companies. The results indicated that SI arose from the ongoing interactions between activists and company managers and contributed to developing new practices.

The Relationship Between Intellectual Human Capital And Corporate Social Innovation As per Bataglin and Kruglianskas (2022), there has been a very significant development in social innovation, which has contributed to the assignment of lead authors, discourses, topics, companies, and territories (countries) to this scope. In addition, Alkan et al. (2022), there are different and unique forms of SI to control the increased diversity during the pandemic. SI provides management diversity and can implement needs during the pandemic period. Subsequently, Alqershi et al. (2021) stated the performance of companies is affected significantly by HC and RC. Moreover, the efficiency of HC has implications for company performance in many empirical studies in many respects. For example, Amran et al. (2021) observed a relationship between IHC and CSI, business continuity, and society through the Resource-Based View (RBV) theory. According to Ravazzoli et al. (2021), SI has improved societal prosperity and reduced forms of marginalization, particularly in places where SI has occurred.

Moreover, Sheikh's (2021) findings indicate that Green Human Capital (GHC) and GSC are key components that have contributed significantly to the impact of SI, and GIC has a positive effect on social innovation. Alfalih (2021) results also identified a basic trend of SI to facilitate the definition of this concept (SI) and seek to operationalize the process of its creation. Likewise, Dahiyat et al. (2021) found a positive impact of HC, Social Capital, and knowledge transfer on OC. As per Izzo et al. (2021), the results related to models (styles) describe regression that WC and HC are very positive in the performance of companies. Besides, Ren and Song (2021) stated HC and OC have a significant positive impact on investment in research and improvement as well as the relationship between IC and innovation, which is influenced by the drivers of the economy in general. IC has a

stimulating effect on corporate innovation in emerging countries. On the other hand, Adel et al. (2021) show a positive effect on CSR, SI, and maintainable competitive advantage development.

Consequently, the significant positive impact of SI on the competitive advantage has been developed sustainably. Additionally, Pless et al. (2021) discovered a positive relationship between the characteristics or qualities of the unified leader characterized by a high degree of care, compassion, and SI. Moreover, Ali and Anwar (2021) argued that companies should use debt as a last resort in terms of IC and use more samples and new methods to improve research. On the other hand, Li et al.'s (2020) empirical results indicate that the company's positive contribution comes from the strength and efficiency of HC in different sectors.

The energy, oil, and gas sectors are considered the best in the efficiency of HC. For example, Tran and Vo (2020) opined that the Board of Directors concluded that the basic characteristics of corporate governance might harm the effective or excessive use of IC. Dalwai and Mohammadi (2020) also state that the efficiency of the IC associated with the Omani financial sector is highly correlated with the size of the Board of Directors and the follow-up of the audit committee sessions. Meanwhile, Tabares (2020) analyzes the results after detailing the bibliometric and explanatory content. The study provides recent insights into CSI research by referring to the discussion to agree on the definition of CSI collectively. Apart from that, Nirino et al.'s (2020) results showed the relationship of Social Responsibility (SR) with financial performance, where a positive impact resulted when applying CSR strategies in developing the IC of companies, contributing to enhancing the competitive advantage of companies and long-term financial performance plans. Furthermore, according to Carberry et al. (2019), the SI arose from the ongoing interactions between activists and company managers and contributed to developing new practices. Thus, the following hypothesis is developed:

H1: There exists a positive relationship between Intellectual Human Capital and Corporate Social Innovation.

METHOD

This study is a cross-sectional quantitative research in which the quantitative data was gathered from secondary sources. Corporate Social Innovation (CSI) was the dependent variable in this project. Meanwhile, independent variables are the elements that influence the adoption of Intellectual Human Capital (Peng, Pike, & Roos, 2007).In this research, the sample size was 62 firms from two sectors (Financial and Industrial); this research selected these sectors because it is very important in Oman. The industrial sector is considered one of the biggest engines of social and economic development within Oman because it is one of the best vital means of achieving economic property and diversification development (Alyaarubi, Alkindi & Ahmed, 2021). Also, the financial sector plays an essential role in Oman's promising fashionable economy. Therefore, the development of sectors is a significant element in achieving the micro-foundations of wealth creation and economic growth of Oman. The population of this study was 74 companies at Muscat Stock Exchange (MSE) for the year ended 2021 in Oman. The sample size of this study was 63 from two sectors of listed companies, as shown in Table 1.

[Table 1 about here.]

Measurements Of Variables

Table 2. shows the measurement of IHC. This research used six variables as an equation for the independent variable to determine Human Capital Efficiency (HCEF) and Intellectual Capital Efficiency (ICE) using annual reports (Income statements, Cash flow, Notes, and company reports). The reports are from companies in the financial and industrial sectors comprising 63 companies in the MSE. The data were analyzed using partial least squares structural equation modeling (PLS-SEM).

[Table 2 about here.]

Measuring of Dependent Variable (Corporate Social Innovation): This study's indexing method is based on MSE companies' listed reports (annual reports) to measure and evaluate the practices of CSI from the elements of information mentioned in the annual reports. The index list included five elements on the disclosure of innovative practices information based on the information gathered, as accepted by previous studies (Manu, 1992; Lee and Choi, 2003; Bocquet et al., 2013). Regarding the disclosure index's structure, it is shown in Table 3.

[Table 3 about here.]

Five elements were set aside in examining the innovation practices, and this issue covered all the broad subjects. To calculate a score for the innovative practices, the score for each item was added together, and then the total was divided by the maximum of the expected scores. Subsequently, the result was multiplied by 100 to get the percentage scores. This study's five broad theme items reconcile to the highest possible score for disclosure of the total number of items. For example, if a corporation reported four out of a possible maximum of five items, the dependent variable score would be around 80%. Likewise, if three out of the five items are recorded, a variable score of 60% would be achieved. The average score was calculated after examining a specific item and dividing the number of innovative practices by the total number of items for that item.

Descriptive Statistics

Based on the descriptive statistics obtained, the dependent

variable, Corporate Social Innovation (CSI) in Table 4. showed a mean of 0.622 with a standard deviation of 0.196. In addition, the minimum (Min) and maximum (Max) values indicated that (CSI) was 0.000 and 1.000, respectively. On the other hand, the results display that the Human Capital Efficiency (HCEF) attain 0.120, representing the average accept with a standard deviation of 0.055. However, the Min and Max values mark 0.000 and 0.277, respectively. The results also showed that the Intellectual Capital Efficiency (ICE) reached 5.718, representing the average support with a standard deviation of 1.146. Note that the Min and Max values were 3.090 and 7.550, respectively.

[Table 4 about here.]

Discriminant Validity

There are standards used in partial least squares (PLS) to test the special validity. Every construct's square root of Average Variance Extracted (AVE) must have a high correlation level, including the other constructs. To cope with discriminant validity, the square root of each construct in its AVE must be compared to the constructions' correlations for all other constructs, as noted by Fornell & Larcker (1981). The following Table 5. illustrate the discriminant validity.

[Table 5 about here.]

R-Square (R^2)

R-square (R^2) is a structural measure in the regression model. After analyzing the measurement model and passing all standards, the structural model was evaluated. In Table 6. the coefficient of determination (R^2) is examined. In addition, the internal supply variable has an R^2 value of 0.864 CSI of the contrast in firm performance in this research. The predictors can elucidate HCEF and ICE: variables used in this research (Human Capital Efficiency (HCEF), Value Added (VA), Human Capital (HC), Intellectual Capital (IC), Structural Capital (SC), ICE, Structural Capital Efficiency (SCE)) to measure the impact of IHC on CSI. Hence, the current works significantly meet the standard.

[Table 6 about here.]

Hypothesis Testing

Table 7. shows the results from the hypothesis testing, and it found that the hypothesis related to HCEF was also supported by ICE. Furthermore, the result from HCEF was significant for CSI with P Values (0.000) and T Statistics 18.826. Therefore, the finding indicates that HCEF has a significant effect on CSI. On the other hand, ICE has a positive impact and is significant with CS-INN, P Values (0.000), and T Statistics (7.061), which has affected CSI.

[Table 7 about here.]

The Impact of Intellectual Human Capital on Corporate Social Innovation

Intellectual Capital (IC) is the combination or difference between the market value and the replacement price of its assets. Therefore, this independent variable cannot be price tag as knowledge, experience, and the individual's ability to learn in the company formally. Note that IC includes copyrights, patents, and other forms of intellectual property. Subsequently, it is the chain and collaboration of a company's knowledge (awareness), connections, expertise, business, innovations, exploration (knowledge), presence in the market, and contribution to the impact on society. This valuable knowledge capital for companies is managed to create IC. Apart from that, IC consists of Human Capital (HC), Structural Capital (SC), and customer capital (Akpinar & Akdemir, 1999). Furthermore, IC is a key component of performance as a competitive advantage among innovative companies. All forms of IC are connected to one point: they are largely intangible. IC includes strategic capabilities that can distinguish the company strategically by mobilizing its intellectual assets, such as technological expertise and others (Tovstiga & Tulugurova, 2009). HC is the workforce that possesses the skills, intuition, knowledge, attitudes, education, values, experience, and capabilities of a company's employees. Other than that, it is the collective power of all the company's people to derive the most effective and best solutions from the awareness (knowledge) of the employees permanently in the company. They own the internal, external, formal, and informal relationships because they are considered the source of creativity and strategic modernization through several methods such as brainstorming, business reengineering, staff development, etc. Therefore, the increased capacity of each worker in the company leads to an increase in the IC (Akpinar & Akdemir, 1999).

On the other hand, social innovation is a testable (measurable) and reproducible (iterative) initiative that uses a new application of the concept to create stakeholder (share) and social value. Hence, understanding SI firms is significant for identifying factors, facilitative incentives, barriers, or obstacles that discourage idea production, testing, and implementation in different firms (Herrera, 2015). Consequently, this dependent variable refers to innovative business activities that seek to fulfill or answer social needs. Many for-profit companies contribute to creating social value through Corporate Social Responsibility (CSR) schemes relating to them in all respects to organizations with dual commitments that include new patterns (Phillips et al., 2015). Social Innovation (SI) refers to programs, products, or processes that contribute to changing routines, asset flows, and viability. High-capacity societies assist populations in difficult or critical situations by creating a continuous flow of SI that leads to social resilience between populations and an inclusive environment (Cahill, 2010).

The key purpose of this research is to determine the relationship between IHC and CSI in the Muscat Stock Exchange (MSE) in the Sultanate of Oman. The research will target to analyze, realize, and interpret the impact of IHC on CSI in Oman. Apart from that, the freelance variables that area unit internal CSI (Human Capital Efficiency (HCEF) and

Intellectual Capital Efficiency (ICE)) were identified as one variable that influenced the CSI in the prior literature review. The hypothesis was designed to query the target based on the area unit's variables. Other than that, quantitative knowledge from two sectors was used in the analysis. During this project, 63 out of 74 companies (financial sector and industrial sector) were successfully collected.

Two of the independent variables associated with CSI are ICE and HCEF. In the financial sector, the results show a positive relationship between Human Capital Efficiency and CSI ($p<0.000$, $t= 18.826$). The findings indicate that GHC and Green Structural Capital (GSC) are key components that have significantly contributed to the impact of SI. Besides that, this result is related to the previous study by Sheikh (2021), who found that Green Intellectual Capital (GIC) positively affects social innovation. In addition, the industrial sector also shows a significant impact between ICE and CSI ($p<0.000$, $t= 7.061$).

On the other hand, the HC, and Organizational Capital (OC) have a significant and positive impact on investment in research and improvement, as well as the relationship between IC and innovation, which is influenced by the drivers of the economy in general. IC has a stimulating effect on corporate innovation in emerging countries (Ren and Song, 2021). There is a link between IHC and CSI, business continuity, and society through the resource-based view theory, which is another study done by Amran et al. (2021). In addition, Bataglin and Kruglianskas (2022) discovered that there had been a very significant development in social innovation, which has contributed to allowing the assignment of lead authors, discourses, topics, companies, and territories (countries) to this scope hypothesis that is supported in both sectors. Moreover, Adel et al. (2021) show a positive effect on social responsibility, SI, and sustainable competitive advantage development (SCAD). Subsequently, SI's significant and positive impact on the competitive advantage has been developed sustainably. As per Izzo et al. (2021), the results related to models (styles) describe regression that working capital and HC are very positive in the performance of companies. Other than that, Li et al. (2020) stated the empirical results indicate that the company's positive contribution comes from the strength and efficiency of HC in different sectors. Besides, Dalwai and Mohammadi (2020) discovered that the efficiency of the IC associated with the Omani financial industry is highly correlated with the size of the Board of Directors and the follow-up of the audit committee sessions.

Meanwhile, Nirino et al.'s (2020) results showed the relationship of Social Responsibility (SR) with financial performance, where a positive impact resulted when applying CSR strategies in developing the IC of companies, which contributed to enhancing the competitive advantage of companies and long-term financial performance plans. This indicates that the increase in IHC will affect the CSI in Omani-listed firms. Companies with efficient human capital led to higher social innovation. Also, when companies apply ICE, it leads to higher SI due to the high effects of these independent and dependent variables on these scales. On the other hand, this study advises scholars and researchers in the Sultanate of Oman to conduct more research on this topic because of the limited number of studies or literature on IHC that possesses complementary capabilities according to the economic outlook that has arguments and evidence to justify IHC to develop validation of operational and objective measures to evaluate relationships, multiplier effects and interdependence in the future in the countries of the Gulf Cooperation Council (GCC), especially Oman. In terms of CSI, encouraging future studies to study many relationships, such as the relationship between SI and sustainable development, open a great opportunity for different and mixed quantitative methodologies about CSI and focus on multinational companies to encourage new actors to analyze CSI.

Implications

The implications of this study result in a crucial asset today. It represents the location of the intellectual forces capable of developing and moving the project forward. Furthermore, it develops social welfare services and invests in employees through Social Innovation (SI) practices. Moreover, it solves social problems faced by society, such as challenges related to agriculture, corruption, climate change, work, poverty, and unsustainable habits through social innovation companies representing businesses, having great potential in empowering societies. This also introduces new organizational practices, creating alternatives that shape lifestyles and consumption patterns and introducing new environmental solutions. It also strengthens civil society and enhances citizens' trust through active social participation. Furthermore, intellectual capital contributes to increased company productivity through employees' knowledge. The role of effective IHC in the emergence of knowledge within both new biotech ventures and incumbent pharmaceutical firms has been explored.

CONCLUSION

The primary goal of this study is to investigate the relationship between IHC and CSI to increase companies' profitability in the Sultanate of Oman. This study used two independent variables (HCEF and ICE) to measure the impact of IHC on CSI. The data for this study were gathered from financial and industrial companies, with a total sample size of 63 companies (financial 31 and industrial 32) and 74 firms listed on the MSE. This research selected the two sectors because they are the most exploited and warranted compared to other companies. Other than that, they are among the strongest options, can award noticeable progress, and play a significant and extraordinary role. As a result, firms in Oman can compete powerfully. Here, analytical studies of companies listed on the MSE and the utilization of earnings in financial and industrial firms have been observed.

The validity among firms was examined, the standards were applied, and a high correlation level was built in the companies to contract with the distinct validity. The results and statistics of the companies were viewed by looking at the

results of IHC on CSI. This study also received positive hypotheses and outcomes, in which positive outcomes significantly impact the firm. IHC also has a favorable effect on CSI in sectors (financial and industrial) where listed companies are in the Sultanate of Oman, according to this research. The study progresses toward a grasp of firms that may be impacted differently in terms of content, and corporate quality may rise due to a greater emphasis on (HCEF and ICE), which become highly influential in terms of their importance. This emphasis appears positively and represents the criteria that lead to high positivity in CSI, meaning that increasing IHC leads to increased social innovation companies.

RECOMENDATION

This study includes numerous recommendations for future research. For example, conducting new studies or research on IHC and CSI with a larger sample of companies may strengthen or improve scientific credibility and prove results that include theory and model (experimental). The purpose is to assess IC in the Sultanate of Oman due to the lack of studies in this field and because we are the only ones who did this study in this country. On the other hand, various companies must propose innovative methods or measures in the computation for social innovation in various companies. The necessity of diversity in using the power of SI to meet the challenges of diversity among local populations is also required. This includes implementing new and available programs in Information and Communication Technology (ICT) to enhance citizens' confidence through their participation in social activities in society, whether in public or private spheres in the field of SI. Apart from that, it is necessary to apply new business models to social enterprises around SI and implement new and effective strategies to meet human needs. Companies should build a set of SI incubators to identify new models to expand the scope of SI and develop plans and business models to promote new ideas. Subsequently, an office for SI is suggested to be built to finance projects that bring together public and private resources. Hence, it is a fund focusing on partnerships with charities, social institutions, and businesses. Proposing new methods and measures to improve the efficiency of IC and the factors that must be considered to manage these assets better, such as the presence of new and additional variables, such as the movement of stock prices, the measures used to the variables must be improved. Therefore, IC should include all sectors to cover a much larger sample size, increase the generalizability of results based on the large sample size, and investigate new corporate governance mechanisms such as board diversity, audit, and remuneration committees. Institutions should encourage the concept of IC and SI to support HC. In addition, IC has a significant impact on different institutions and markets. On the other hand, the IC could generate value, so it must be focused on increasing the production process, and it will be reflected positively on the SI of companies. Finally, IC has a role in raising social innovation and generating ideas that may increase companies' efficiency.

REFERENCES

Ahmed, E. R., Alabdullah, T. T. Y &Shaharudin, M. S. (2020). Approaches to Control Mechanisms and Their Implications for Companies' Profitability: a Study in UAE. *Journal of accounting Science*, Vol. 4, no. 2, pp. 11-20.

Ahmed, E. R., Alabdullah, T. T. Y., Thottoli, M. M., &Maryanti, E. (2020). Does Corporate Governance Predict Firm Profitability? An Empirical Study in Oman. *The International Journal of Accounting and Business Society*, 28(1), 127-143.

Alabdullah, T. T. Y., Maryanti, E . (2021). Internal Control Mechanisms in Accounting, Management, and Economy: A review of the Literature and Suggestions of New Investigations. *International Journal of Business and Management Invention*, 10(9).

Alabdullah, T. T. Y., Ahmed, E. R., (2020). A cross-sectional analysis of the influence of corporate governance features on the organizational outcomes: An assessment. *International Islamic University Chittagong.* 17(2). P.P 6-26.

Alabdullah, T. T. Y., Ahmed, E. R. (2021). New Insights to Investigate the Impact of Internal Control Mechanisms on Firm Performance: A Study in Oman. *RisetAkuntansidanKeuangan Indonesia*, Vol. 6,(2).

Alabdullah, T. T. Y., Al-Fakhri, I., Ahmed, E. R., & Kanaan-Jebna, A. 2021. Empirical Study Of The Influence Of Board Of Directors'feature On Firm Performance. *Russian Journal of Agricultural and Socio-Economic Sciences.* 11(119), 137-146.

Alabdullah, T. T. Y., Al-Fakhri, I., Ahmed, E. R., & Kanaan-Jebna, A. 2021. Corporate Governance System and Firm Financial Performance. *Acta Scientific Computer Sciences*, 4 (6), 97-103.

Alabdullah, T. T. Y., Ahmed, E. R., and Nor, M. I. (2020). The World Declining Economy And Coronavirus Pandemic: Systems Should Be Continued. *Russian Journal of Agricultural and Socio-Economic Sciences* 102, 89–96. doi: 10.18551/rjoas.2020- 06.11.

Alabdullah, T. T Y & Ahmed, E. R. (2020). Audit Committee Impact on Corporate Profitability in Oman Companies: an Auditing and Management Accounting Perspective. *RisetAkuntansidanKeuangan Indonesia*, Vol. 5, no. 2, pp. 121-128

Alabdullah, T. T. Y., Ahmed, E. R., &Yahya, S. (2018). The determination of firm performance in emerging nations: Do board size and firm size matter?. *International Academic Journal Of Accounting And Financial Management*, 5(2), 57-66.DOI: 10.9756/IAJAFM/V5I2/1810017.

Alabdullah, T. T. Y., Laadjal, A., Ries, E., & Al-Asadi, Y. A. A. (2018). Board Features and Capital Structure in Emerging Markets. *Journal of Advanced Management Science*, 6 (2).

Alabdullah, T. T. Y., Nor, M. I., & Ahmed, E. R. (2018). The determination of firm performance in emerging nations: Do board size and firm size matter? *Management*, 5(3), 57-66.

Alabdullah, T.T.Y., Kanaan-Jebna, Kanaan, Ahmed, E. R.(2022). The Impact Of Platforms Being Analogue In Some European Countries On Dealing With Management Issues. *Russian Journal of Agricultural and Socio-Economic Sciences*, Vol. 10, no 102, 89–96. doi: 10.18551/rjoas.2020-06.11.

Alabdullah, T. T. Y., Ahmed, E. R., Mohammed Almashhadani, M, Yousif S, Almashhadani H, Almashhadani R, Putri, E (2021). How Significantly to Emerging Economies Benefit From Board Attributes and Risk Management in Enhancing Firm Profitability? *Journal of Accounting Science* 5(2).

Alabdullah, T. T. Y. and Ahmed, E. R. (2018). Corporate Governance: To What Extent it is important in the Arab Countries. *International Journal of Science and Research* 7.

Alabdullah, T. T. Y & Ahmed, E. R. &Abushammala, S. (2020). Growth of Companies: Empirical Study of the Companies Listed in Developing Economies. *Journal of accounting Science*, Vol. 4, no. 2, pp. 1-10.

Alabdullah, T. T. Y., Ahmed, E. R. (2019). Board Diversity and Disclosure of Corporate Social Responsibility Link: A Study in Malaysia. *Journal of Adv Research in Dynamic & Control System*, 11(11).

Alabdullah, T. T. Y., Ahmed, E. R., & Ahmed, R. R. (2021). Organization features and profitability: Implications for a sample of Emerging Countries. *Journal of Accounting and Business Education*, 5(2), 43-52.DOI: http://dx.doi.org/10.26675/jabe.v5i2.16351.

Alabdullah, T. T. Y., Ahmed, E. R., & Nor, M. I. (2019). Do board characteristics provide more enhancement for firm financial performance? A corporate governance perspective. *New challenges in corporate governance: Theory and practice* (pp. 89-91). https://doi.org/10.22495/ncpr_25.

Abdurakhmanova, G., Shayusupova, N., Irmatova, A., & Rustamov, D. (2020). The role of the digital economy in the development of the human capital market. *Архив научных исследований*, (25), Vol.24, Issue 07, pp. 8043-8051

Abushammala, S. N., Alabdullah, T. T. Y., & Ahmed, E. R. (2015). Causal Relationship between Market Growth and Economic Growth. Comparison Study. *European Journal of Business and Management* 7(33).

Adel, H. M., Zeinhom, G. A., & Younis, R. A. A. (2021). From university social-responsibility to social-innovation strategy for quality accreditation and sustainable competitive advantage during COVID-19 pandemic. *Journal of*

Humanities and Applied Social Sciences. Vol. ahead-of-print No. ahead-of-print, pp. 1-28.

Akkas, E., & Asutay, M. (2022). The impact of intellectual capital formation and knowledge economy on banking performance: a case study of GCC's conventional and Islamic banks. *Journal of Financial Reporting and Accounting*. Vol. ahead-of-print No. ahead-of-print.

Akpinar, A. T., & Akdemir, A. (1999). Intellectual capital. In *Third European Conference* (pp. 332-340).

Al-amri, A. K., Said, M., Al Kindi, K. S., & Ahmed, E. R. (2022). The Influence of Socio-Demographic Characteristic on Entrepreneurial Intention: An Empirical Study in Sultanate of Oman. *Journal of Governance and Integrity*, *5*(2), 275-282.

Al-Alawi, A. M., Alkindi, K. S., Al-Shukaili, A., & Ahmed, E. R. (2022). The Influence of Entrepreneurial Activity's Innovation on Job Creation. *International Journal of Industrial Management*, *14*(1), 506-514.

Alyaarubi, H. J., Alkindi, D. S., & Ahmed, E. R. (2021). Internal Auditing Quality and Earnings Management: Evidence from Sultanate of Oman. *Journal of Governance and Integrity*, *4*(2), 115-124.

Alfalih, A. A. (2021). The Role of Sustainable Entrepreneurship and Corporate Social Performance on Social Innovation: the Case of the Private Industrial Sector in Saudi Arabia. *Journal of the Knowledge Economy*, 1-16.

Ali, B. J., & Anwar, G. (2021). Intellectual capital: A modern model to measure the value creation in a business. *Ali, BJ, & Anwar, G.(2021). Intellectual capital: A modern model to measure the value creation in a business. International journal of Engineering, Business and Management*, *5*(2), 31-43.

Alkan, D. P., Ozbilgin, M., & Kamasak, R. (2022). Social innovation in managing diversity: COVID-19 as a catalyst for change. *Equality, Diversity, and Inclusion: An International Journal*. Vol. ahead-of-print No. ahead-of-print, pp.1-17.

Al-Musalli, M. A. K., & Ismail, K. N. I. K. (2012). Intellectual capital performance and board characteristics of GCC banks. *Procedia Economics and Finance*, 2 (12), 219-226.

Alqershi, N. A., Yusoff, W. F. W., Masrom, M. A. N. B., Hamid, N. B. A., Mokhtar, S. S. M., & AlDoghan, M. (2021). Intellectual capital and performance of automotive manufacturers: the role of strategic thinking. *International Journal of Productivity and Performance Management*. Vol. ahead-of-print No. ahead-of-print.

Alsarmi, Y. N. A., & Ahemed, E. R. (2022). Determinants of Efficiency of Tax's Collection in Oman. *JABE (Journal Of Accounting And Business Education)*, *7*(1), 59-71.

Ahmed, E. R., Alabdullah, T. T. Y., Shaharudin, M. S., &Putri, E. (2020). Further Evidence on the Link between Firm's Control Mechanisms and Firm Financial Performance: Sultanate of Oman. *Journal of Governance and Integrity*, 4(1), 1-6.

Amran, A., Yon, L. C., Kiumarsi, S., & Jaaffar, A. H. (2021). Intellectual human capital, corporate social innovation, and sustainable development: a conceptual framework. *International Journal of Innovation and Sustainable Development*, 15(1), 75-99.

Bassi, Laurie, J, Dec.(1997), Harnessing the power of intelectual capital, *Training & Development*, 51 (12), p. 25-30.

Bataglin, J. C., & Kruglianskas, I. (2022). Social Innovation: Field Analysis and Gaps for Future Research. *Sustainability*, *14*(3), 1153, pp. 2-17.

Bontis, N., Ciambotti, M., Palazzi, F., & Sgro, F. (2018). Intellectual capital and financial performance in social cooperative enterprises. *Journal of Intellectual Capital*. Vol. 19 No. 4, pp. 712-731.

Bontis, Nick (1996), There's a Price On Your Head: Managing Intellectual Capital Strategically, *Business Quarterly*, 60 (4), p. 40-47.

Brenner Pamela M. Jan (1999), Motivating Knowledge Workers: The Role Of The Workplace, *Quality Progress* 32 (1) , p. 33-37.

Cahill, G. (2010). Primer on social innovation a compendium of definitions developed by organizations around the world. *The Philanthropist*, *23*(3), pp. 259-272.

Campopiano, G., & Bassani, G. (2021). Social innovation: Learning from social cooperatives in the Italian context. *Journal of Cleaner Production*. 125253. Volume 291, pp. 2-11.

Carberry, E. J., Bharati, P., Levy, D. L., & Chaudhury, A. (2019). Social movements as catalysts for corporate social innovation: Environmental activism and the adoption of green information systems. *Business & Society*, *58*(5), 1083-1127.

Chierici, R., Tortora, D., Del Giudice, M., & Quacquarelli, B. (2020). Strengthening digital collaboration to enhance social innovation capital: an analysis of Italian small innovative enterprises. Journal of Intellectual Capital.Vol. 22 No. 3, pp. 610-632.

Dahiyat, S. E., Khasawneh, S. M., Bontis, N., & Al-Dahiyat, M. (2021). Intellectual capital stocks and flows: Examining the mediating roles of social capital and knowledge transfer. *VINE Journal of Information and Knowledge Management Systems*. Vol. ahead-of-print No. ahead-of-print, pp.1-32.

Dalwai, T., & Mohammadi, S. S. (2020). Intellectual capital and corporate governance: an evaluation of Oman's financial sector companies. *Journal of Intellectual Capital*. Vol. 21 No. 6, pp. 1125-1152.

Fedotova, M., Loseva, O., & Fedosova, R. (2014). Development of a methodology for evaluation of the intellectual human capital of a region. *Life Science Journal*, 11(8), pp 739-746.

Foroudi, P., Akarsu, T. N., Marvi, R., & Balakrishnan, J. (2021). Intellectual evolution of social innovation: A bibliometric analysis and avenues for future research trends. *Industrial Marketing Management*, 93, 446-465.

Hao, Y., Ahmed, E. R., Singh, K. S. D., & Amran, A. (2019). Innovation and diversity-based organization culture and its effect on competitive advantage. *Opción: Revista de Ciencias Humanas y Sociales*, (21), 1205-1216.

Herrera, M. E. B. (2015). Creating competitive advantage by institutionalizing corporate social innovation. *Journal of business research*, 68(7), 1468-1474.

Hussinki, H., Kianto, A., Vanhala, M., & Ritala, P. (2019). Happy employees make happy customers: The role of intellectual capital in supporting sustainable value creation in organizations. *In Intellectual capital management as a driver of sustainability* Vol 0, Number 0, pp. 101-117.

Izzo, F., Tomnyuk, V., & Lombardo, R. (2021). 4.0 digital transition and human capital: evidence from the Italian Fintech market. *International Journal of Manpower*. Vol. ahead-of-print No. ahead-of-print

Kanaan-Jebna, A. M. J., Alabdullah, T. T. Y., Ahmed, E. R., & Ayyasamy, R. K. (2022). Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies. *Business Ethics and Leadership*, 6(2), 68–77. https://doi.org/10.21272/bel.6(2).68-77.2022

Kluvankova, T., Nijnik, M., Spacek, M., Sarkki, S., Perlik, M., Lukesch, R., ... & Brnkalakova, S. (2021). Social innovation for sustainability transformation and its diverging development paths in marginalised rural areas. *Sociología ruralis*, 61(2), 344-371.

Li, G., Luo, Z., Anwar, M., Lu, Y., Wang, X., & Liu, X. (2020). Intellectual capital and the efficiency of SMEs in the transition economy China; Do financial resources strengthen the routes? *PloS one*, *15*(7), pp. 1-25.

Marques, P., Morgan, K., & Richardson, R. (2018). Social innovation in question: The theoretical and practical implications of a contested concept. *Environment and Planning C: Politics and Space*, 36(3), 496-512.

Mihci, H. (2020). Is measuring social innovation a mission impossible?. *Innovation: The European Journal of Social Science Research*, *33*(3), 337-367.

Miller, William, Jan.(1999), Building The Ultimate Resource, *Management Review*, 88 (1), p. 42-45.

Mahmood, T., & Mubarik, M. S. (2020). Balancing innovation and exploitation in the fourth industrial revolution: Role of intellectual capital and technology absorptive capacity. *Technological Forecasting and Social Change*, *160*, 120248.

Nirino, N., Ferraris, A., Miglietta, N., & Invernizzi, A. C. (2020). Intellectual capital: the missing link in the corporate social responsibility–financial performance relationship. *Journal of Intellectual Capital*. Vol. 23 No. 2, pp. 420-438

Ovechkin, D. V., Romashkina, G. F., & Davydenko, V. A. (2021). The Impact of Intellectual Capital on the Profitability of Russian Agricultural Firms. *Agronomy*, *11*(2), 286, pp. 2-16.

Peng, T. J. A., Pike, S., & Roos, G. (2007). Intellectual capital and performance indicators: Taiwanese healthcare sector. *Journal of intellectual capital*, Vol. 8 No. 3, pp. 538-556. https://doi.org/10.1108/14691930710774902.

Phillips, W., Lee, H., Ghobadian, A., O'regan, N., & James, P. (2015). Social innovation and social entrepreneurship: A systematic review. *Group & Organization Management*, *40*(3), 428-461.

Pless, N. M., Murphy, M., Maak, T., & Sengupta, A. (2021). Societal challenges and business leadership for social innovation. *Society and Business Review*. Vol. 16 No. 4, pp. 535-561.

Pokrovskaia, N. N., Korableva, O. N., Cappelli, L., & Fedorov, D. A. (2021). Digital regulation of intellectual capital for open innovation: industries' expert assessments of tacit knowledge for controlling and networking outcome. *Future Internet*, *13*(2), pp. 2-27.

Ravazzoli, E., Dalla Torre, C., Da Re, R., Marini Govigli, V., Secco, L., Górriz-Mifsud, E., ... & Nijnik, M. (2021). Can social innovation make a change in European and Mediterranean marginalized areas? Social innovation impact assessment in agriculture, fisheries, forestry, and rural development. *Sustainability*, 13(4), pp 1-27.

Ren, S., & Song, Z. (2021). Intellectual capital and firm innovation: incentive effect and selection effect. *Applied Economics Letters*, *28*(7), pp.617-623.

Sheikh, A. M. (2021). Green intellectual capital and social innovation: the nexus. *Journal of Intellectual Capital*. Vol. ahead-of-print No. ahead-of-print

Sveiby, Karl-Erik Jun. (1998), Intellectual Capital: Thinking Ahead, *Australian Accountant*, 68 (5), p. 18-22.

Szegedi, K., Fülöp, G., & Bereczk, Á. (2016). Relationships between social entrepreneurship, CSR, and social innovation: In theory and practice. *International Journal of Social, Behavioral, Educational, Economic,*

Business and Industrial Engineering, 10(5), 1402-1407.
Tabaklar, T., Sorkun, M. F., Yurt, O., & Yu, W. (2021). Exploring the microfoundations of dynamic capabilities for social innovation in a humanitarian aid supply network setting. *Industrial Marketing Management*, volume *96*, pp.147-162.
Tabares, S. (2020). Insights from corporate social innovation: a research agenda. *Social Enterprise Journal*. Vol. 16 No. 3, pp. 317-338.
Tovstiga, G., & Tulugurova, E. (2009). Intellectual capital practices: a four-region comparative study. *Journal of intellectual capital*, Vol. 10 No. 1, pp. 70-80.
Tran, N. P., & Vo, D. H. (2020). Human capital efficiency and firm performance across sectors in an emerging market. *Cogent Business & Management*, 7(1), pp 1-15.
Vrontis, D., Morea, D., Basile, G., Bonacci, I., & Mazzitelli, A. (2021). Consequences of technology and social innovation on traditional business model. *Technological Forecasting and Social Change*. 120877. Volume 170, pp. 1-13.
Weqar, F., Khan, A. M., Raushan, M., & Haque, S. M. (2021). Measuring the impact of intellectual capital on the financial performance of the finance sector of India. *Journal of the Knowledge Economy*, *12*(3), 1134-1151.
Ziegler, R. (2017). Social innovation as a collaborative concept. *Innovation: The European Journal of Social Science Research*, 30(4), 388-405.

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2023 author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

List Of Table

Table 1 | Population and Sample Size of Research

Sector	No. of Companies	Sample
Financial	35	31
Industrial	39	32
Total	74	63

Table 2 | Measuring of Independent variable (Intellectual Human Capital).

Steps	Variable	Formula	Variables Ope-rationalized
1	Value Added (VA)	OP + EC + D + A	(OP)Operating profit + (EC)Employee cost + (D) Depreciation + (A) Amortization
2	Human Capital (HC)	Total costs invested on employees	
3	Human Capital Efficiency (HCEF)	VA / HC	
4	Structural Capital (SC)	VA – HC	
5	Structural Capital Efficiency (SCE)	SC / VA	
6	Intellectual Capital Efficiency (ICE)	HCEF + SCE	

Table 3 | Index Innovation Practices

	Items	Source		
	Index of Innovation Practices	Boequet et al., (2013)	Lee and Chio (2003)	Manu (1992)
1	The number of new or improved products/services launched to the market is above the average of your industry	V	V	V
2	The number of new or improved internal processes is above the average of your industry	V	V	
3	Top management emphasizes on research and development	V		V
4	In the last five-year, new product lines have been introduced	V	V	
5	Changes introduced in our products during the last five years are important	V	V	V

Table 4 | Descriptive Statistics of Variables.

	Mean	Min	Max	Standard Deviation
CSI	0.622	0.000	1.000	0.196
HCEF	0.120	0.000	0.277	0.055
ICE	5.718	3.090	7.550	1.146

Table 5 | Discriminant Validity.

	HCEF	ICE	CSI
HCEF	1.000		
ICE	-0.755	1.000	
CSI	0.801	-0.296	1.000

Table 6 | Explanation of the Variance.

	R Square	R Square Adjusted
CSI	0.864	0.859

Table 7 | Path Coefficients.

Note: levels of Significance: *p < 0.05 (t >1.605), **p < 0. 01 (t >2.33), *** P < 0. 001 (t >3.33).

Mean, STDEV, T-Values, P-Values						
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Results
HCEF -> CSI	1.345	1.344	0.071	18.826	0.000***	Support
ICE -> CSI	0.720	0.712	0.102	7.061	0.000***	Support
ICE -> CSI	0.720	0.712	0.102	7.061	0.000***	Support