
INTELLECTUAL CAPITAL AND FIRM PERFORMANCE: THE EMERGENCE OF KNOWLEDGE BASED ECONOMY

Muhammad Aleem¹

Assistant Professor, Department of Management Sciences, CECOS University of IT and
Emerging Sciences Peshawar, Pakistan.

E-mail: aleem@cecos.edu.pk

Kanwal Haqqani²

Lecturer, Department of Management Sciences, Women University Mardan, Pakistan.

Abstract: In the last few decades ‘intellectual capital’ has been among the most investigated constituent of corporate finance and accounting research. The immense empirical and theoretical research published in different journals, for instance, “Measuring Business Excellence” and the development and formation of specific journal, such as, “Journal of Intellectual Capital” are the evidence of this novel and emergent area of research. After the 1997 Asian financial crisis and the great financial crisis of 2008, the significance and magnitude of IC increase. The motive behind the critical role of IC during financial instability and disorder is that when companies are economically vulnerable and troubled during the financial disorder, the firms consider and explore alternative approaches of survival, such as, the use of intangible assets and resources.

Keywords: Intellectual capital, Firm Performance, value-added intellectual coefficient, Resource Based View

1. Introduction

The relationship between extraneous groups and an organization is connected to the organization performance and the detection of better working performance of the executives and supervisors who construct distinctive policies and tactics to encounter the extraneous groups and companies. Consequently, these distinctive policies and tactics must be formed on knowledge intensive resources. IC is regarded as a combination of all the knowledge intensive resources that can assist the firms regarding competitive edge and can substitute nearly all the physical resources, for instance, equipment, machinery, and manufacturing units (Boulton et al., 2000).

In the services’ sector, the role of IC is noteworthy, for instance, banking, insurance and information & technology; these sectors are dependent on abilities, proficiencies, and knowledge of the personnel for Value-Creation (VC), and it intensify the necessity for resourceful management and computation and of IC (Boulton *et al.*,2000). As stated by Rangone (1997), in KIEs the computation of IC is immensely domineering since it is considered the key constituent of VC; nevertheless, regrettably, the existing accounting procedures and measures are deficiently modified and designed to simplify these objections and criticism (Bandt, 1999). Brennan and Connel (2000) claimed that the enormous variation and diversity in book and market-value is imputed to the presence of IC. According to the financial estimations the M/B¹ proportion of Standard and Poor’s 500 firms remained 6.0% in 2010; whereas, 1.0% in late 1980s that indicates the presence of IC (Lev, 2000).

¹ Market to book value of the firm

Over the last decade, several researchers have conducted several empirical studies, in order to investigate the presence of IC and its association with FFP. Chen-Goh (2005) examined the relationship of IC with FFP in the banking sector of Malaysia and employed annual data of the banks during the period of 2001-2003. In the findings section, the author established that the HCE efficiency is comparatively greater than the other constituents of IC, such as, CEE² and SCE³. The author further ascertained that the local banks did not show any substantial outcomes regarding the efficiency of IC during the research period. However, the international banks demonstrated greater outcomes concerning the efficiency of the local banks. The author ascertained that investment in IC will generate additional profits and benefits rather than financing the physical resources.

For measuring the VAIC of Australian listed firms, Clarke, Seng, and Whiting (2011) analyzed IC and FFP. They employed the annual data of listed firms between 2004 to 2008 and established an affirmative association in VAIC and listed firms' performance. They also found that existing investment in the various constituents of IC can generate profit in potential period. Furthermore, they also investigated the role of IC as a mediating variable and its association with CE and FFP. As argued by Clarke *et al.*, (2011), If IC is not accompanied with any other element it cannot accomplish and contribute, rather than it must be associated with various other elements, for instance, financial capital. However, the most obvious finding to emerge from the analysis is that if we can appropriately invest in IC in any year, this investment can have substantial role and contribution towards financial performance in the present year and in the upcoming period.

Pulic (1998) pioneered the value-added intellectual coefficient (VAIC) model; it can measure and compute efficiency of the constituents of IC, such as, HC, SC, and financial capital. The author determined that as soon as the value of IC rises it indicates that the IC is effectively and proficiently employed for value creation mechanism. Pulic (2004) employed annual data of 30 listed firms between 1992 to 1998 and discloses robust and convincing association in IC and market value of the firm. The author further added that IC is not consider as an expense any longer; however, it is as now regarded as an investment.

In light of growing worth and effectiveness of IC for organization and country, several scholars have suggested numerous methods, structures, and statistical examinations regarding IC constituents and its effect on the country (Ginesti *et al.*, 2018). The authors' cited that the literature on the impact of IC and its constituents on organization repute is vague. Therefore, in developing a superior repute for the organization, business experts and consultants are providing more consideration to it. The authors further investigated the effect of IC on firm repute and FFP in Italy using data of 452 non-listed firms during the year 2016. They employed regression analysis on the sample data for testing the hypothesis. They uncovered that HCE is a significant constituent for organization's repute.

Nonetheless, nearly all the above-mentioned research emphasizes the significance and prominence of IC for corporations and business in the KIEs. However, the relevant literature and research has assorted results and outcomes until now, it presents an obvious indicant that extensive and abundant research is still obligatory and needed in this discipline to further enhance and investigate the contribution of IC for firms, industries, and corporations. The future research on IC should incorporate distinctive constituents of IC, such as, spiritual capital and innovation capital, as these constituents are disregarded and overlooked in the

² Capital employed

³ Structural capital

current literature. Due to a continuous decline and reduction in natural reserves and growing expenditure of the raw material, the firms ought to construct new effective and well-organized methods of production and manufacturing. This designates that the significance and worth of IC will heighten and grow in the forthcoming period and with an intense competition.

2. Knowledge Intensive Economy and Resource Based View

The Resources-Based-View (RBV) initially recognized the association of an organizations inside pursuits and activities; for instance, decision making of the management and exterior relationships and dealings, such as, the requirement and desires of the customers from the organization and corporation. According to Amit and Schoemaker (1993), the inner activities of the organization denote the capability of the firm to consume its existing assets and resources with regard to the exterior requests and commands. The notion of RBV of an enterprise and firm was pioneered by Barney (1991). The author established that the competitive edge and gains of a firm must comprise of unique and matchless values, rare skills, and proficiencies. The intangible resources comprise of abilities, proficiencies, knowledge, and processes that can be aggregated in a terminology termed as “intellectual capital”. As defined by Barney (1991), these values are constructed on skills, proficiencies, knowledge, competence, and computed with reference to the insights and opinions of the customer instead of numerical palpability, likewise, it implies, quantity could be substituted with values (Barney, 1991; Nadeem, 2016). In the industrial period, net-increase in the quantity of manufacturing were considered as the only source for the creation of wealth; nevertheless, in the current era of knowledge economy the tendency comprises of aggregation of knowledge, abilities, aptitudes, resourcefulness, inventiveness, and procedures designated as IC.

As determined by OECD (1996), an economy can be categorized as a KIE, when the utilization of knowledge, abilities, competences, proficiencies, manufacturing and production turn out to be the foremost constituent of firm’s development, progression and its effectiveness throughout the market. It can illustrate an economy in which proficiencies, abilities, competences, and knowledge of the individuals may have domineering part in creating value. Lev (2000) defined that in the KIE individuals’ involvement substituted outdated manufacturing based and profit oriented monetary undertakings, in the firm level as well as in the country growth. This transformation from manufacturing based and profit oriented economic activities to KIE has produced a substantial development in the management and measurement of IC both nationwide and worldwide equally (Cabrita & Vaz, 2005). As argued by Joshi *et al.*,(2013), the efficient management and measurement of IC is the outcome of this transformation towards the KIE. Furthermore, the dependency of the firms on the efficient management and measurement of IC escalates with the escalated supremacy and control of KIE (Stewart & Ruckdeschel, 1998a; Sveiby, 2001). As specified by Foray (2000), in the present-day firms’ do considerable investments in their training programs and educating their employees to become an immense resource and means of IC, which is indispensable in a KIE (Foray, 2000).

3. Intellectual Capital and Knowledge Intensive Firms

In the present-day competitive atmosphere and knowledge has become the most substantial and noteworthy strategic resource for the organization. This asseveration illustrates that the current research emphasized on the role and contribution of knowledge-based resources. In order to establish a long-term sustained competitive-gains and advantage. In unification with the prior research, such as, the “the resource and capabilities theory of the firm”, the

prevailing research affirms that growth and regeneration of strategic knowledge base in the organization is indispensable to the accomplishment and continuance of long-run competitive gains (Pablos, 2004).

Swart and Kinnie (2003) ascertained that at the very least the expression of knowledge intensive can be applied in three frameworks: firstly, the knowledge intensive work, secondly the knowledge-workers, thirdly, the knowledge-intensive-firms. Moreover, the dissimilarity and discrimination between knowledge and less/non-knowledge intensive firms or work is not plain and obvious (Alvesson, 2001). As argued by Quinn (1992), all kinds of employment and work enterprises seem to include knowledge: the personnel ought to have ‘know-how’, ‘know-why’, ‘know-who’ and ‘know-what’ in order to generate maintainable and workable competitive gains and benefits for any firm. The classification of KIFs (Alvesson, 2001; Robertson and Swan, 1998; William, 1992) “refers to those where most work is said to be of an intellectual nature and where well-educated, qualified employees form the major part of the workforce” (Swart & Kinnie, 2003, p.2). Moreover, the organization affirms to manufacture certified goods and services (Alvesson, 2000, 2001). In consonance with Windrum and Tomlinson (1999), KIFs’ are those firms that are reliant on specialized: skills, expertise, proficiency, knowledge or know-how concerning a particular profession or functional area or department. The following table provides a listing of the KIFs established on the research performed by Jemielniak (2012), OECD (1996), Pal and Soriya (2012), Swart and Kinnie (2003) and Windrum and Tomlinson (1999).

Table 1. 1: Knowledge Intensive Sectors

| | |
|--|---|
| Pharmaceuticals Industry | Accounting-Firms |
| Labor recruitment and provision of technical employees | Legal assistances services |
| Engineering Industry | High-Tech Companies |
| Commercial Banks, Investment banks, and other financial services providers | Computer Consultancy and IT-related Services |
| Technology and Communication Industry | Marketing and Advertising-Agencies |
| Chemical Industry | Press and news organizations |
| Management Consultancy service | Architecture, surveying and other construction services |
| Research and Development Firms | Real estate organizations |
| Telecommunication Service Industries | Technical engineering service industries |
| Technology-related training | Insurance service industries |
| Design, Project, and Strategy services | |

Source: Author’s compilation

4. The Era of Knowledge Intensive Economy

The emergence of KIE is primarily determined by the intangible resources, proficiencies, and capabilities, which has resulted an increased concentration and attraction in the notion of IC (Al-Musali & Ismail, 2016). There is a universally acknowledgement that the conventional means of competitive gains are dependent on tangible resources in generating firm value and maintaining competitive gains commenced to corrode. In the present-day economic era, IC is the aggregate of knowledge based resources, denotes the variety of beliefs, opinions, thoughts, visions, substructures and affiliations that become the furthestmost imperative business success constituent and the key constituent in value creation and maintaining competitive gains of the organizations (Andriessen, 2004).

As argued by Reed and Lubatkin (2006), in the knowledge based view, IC is more possible to influence and to contribute to an organization's accomplishing and maintaining exceptional performance than the tangible assets and resources. The authors further added that with regard to the theoretical model, in comparison to tangible assets that are broad and general assets, can be bought and obtained from the marketplace, and exchangeable and easily imitable; whereas resources based on IC that accomplish all the compulsory characteristics to be a source of competitive gains which are valued, precious, exceptional, unique, and not exchangeable (Reed & Lubatkin, 2006). Therefore, the possibility for generating competitive-gains and long-run value remains in the effective and proficient management of IC than in tangible resources.

Khalique, Abdul, Hassan, and Ageel (2011) ascertained that in the early years of the twenty-first century the concept of production and manufacturing based economy has transferred towards a KIE. As argued by Kim, Yoon, Kim, Lee, and Kang (2006), from the last decade of the 20th century a turning point in the worldwide growth and expansion has occurred. In the present-day era, it is acknowledged that knowledge is turn out to be a foremost source of economic, cultural, social development. In tacit and explicit forms knowledge is embodied in human beings. The explicit knowledge is obtained from academic achievements; whereas, the tacit knowledge is primarily based on general intellect and consciousness (Smith, 2001).

As specified by Demediuk (2002) and O'Donnell *et al.*,(2003), in a KIE nearly all the undertakings and activities are determined on knowledge, and it is considered as a most dominant economic resource and it is substituting physical and financial capitals as the most important capital. Hamzah and Ismail (2008) contended that various businesses and firms emphasized their concentration to employ and increase the knowledge-based resources of the firm to achieve and acquire exponential development and growth. The authors further established that most of the firms employs their proficiencies, competencies, and knowledge to acquire competitive gains and benefits. Hence, from these arguments it seems that performance of the firm is dependent on how efficiently the firm handles and controls their knowledge based resources (Hamzah & Ismail, 2008).

Stewart (2002) established that a KIE is mostly comprised of three-pillars. Firstly, knowledge has developed into what we purchase, what we trade, and what we do; secondly, the knowledge-based resources have turn out to be more vital and fundamental to the firms; thirdly, to flourish contemporary management systems, newest strategies and machineries are needed to describe and clarify the knowledge-based resources or assets. Nevertheless, as affirmed by various researchers, such as, Demediuk (2002) and Stewart and Ruckdeschel (1998), the knowledge which is incorporated and embedded in individuals and firms has been acknowledged and declared as "intellectual-capital". Furthermore, in a KIE firms are controlled and governed based on IC, and these firms are entirely reliant on the IC. As argued by Khalique *et al.*,(2011), IC is regarded as a significant and indispensable constituent for firms' to take competitive gains and benefits. Similarly, as stated by Sharabati, Jawad, and Bontis (2010), regardless of the significance and worth of IC majority of the firms and businesses do not understand the truth on the significance and relevance of IC in their firms and enterprises. Huang and Lui (2005) ascertained that in the present-day firms are confronting immense and aggressive worldwide rivalry for their existence and survival, and IC is acknowledged as an imperative asset which drives and propels economic development and firms to contest worldwide challenges.

According to OECD (1996), a KIE can be defined as an economy in which the production, manufacturing, distribution and the use of knowledge is foremost constituent of development,

creation of wealth, and employment within all the industries and businesses, not only those sectors and industries which are categorized as technological advanced industries or in the knowledge intensive sectors. In describing the nature of an international KIE, the World-Bank acknowledged the significance of intellectual aptitude, prominence of knowledge, novelties and originalities, as the basic determinants for national economic development and growth (Anon as cited in Joshi, Cahill, Sidhu, & Kansal, 2013). As established by Lev (2000), a comprehensive classification of the KIE would comprise of firm growth and nationwide development; hence, this growth and development is extensively generated by individuals mental activates as opposite to that from commercial, manufacturing based economic activities and undertakings. Prahalad and Hamel (1990) and Drucker (1999) established that in a KIE, the prosperous and flourishing administration of such endeavors and undertaking has been determined as potential, and it gives firms' gains and superiority among their opponents. Cabrita and Vaz (2006) stated that the current development and progress of nationwide and worldwide KIEs has seen an intensifying attention and attraction in procedures emphasized on the expansion and growth of IC. In line with this, the development of the KIE includes an associated increase in the prominence of outlining and calculating IC, if there is to be any efficient supervision and controlling of that resource item (Cahill and Myers as cited in Joshi *et al.*, 2013).

As argued by Cabrita and Vaz (2005), Stewart (2002), Sveiby (2001), and Wood (2003), since the KIE develops and strengthens, perhaps, the leading form of business, the firms' will expressively dependent on the operations and functioning of IC for forming value-preservation and development. In this regard, strategic focus on managing and creation of Human Capital (HC) using education, training, and comprehension of the constituents encompassing IC is indispensable and vital in KIE (Foray, 2000).

5. The Labor-Intensive Firms

The notion of Labor Intensive Firms (LIFs) denotes an industry or sector that requires a considerable and significant number of workforce and labor to manufacture its industrial goods and services (Kenton, 2019). In the same way, to produce the industrial products and services, the labor intensive businesses uses human labor extensively and thoroughly (Economywatch, 2010). This implies, "the degree of labor intensity is typically measured in proportion to the amount of capital required to produce the goods or services; the higher the proportion of labor costs required, the more labor intensive the business" (Kenton, 2019, para.1). Labor costs are far more crucial than the capital costs in the labor-intensive sectors. Moreover, there are no high fixed cost in the labor-intensive sectors. In contrast, in LIFs higher proportion of variable costs is incurred. Since these sectors incorporate no high-level of maintenance cost and fixed cost; hence, it retains major earning potential. However, the LIFs may suffer to some level when the economy has high-level of inflation. This is due to the fact that, when the level of inflation is raised, then the inflation decreases the real earnings of the labor; hence, the labor can show their reluctance and refusal to work on the same amount of wage (Kenton, 2019).

In consonance with Pettinger (2018), the labor intensive industry denotes a production method in which human labor expenses are the major constituent. In general, the emerging economies likely to be more labor intensive in contrast with the developed economies. Since, these emerging economies cannot make any investment in expensive capital as they have low income. Hence, with low wages and low income, they may stay competitor by hiring more employees and workforce. The author further added that when the real wages are increased, it generates an inducement for the organizations to make investment in more capital to increase

labor output and efficiency, therefore, the organization can proceed to afford the expense of costly workforce and employees. Consequently, the organizations become capital intensive and less labor intensive (Pettinger, 2018). Prior to the industrial revolution, 90% of the manpower were working in agriculture sector. The food production industry was regarded as extremely laborious industry. The economic development and technological advancement have raised labor productivity, labor intensity is reduced, and enable the employees to shift towards manufacturing, and in recent years services (Nadeem *et al.*, 2017).

The internationalization has empowered better adaptation of the production process throughout the world. The labor-intensive manufacturing industry has transferred to Asia and Africa since these markets have low-cost workforce. Moreover, in high wage countries the textile manufacturing has declined and moved to low-priced and cheap developing countries. Emerging Asian Economies, such as, China, Malaysia, Thailand, and Vietnam have a proportionate benefits and superiority in the labor intensive sector (Kenton, 2019; Pettinger, 2018). Evolving technologies, for instance, artificial intelligence (AI), natural intelligence, and supercomputers are challenging sectors and industries which were repeatedly regarded as labor intensive. For instance, powerful and advanced robots have substituted the surgeons in the surgical procedure. Furthermore, making the conventionally labor intensive industries much less labor intensive, there has been innovative advancements and improvements in robots which can pick and choose vegetables and fruits (Kenton, 2019; Pettinger, 2018).

Numerous industries, such as, coal mining, hospitality, and agricultural industry are the industries that have labor-intensive formation and structure. In emerging and developed economies, the structure of labor-intensive industry can be demonstrated to be superior choice instead of a capital-intensive-industry. The labor intensive industries can bring prosperity and economic development in the countries that are not wealthy, and they have low-level of wages and income (Pettinger, 2018). In many cases, emerging economies are fortunate to have plentiful human capital; nevertheless, these economies suffer from shortage and insufficiency of investment and capital. If the emerging economies can employ the plentiful human capital appropriately, these economies can have industrial development. The emerging economies can experience industrial development if they can employ the plentiful human capital appropriately. The industry growth rate can be activated and triggered by the providing flawlessly skilled human capital to the industry. Hence, the emerging economies can build and enhance their industrial growth rate deprived of making substantial capital investment (Pettinger, 2018).

Furthermore, the export base of any emerging economy can be increased and strengthened by the exportation of the products manufactured by the KIFs. The export of these manufactured goods can help the emerging economies to earn foreign currency, this currency can be employed for the importation of necessary raw material, products, and services. The KIFs can create employment opportunities on a wide-scale, hence, these firms and industries can play a vital role in improving the economic growth and prosperity of the emerging economies (Austin & Sugihara, 2008; Kenton, 2019). The following table provides a listing of the labor intensive sectors established on the research performed by Das *et al.*, (2015), Economywatch (2010), Goswami(2016), Kenton (2019), Pettinger (2018), and Riley (n.d.)

Table 1. 2: Labor Intensive Industries

| | |
|----------------------|---|
| Agriculture Industry | Cement Industry |
| Engineering Industry | Food Services & processing Industry |
| Fertilizer Industry | Hospitality-Industry (Hotels & restaurants) |
| Furniture industry | Personal Care |

| | |
|-----------------|------------------|
| Mining Industry | Tobacco Sector |
| Steel Industry | Textile Industry |

Source: Author's compilation

6. Conclusion

In the last few decades, researchers have shown an increased interest in the KIEs as the concentration of global economy has considerably shifted from industrial economy to KIEs. In a KIE the conventional resources, for instance, manufacturing plant, apparatus, land, buildings are substituted with knowledge intensive resources, such as, creativeness, novelty, proficiency, competence, prior job experience, motivation, teamwork and collaboration of the employees, satisfaction, faithfulness and devotion of the employees (Stewart & Ruckdeschel, 1998). As claimed by Peteraf (1993), the resource based view (RBV) of the organization also emphasis and concentrate on long-run competitive gains of the organization by sustaining its strategic possessions and reserves, for example, proficiencies, competence and knowledge, since these resources can generate over average revenues for firms' (Peteraf, 1993). Stewart and Ruckdeschel (1998) claimed that all these knowledge-based resources, that generate profit ad worth for firms and corporations are generally named as IC.

As argued by Barney (1991), an organization must acquire unique, valued, and extraordinary assets that can help the organization in developing maintainable competitive gains, that can determine an organization's profitability (Amit & Schoemaker, 1993). As specified by Nonaka and Takeuchi (2007) and Grant (1997), knowledge can be considered as a fundamental and critical asset for the organization that can be widened, relocated and utilized for attaining competitive gains; moreover, it can be industrialized and transmitted for benefits inside and throughout the businesses against the adversaries.

Hence, this transformation from conventional assets economy to KIE; IC has developed and emerged as a vital constituent for the value creation mechanism of an organization (Edvinsson & Malone, 1997; Guthrie, 2001). In consonance with Bontis (1998) and Roos, Roos, Dragonetti, and Edvinsson (1997), this recent transformation makes the computation, calculation and regulation of IC an authoritative discipline in the contemporary KIEs. Knight (2011) contends that for an effective and superior management of IC, an organization should make investment in its employees and workforces, since this investment will facilitate the organization to develop competitive gains and affiliation with other organizations, also acknowledged as RC. Hence, according to Guthrie (2001) allocation and expenditure on IC can be documented as an investment and it cannot be viewed as expense.

References

- Al-Musali, M. A., & Ismail, K. N. I. K. (2016). Cross-country comparison of intellectual capital performance and its impact on financial performance of commercial banks in GCC countries. *International Journal of Islamic and Middle Eastern Finance and Management*, 9(4).
- Alvesson, M. (2000). SOCIAL IDENTITY AND THE PROBLEM OF LOYALTY IN KNOWLEDGE-INTENSIVE COMPANIES. *Journal of Management Studies*, December, 1–23. [papers2://publication/uuid/9C5C1AC9-FAAE-44A5-83D3-E5E58178CC1E](https://publication/uuid/9C5C1AC9-FAAE-44A5-83D3-E5E58178CC1E)
- Alvesson, M. (2001). Knowledge work: Ambiguity, image and identity. *Human Relations*, 54(7), 863–886. <https://doi.org/10.1177/0018726701547004>
- Amit, R., & Schoemaker, P. (1993). STRATEGIC ASSETS AND ORGANIZATIONAL RENT. *Strategic Management Journal*, 14(1), 33–46.

- Andriessen, D. (2004). Making Sense of Intellectual Capital. In *Making Sense of Intellectual Capital*. <https://doi.org/10.4324/9780080510712>
- Austin, G., & Sugihara, K. (2008). *labour-intensive industrialization*.
- Bandt, J. De. (1999). The Concept of Labour and Competence Requirements in a Service Economy. *The Service Industries Journal*, 19(1), 1–17. <https://doi.org/10.1080/026420699000000001>
- Barney, J. (1991). Firm resources and sustained competitive advantage.pdf. In *Journal of Management* (Vol. 17, Issue 1, pp. 99–120). <https://doi.org/10.1177/014920639101700108>
- Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36(2), 63–76. <https://doi.org/10.1108/00251749810204142>
- Boulton, R., Libert, B., & Samek, S. (2000). A BUSINESS MODEL FOR THE NEW ECONOMY. *Journal of Business Strategy Accountability Journal Iss Accountability Journal*, 13(6), 13–17. <http://dx.doi.org/10.1108/eb039463%5Cnhttp://%5Cnhttp://dx.doi.org/10.1108/09513570710830290>
- Brennan, N., & Connel, B. (2000). Intellectual capital: current issues and policy implications. *Journal of Intellectual Capital*, 1(3), 206–240.
- Cabrita, M. do R., & Vaz, J. L. (2006). Intellectual Capital and Value Creation: Evidence from the Por-tuguese Banking Industry. *The Electronic Journal of Knowledge Management Volume*, 4(1), 11–20. <http://www.ejkm.com/issue/download.html?idArticle=62>
- Cabrita, M., & Vaz, J. L. (2005). Intellectual Capital and Value Creation: Evidence from the Por-tuguese Banking Industry. *Electronic Journal of Knowledge ...*, 4(1), 11–20.
- Clarke, M., Seng, D., & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, 12(4), 505–530. <https://doi.org/10.1108/14691931111181706>
- Das, D., Council, I., Ec, I., Wadhwa, D., Council, I., Ec, I., & Wadhwa, D. (2015). *The Employment Potential of Labor Intensive Industries in India 's Organized Manufacturing Working Paper No . 236 The Employment Potential of Labor Intensive Industries in India 's Organized Manufacturing Deb Kusum Das. August*.
- Demediuk, P. (2002). Intellectual Capital Reporting: New Accounting for the New Economy. *Agricultural Economics*, 7(1), 57–62.
- Drucker, P. (1999). Knowledge-worker productivity: the biggest challenge. *California Management Review*, 41(2), 79–94.
- Economywatch. (2010). *Labor Intensive Industry*. <http://www.economywatch.com/world-industries/labor-intensive.html>
- Edvinsson, L., & Malone, M. (1997). *Intellectual capital : realizing your company's true value by finding its hidden brainpower* (1st ed.).
- Foray, D. (2000). The Economics of Knowledge. In *Massachusetts Institute of Technology: Vol. □ □ □ □ (Issue □ □ □ □)*. Massachusetts Institute of Technology.
- Ginesti, G., Caldarelli, A., & Zampella, A. (2018). Exploring the impact of intellectual capital on company reputation and performance. *Journal of Intellectual Capital*, 19(5), 915–934. <https://doi.org/http://dx.doi.org/10.1108/MRR-09-2015-0216>
- Goh, P. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital*, 6(3), 385–396. <https://doi.org/10.1108/14691930510611120>
- Goswami, G. M. M. (2016). Intellectual Capital and Firm Performance in Emerging Economies: The case of India. *Review of International Business and Strategy*, 26(3).
- Grant, R. M. (1997). The knowledge-based view of the firm: Implications for management

- practice. *Long Range Planning*, 30(3), 450–454. [https://doi.org/10.1016/S0024-6301\(97\)00025-3](https://doi.org/10.1016/S0024-6301(97)00025-3)
- Guthrie, J. (2001). The management, measurement and the reporting of intellectual capital. *Journal of Intellectual Capital*, 2(1), 27–41.
- Hamzah, N., & Ismail, M. N. (2008). The Importance of Intellectual Capital Management in the Knowledge-based Economy. *Contemporary Management Research*, 4(3), 237–262. <https://doi.org/10.7903/cmr.1045>
- Huang, C. J., & Lui, C. J. (2005). Exploration for the relationship between innovation, IT and performance. *Journal of Intellectual Capital*, 6(2), 237–252. <https://doi.org/10.1108/14691930510592825>
- Industry, L. (n.d.). *labor-intensive industry*. Retrieved June 8, 2019, from <http://www.businessdictionary.com/definition/labor-intensive-industry.html>
- Jemielniak, D. (2012). The new knowledge workers. *The New Knowledge Workers*. <https://doi.org/10.4337/9780857933119>
- Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: An evaluation of the Australian financial sector. *Journal of Intellectual Capital*, 14(2), 264–285. <https://doi.org/10.1108/14691931311323887>
- Kenton, W. (2019). *Labor Intensive*. <https://www.investopedia.com/terms/l/laborintensive.asp>
- Khalique, M., Abdul, J., Hassan, A., & Ageel, A. (2011). Relationship of Intellectual Capital With The Organizational Performance of Pharmaceutical Companies in Pakistan PhD Student , Faculty of Economics and Business , University Malaysia Sarawak . PhD Student , Faculty of Economics and Business , University M. *Australian Journal of Basic and Applied Sciences*, 5(12), 1964–1969.
- Kim, S., Yoon, Y., Kim, B., Lee, B., & Kang, H. (2006). Knowledge-based Economy and Intellectual Capital: The Impact of National Intellectual and Information Capitals on Economic Growth in Korea. *International Journal of Business and Information*, 1(1), 1–25.
- Knight, D. (2011). Performance measures for increasing intellectual capital. *Strategy & Leadership*, 27(2), 22–27.
- Lev, B. (2000). *Intangibles: Management, Measurement, and Reporting*. Brookings Institution Press.
- Nadeem, M. (2016). *Intellectual Capital and Firm Performance : Evidence from Developed , Emerging and Frontier Markets of the World*. Lincoln University.
- Nadeem, M., Gan, C., & Nguyen, C. (2017). Does intellectual capital efficiency improve firm performance in BRICS economies? A dynamic panel estimation. *Measuring Business Excellence*, 21(1), 65–85. <https://doi.org/10.1108/MBE-12-2015-0055>
- Nonaka, I., & Takeuchi, H. (2007). The knowledge-creating company. *Harvard Business Review*, 85(7/8), 162.
- O'Donnell, D., O'Regan, P., Coates, B., Kennedy, T., Keary, B., & Berkery, G. (2003). Human interaction: The critical source of intangible value. *Journal of Intellectual Capital*, 4(1), 82–99. <https://doi.org/10.1108/14691930310455405>
- OECD. (1996). *The knowledge-based economy*. Organisation for Economic Co-Operation and Development (OECD).
- Pablos, P. O. de. (2004). The nurture of knowledge-based resources through the design of an architecture of human resource management systems : implications for strategic management Patricia Ordóñez de Pablos. *Int.J.Technology Management*, 27, 533–543.
- Pal, K., & Soriya, S. (2012). IC performance of Indian pharmaceutical and textile industry. *Journal of Intellectual Capital*, 13(1), 120–137. <https://doi.org/10.1108/14691931211196240>

- Peteraf, M. (1993). The Cornerstones of Competitive Advantage: a Resource Based View. *Strategic Management Journal*, 14(April 1992), 179–191.
<https://doi.org/10.1017/CBO9781107415324.004>
- Pettinger, T. (2018). *Labour intensive*. <https://www.economicshelp.org/blog/glossary/labour-intensive/>
- Prahalad, C. K., & Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68(3), 79–91. https://doi.org/10.1007/3-540-30763-X_14
- Pulic, A. (1998). *In Measuring the performance of intellectual potential in knowledge economy*.
- Pulic, A. (2004). Intellectual capital – does it create or destroy value? *Measuring Business Excellence*, 8(1), 62–68. <https://doi.org/10.1108/13683040410524757>
- Quinn, J. B. (1992). The intelligent enterprise a new paradigm. *Academy of Management Executive*, 6(4), 109–121. <https://doi.org/10.5465/ame.2005.19417913>
- Rangone, A. (1997). Linking organizational effectiveness, key success factors and performance measures: An analytical framework. *Management Accounting Research*, 8(2), 207–219. <https://doi.org/10.1006/mare.1996.0039>
- Reed, K. K., & Lubatkin, M. (2006). Proposing and Testing an Intellectual Capital-Based View of the Firm. *Journal Of Management Studies*, 43(4), 867–893.
- Riley, J. (n.d.). *Capital and Labour Intensity*. Retrieved June 7, 2019, from <https://www.tutor2u.net/business/reference/capital-and-labour-intensity>
- Robertson, M., & Swan, J. (1998). Modes of organizing in an expert consultancy: a case study of knowledge. *Journal of Contemporary Ethnography*, 5(4), 357–386.
<https://doi.org/10.1177/07399863870092005>
- Roos, J., Roos, G., Dragonetti, N. C., & Edvinsson, L. (1997). *Intellectual Capital: Navigating in the New Business Landscape*. MACMILLAN PRESS LTD.
- Sharabati, A. A. A., Jawad, S. N., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, 48(1), 105–131. <https://doi.org/10.1108/00251741011014481>
- Smith, E. (2001). The role of tacit and explicit knowledge in the workplace. *Journal of Knowledge Management*, 5(4), 311–321. <https://doi.org/10.1108/13673270110411733>
- Stewart, T. (2002). The Wealth of Knowledge: Intellectual Capital in the Twenty-First Century Organization. In *Harvard Business Review*.
<http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=6026383>
- Stewart, T., & Ruckdeschel, C. (1998a). *Intellectual capital: The new wealth of organizations* (pp. 56–59).
- Stewart, T., & Ruckdeschel, C. (1998b). *The new wealth of organizations*. Wiley Online Library.
- Sveiby, K.-E. (2001). A knowledge-based theory of the firm to guide in strategy formulation. *Journal of Intellectual Capital*, 2(4), 344–358.
- Swart, J., & Kinnie, N. (2003). Sharing knowledge in knowledge-intensive firms. *Human Resource Management Journal*, 13(2), 60–75.
- William, S. (1992). LEARNING BY KNOWLEDGE-INTENSIVE FIRMS. *Journal of Management Studies*, 29(6), 163–166.
- Windrum, P., & Tomlinson, M. (1999). Knowledge-intensive services and international competitiveness : a four country comparison. *Technology Analysis & Strategic Management*, 11(3), 391–408.
- Wood, J. (2003). Australia: an under performing knowledge nation? *Journal of Intellectual Capital*, 4(2), 144–164.