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The Impact of Intellectual Capital in Information Centers on the Sustainable Development Goals

Mohamed. A. Abdulla
Department of Research, Prince Mohammad Bin Fahd University, Al Khobar, Saudi Arabia

Abstract

This study aims to discuss and analyze the impact of available intellectual capital in the information centers on Sustainable Development Goals (SDGs). And to examine the implementations of decisions based on intellectual capital and their impact on sustainability. The study also reviews and analyzes the components of the capital intellectual, and the challenges for information centers for all in developing countries to make available accurate information, data, and intellectual capital. The researcher analyzes and evaluating the current investment in available intellectual capital in information Centers to reduce the knowledge gap with developed countries. The present study has gained significant insights by addressing a dynamic topic that helps developing countries benefit from the power of information centers by enhancing their position, role, and value in achieving SDGs. The researcher found that the information centers containing knowledge, skills, and innovations derived from the human mind are significant to connect all the potential to promote intellectual capital to decision-making centers, which in turn supports SDGs.

Keywords: Decision-making Centers; Information Centers; Intellectual Capital; Knowledge; Sustainable Development

1. Introduction

Researchers define information centers as units that provide high-level services in specific and precise topics and are sometimes called information analysis centers. The library characterizes information centers in terms of the nature and extent of information services. In contrast, information centers provide more advanced functions than Libraries such as current awareness services, Selective Dissemination of Information (SDI), translation, and use of visual methods such as computers. The information resource centers also contain other types of traditionally information resources such as statistics, government plans, business transformations, reports, information about prominent companies & organizations, and other companies in the same field. The technical processing of data is carried out in a way to analyze and control.

Email addresses: **first-author@institute.edu (F. Author), second-author@institute.edu (S. Author), third-author@institute.edu (Th. Author)**

The information centers include professional librarians, information specialists, editors, translators, system analysts, programmers, etc. (Weisman, Herman M, 1973).

Intellectual capital is a brain that has the unique skills that make it able to look from several aspects and think in several directions to reach a new method of working that achieves more opportunities. (Bernard Marr, 2008) However, the topic of intellectual capital in information centers is essential for countries and governments. The economic and social development depends on them, especially after the transition from the traditional economy to the knowledge economy. Information became a real force in the 20th century and most of the developed countries' economic dependence on the information. Therefore, the current study is gaining importance by addressing a vital topic that helps countries to benefit from information centers by enhancing their position, role, and value in achieving sustainable development goals on the relationship between intellectual capital and sustainable development. Tanmbli (2009) conducted an analytical study that aimed to measure accounting disclosure of intellectual capital on the development of competitiveness and supporting its approach to sustainable development. The results of Tanmbli's (2009) study confirmed that real capital own by the organizations is the intellectual capital, which is the human resources, desirable another resource, and effective management of intellectual capital is the central pillar for achieving the competitive advantage of the organization.

On the other hand, each development must be driven by factors that help demonstrate its completeness and the researchers' success. Event writers or decision-makers often focus on educational backgrounds. Today everyone can return to a small device to connect to the world and discover information, data, activities, and events. Still, it is necessary to return to the information center and classics archiving to get reliable information given the great importance of human capital in general and Arab societies particularly. Intellectual capital is currently increasing attention from governments and agencies hopeful of implementing the sustainable development plan. The purpose of this paper is to examine the available Intellectual capital-output from information centers and their relationship to sustainable development, are information centers played to serve development? Do information centers play their role in the service of development?

Problem Statement:

The problem of the current study is that the available intellectual capital in information centers is not used correctly in decision-making for human and economic development. The majority of decision-makers in developing countries do not use the available information when making their decisions. Information centers in the third world are ignored, and they do not have a definite impact on the SDGs. It is crucial to understand the effect of the available intellectual capital in information centers on the SDGs. The decision-makers must use the available information, data, research outputs, case studies, and all available intellectual capital in information canters when making decisions. The developing countries should able to reduce the knowledge gap with developed countries by investing in intellectual capital. If properly maintained and adjusted, it is possible to build a knowledge-based society and economic-based knowledge to achieve SDGs.

The Methodology:

This study, based on the literature review of intellectual capital, information centers, and sustainable development resources, the researcher uses the analysis techniques method aims at a quantitative and qualitative description of the problem and seeks to analyze the relationship between intellectual capitals of information Centers on SDGs. To find the impact of information centers in achieving sustainable development, especially about national information centers and available digital research databases on the internet, to enhance their utilization and investment in the best way.

Objectives:

The study seeks to achieve the following objectives:

a) Identify the intellectual capital for supporting sustainable development in the information centers in developing countries.
b) Examine the implementations of Decisions based on intellectual capital and their impact on sustainable development in developing countries.
c) Identify the challenges for information centers in developing countries to make available accurate information, data, and intellectual capital for the decision-makers.
d) Analyzing and evaluating the current investment in available intellectual capital in information Centers to reduce the knowledge gap with developed countries.

Literature review:

There have been many opinions among researchers who have shared the meanings of intellectual capital; Intellectual property is the value of a company or organization's employee knowledge, skills, business training, or any proprietary information that may provide the company with a competitive advantage (James Chen, 2019). Intellectual capital is an asset, but it is not valued within the budget. The concept of intellectual capital was featured in article form (Tom Steward, 1991). Researchers defined intellectual capital as the knowledge of all people in the company, which gives a competitive advantage and includes intellectual materials knowledge, information, and experience - that can be used to make wealth. (Tawy & Tollington 2012) indicated that there is no specific definition of intellectual capital and that the cause-effect relationship between intellectual capital and value generation is indirect. The most commonly used definition of intellectual capital is "valuable knowledge," Its main elements are human capital, structural capital, and relational capital. Intellectual capital consists of knowledge, experience, acquired skills, business culture, databases, company reputation, and relationships with business partners. Value and create long-term benefits in the future (Jasmina O, 2016). Intellectual capital is the intangible value of a business, covering its people (human capital), the value relating to its relationships (relational capital), and everything that is left when the employees go home (Edvinsson L, Malone M S, 1997). Intellectual capital is Collective knowledge (whether or not documented) of the individuals in an organization or society. This knowledge can be used to produce wealth, multiply the output of physical assets, gain competitive advantage, and to enhance the value of other types of capital (Business Dictionary, 2020). However, the vast array of studies across disciplines has created the greatness of definitions and emphasis, and a wide range of resources, properties, and attributes that can be considered as IC or intangibles. More fundamentally, what constitutes IC is not clearly defined, and what exists is a variety of terminologies that provides more or less the same meaning. (Kwee Keong Choong, 2008).

According to the above explanations and studies, Intellectual capital is based on the economy, participation, use, employment, and innovation, to improve the quality of life in all fields, by benefiting from a rich information service provided by national, specialized and academic information centers. Information technology applications (ITA) use the human mind as the capital of money by employing scientific research. IATs bring about a set of strategic changes such as the economy and organizations to become more responsive and in line with the challenges of globalization and inclusiveness. Intellectual capital is viewed as knowledge available to human competencies, which can be turned into income and linked to intellectual capital elements with a cumulative and joint group of expertise. The experience that falls within the scope of its interests inspires the point of Researchers' views on the concept of intellectual capital (Constantine E. Passaris, N.D.).

However, there is a near-consensus that it is composed mainly of human sources and intellectual sources. Intellectual capital is made up of many Intangible components (John P. Wilson, 2005):

1. **Human assets:** knowledge, skills, abilities, creativity, and experience gained from doing business.
2. **Intellectual assets:** the sum of information, written notes, and guidelines. Intellectual assets are formed intellectual resources transferred to information, knowledge, and human ideas assigned to be specific in writing so that the institution can exploit those sources instead of dealing with individuals, such as plans, engineering designs, and information programs.
3. **Intellectual property** consists of patents, copyrights, trademarks, and everything that can be legally protected by law, industry institutions or service institutions work. Intellectual property allows institutions to own more intellectual property rights, achieve a competitive advantage, and develop their portfolio and market it.
4. **Structural assets**: Includes the institution culture, the structure, the processes, the procedures, etc.
5. **Relational assets**: is also called relationship capital, customer capital, and external capital. It includes all relationships performed by the company externally, such as suppliers, partners, and customers. External capital includes relationships with customers and suppliers, trade names, trademarks, and reputation.

According to Yang (2009), the intellectual property consists of three main elements: human capital, structural capital, and relational capital. Human capital is the skills and creativity of employees that are increased through the training programs. Human capital is the skills and knowledge of the employees in the institutions. If workers are more efficient, their work is likely to be outstanding. Structural capital is an element of intellectual capital that includes non-human assets in the organization (Daum, 2003). It consists of copyright, patents, procedures and rules, and policies that assist in decision-making. In the current study, the research gat focus on taking advantage of information Centres copyrights procedures and regulations to promote derived development; most previous studies focus on human capital, structural capital, and relational capital. Few studies have focused on the importance of the information produced itself in terms of organization, catalog, management, and the performing of regulations and legislation on use, which is provided by information Centres. (Aymen R. A, 2018). The methods used to measure the intellectual capital in the information centers and its impact can be determined as Marr et al. 2004:

- **Descriptive models**: These models categorize intellectual capital and focus on exploring opinions and trends, which are essential in an indirect impact on the performance of knowledge processes and achievements. Its desired results based on the subjective experience and personal appreciation of the researchers. This kind of model proposals, including the management knowledge assessment tool, self-assessment of the productivity of knowledge professionals, and the weighted scorecard for measuring and managing knowledge access.
- **Measures and models associated with the measurement of intellectual capital**: These measures focus on measuring the value of intellectual capital and its core components (Human capital, Structural capital, Relationships Capital, Social capital,). These measures transfer knowledge and intangible knowledge assets in the organization divisions to intellectual property forms to be more specific and easier to use (Fathi and Ghandour, 2011).
- **Value Measures of the Market Models**: These measures are focus on the difference between the book value of knowledge assets on financial and accounting principles. These measures are often based on accounting principles and the most notable examples (market value, book value, calculated intangible values).
- **Standards and models of return on knowledge**: These models are based on calculating the return on assets according to the following formula:

Return on assets = pre-tax/tangible assets of the company.

It is then compared with the average industry. The difference can serve as a return on knowledge, such as calculated intangible value gains of knowledge capital, and the value-added model (return on knowledge).

Indicators for Measuring Intellectual Capital Available in Information Centers:

Institutions and organizations with information centers invest in research and development that contains the creation of activities that help improve products and processes. And research is a part of the intellectual capital that contributes to the improvement and development of new products. Activities include research and development, research for new knowledge and information, designing new products, developing new technologies, modifying processes, and more. (Joia, 2007). Intellectual capital is the most important resource for a sustainable economic future (Bontis, 1999). Furthermore, Communities today request up-to-date information as illustrated above; it was unclear and unfounded processes (Auer, 2004). This situation comes through generating information from and research output available in information centers. At this point, the impact of information sources on sustainable development should be clarified according to the type of source.

The interest in intellectual capital has matched with the appearance of a knowledge economy and knowledge society. The importance of having knowledge skills and how to use it effectively means the use of knowledge that relationships between (social capital) and processes (structural capital) are necessary and very important to convert knowledge into a product or service. (Mikalauskiene, A. and Atkociuniene, Z. 2019). Those researchers believe that the goal of knowledge management is to increase, renew, share, and improve the construction of human and social knowledge for the establishment of intellectual capital. Charles Egbu and et al. (2001) explained that knowledge management has a strong relationship with intellectual capital. The two types of competition depend on the individual, the first task of knowledge

management. The responsibility is to extract the understood knowledge of intellectual capital, which is represented by personal experiences. The relationship between intellectual capital and knowledge management is reflected in knowledge management investing and applying intellectual capital data directly to gain leadership and competitive excellence. Knowledge management controls the sale, application, or implementation of patents for inventions that are among the intellectual capital outputs; thus, an organization will make significant profits. In this regard (Eppler, 2003) indicates that the capital intellectual plays an integral role in cognitive knowledge management by participating effectively in achieving organizational development and obtaining advantage competitive.

On the other hand, Knowledge management encourages people to connect their knowledge when creating systems of gathering, organization, and contribution to the environment's systems. Sustainability in the framework of knowledge management means accurately transforming economic objectives into knowledge goals, rejecting outdated knowledge, identifying and preserving useful knowledge, and valuing people who have valuable insight. The use of knowledge infrastructure, cognitive transformation, and encouraging the exchange of knowledge (Asta .M and Zenona. A, 2019). The ongoing development process is supported by basic and applied research. Research and the quality of its implementation are inevitably influenced by the level of knowledge, awareness, better understanding, and innovative technologies. Continuous development and technological changes are the factors that determine the continuing and inevitable. (Mohajan, Haradhan, 2017).

Numerous scientists have made great efforts to develop reliable standards and indicators for measuring and evaluating intellectual capital available in institutions generally. Information centers are essential parts of the organization since they obtain feedback on how to benefit from user knowledge. Literature has mentioned the characteristics of intellectual capital (Jasmina O, 2016). It can be said that there is a set of intellectual capital that can be summarized by formalities, organizational characteristics, and professional characteristics, behavioral and personal characteristics. Researchers consider the difficulty of establishing standards for measuring intellectual capital as many of the company's intellectual assets, and the material unregistered that not available to decision-makers. Therefore, lack of clear criteria that enable them to follow and measure the movement of intellectual capital. To determine the intellectual capital index, institutions must identify and include the most important intellectual capital measures. The list of indicators should be classified according to the international regulatory classification measure, with only a few meaningful indicators selected. Once you have identified the list of useful indicators, each indicator should be expressed as a number with no dimensions, below table shows a view of the Classes of existent resources among organizations:

Material (Tangible)	Immaterial (Intangible)	
▪ Fixed asset ▪ On-going work ▪ Natural resources ▪ Raw material ▪ Inventory ▪ Financial capital ▪ Debentures ▪ Actions	▪ Intellectual property ▪ rights (DPI) ▪ Copyrights ▪ Patents ▪ Data banks ▪ Know-how ▪ Licenses ▪ Fabrication secrets ▪ Registered brands ▪ Softwares ▪ Concessions	▪ Goodwill ▪ Internal and external relationships ▪ Workforce ▪ Costumers ▪ Suppliers ▪ Technology ▪ Investors ▪ Human discipline ▪ Abilities

Generally, the above irrelevant categories (immaterial) depend directly or indirectly on the existence of skilled human resources, consequently. There is a concern with intellectual capital; there will also be a bigger valorization of the companies' human factors (Caroline R.V et al., 2015).

Investing in Intellectual Capital for Sustainable Development:

Knowledge management and its multiple activities affect decision-making processes at all stages. At the problem identification stage, it is important to evaluate alternatives, select the right option, and apply the chosen choice. The decision-makers are provided with the tools to help them make the decision correctly. The process of improving decisions and its implementation is better than the benefits that knowledge management can bring. The improving abilities of the employees know about their jobs. Other functions enable them to come up with more informed initiatives, better experience, and quality of work. Knowledge management offers analytical concepts that help officials to improve and maximize the value of their investments. Using information technology that helps develop actions to solve problems of change in the work environment. Jones (2006) stated that 50 % of respondents agreed that the decision-making processes did not live up to the required level because relevant information was not shared in the organization. As a result, organizations need to deal firmly with knowledge management. (Jones, 2006).

Stemberg (1997) claimed that intelligence is not enough to expect organizational success and the ability to decide. Successful managers are not the most intelligent. There is a missing gap in linking success to intelligence. As Liebowitz (2003-2004 4) explained, decisions are no longer dependent on stored data and information.

Intellectual capital is a significant player and a foundation for sustainable regional competitiveness; as a result, Human capital, structural capital, and relational capital can all be explored in the light of sustainability. Human capital development leads to be a higher social awareness about social and ecological problems.

Ackerman (2000) focused on the concept of knowledge as intellectual capital and added value. It is no longer so if discovered and invested by the business organization and converted into value to create wealth through the implementation. Thus, the OECD model is good to use in knowledge capital investment for the information centers. This intangible investment model is based on directing attention toward building

intellectual resources by identifying areas of finance. The results rely on these rules—assets, and accumulation, as shown in the figure below: (Alison Young, 1998).

OECD model is a useful model for use at the country and organization level, and this model consists of:

- **Intangible investment in information centers:** resources must be allocated as key for important areas of research and development for building a scientific and technological database, training and education, building human capital, and relations resources. (OECD Secretariat**,** 1998)
- **Accumulation of intellectual assets**: This stage of continuing investment, learning, and accumulated experience makes knowledge, organizational, marketing assets, and relationships at the level that characterizes the organization. By establishing institutional digital repositories that preserve, manage, and prepare intellectual assets to take advantage of development. Decision-makers have the opportunity to take benefit from these intellectual assets when making decisions.
- **Creating value for information centers**: this stage utilizes the available information, data, and innovation in information centers when making decisions to achieve development and build a knowledge society. New knowledge of the possible intellectual capital in databases can be created, the results of new research output can be entered or improving research productivity by taking advantage of intellectual capital, expertise, and knowledge of information centers.

Therefore, the management of intellectual capital in information centers is working to create an integrated infrastructure, including the provision of an inclusive range of information technology competencies. The focus is on helping for access to accurate information and Data for the decision-makers. It is obtaining skills and knowledge to achieve development. It also opens ways to the individuals, institutions, innovations, and innovators for addressing the economic and social issues that make growth (Nick Bontis, 1999).

Findings

Information centers are one of the most important that contribute to sustainable development through the performance of their functions. It aims to preserve, collect, and control intellectual capital that helps to fill the information needs of the decision-maker. It provides numerous databases of information sources in different forms, types, modern, accurate, and quality information structures that support decision-making processes to enhance development performance. With the beginning of sustainable development, new targets for information centers have appeared to support the sustainable development of the information society, and knowledge economics. Making the available intellectual capital in information centers impacts sustainable development by providing the necessary information to make the right decision and to make contributions to the development of their communities. Also, Information centers are among the most important means of developing intellectual capital.

Despite the developing countries agreed with the UN's Sustainable Development Goals and Guidelines to support knowledge society. However, the current status of information centers and their essential source of information for development is not moving in the right direction. This was confirmed by recent decisions concerning sustainable development in developing countries that were not based on accurate information. And the lack of use of information centers by decision-makers, politicians, and planners. According to

the World Knowledge Index, which a road map for the sustainable development of societies. According to the Arab Knowledge Index 2019, which covers 136 countries, the reports, statistics, and figures contained in the report are not encouraging as the knowledge society is based on the principle of the right to know, where the right to knowledge and access to information is transformed. The most Information and research centers are mostly political. They produce political knowledge on-demand to satisfy the authority, which has contributed significantly to reducing the impact of information centers on sustainable development. As well as most decision-makers, they try to minimize the importance of Intellectual capital in the Information Center that usually surrounds the decision-making process, through the nature of decisions made by the decision-maker, the skills of decision-makers to analyze the information. And the level of understanding and awareness available to them.

Conclusion

The study addressed the impact of information centers as an intellectual capital on the Sustainable Development Goals to support decision-making and its efficiency. Supporting decision-making and its effectiveness could occur by utilizing information centers as one of the mechanisms to make an appropriate decision and implementation. It could also happen by collecting and analyzing the data and information according to the situation, preparing studies and reports, and provided to leaders and decision-makers the value of the data when calculated depends on the outcome of the decision or the expected result. Therefore, information is synonymous with the value of the decision on which it is based because the data cannot be distinguished before it is used. The cost of intellectual capital is based on information centers to support decision-making to bring about sustainable development in developing countries following the causes and effects of intellectual capital. The difficulties associated with isolating the causes and consequences of this information cannot be overcome because these long-term impacts are slowly manifesting development. This is a set of challenges: to assume that developing world countries will adequately assess the information available to them.

The most critical challenge facing the information center in the developing countries is to prove its value to decision-makers. Many of them do not use it when making a decision. Despite the availability of intellectual capital in information centers, which include development projects plans in all areas, but the decision-makers still do not resort to this intellectual capital. Numerous factors helped with this matter. The most prominent of which is understanding the trends of public opinion before making the decision, and understanding the reactions after the decision. It also found the appropriate means to increase public awareness about the decisions taken on the topics should be based on accurate information and data.

Future Research Directions:

Through this study, the researcher highlighted the role of information centers in the growth of intellectual capital to achieve sustainable development by focusing on their functions and importance and their relationship with the decision-makers. The researcher suggests some topics as a future study, such as:

- Research on build trust between decision-makers and information centers in developing countries.
- Research on the challenges facing information centers in the context of knowledge economics.

- Study on promoting the use of intellectual capital in information centers to support sustainable development.
- A study on the impact of the available intellectual capital in information centers on sustainable development goals.

Ethical considerations

Ethical considerations will follow by applying to the Arab Gulf States Information Centers.

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