

Intellectual Capital and Business Performance

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Abstract

The purpose of this study is to investigate the influence of intellectual capital on business performance in healthcare organizations of Uttarakhand. A research instrument measuring intellectual capital and business performance was utilized to conduct a survey of 200 top and middle level managers and doctors of selected health-care organizations in Haridwar and Dehradun districts of Uttarakhand. For the purpose of data analysis and interpretation SEM was applied. The study concludes that intellectual capital has a statistically significant and positive relationship with business performance. The research reported among only a few to investigate the issue of intellectual capital (IC) and business performance (BP) in healthcare organizations of Uttarakhand. The findings offer valuable insights on the generalizability of intellectual capital in an innovative research setting.

Keywords: Intellectual Capital, Business Performance, Health-care Organizations.

1. INTRODUCTION

The success of modern organizations in knowledge-based economy partially depends upon their ability to invest in new technologies that allows a firm to adapt. Over the past few decades the healthcare industry in India has been prospering considerably. With more and more privatization in hospitals and the entry of corporate sponsored hospitals into the field, the healthcare industry has become a free competition market which exerts great pressure for a more effective healthcare management. There is no doubt that intellectual capital is a budding topic for healthcare organizations. This is due to the fact that healthcare organizations are knowledge intensive and the severity of policies force them to use non-financial resources in order to compensate the reduction of the public funding (Garlatti, Massaro and Bruni, 2015).

Moreover, there is an increasing demand from the society for transparency and performance measurement, in order to improve the quality of services and the economic and fiscal sustainability of healthcare organizations (Thomson et al., 2009). In today's healthcare sector, patients are becoming well informed through multiple channels of communication, such as internet, help lines, and personal channels (Morath, 2003). Many patients capitalise on the available knowledge and are transformed from passive care receivers to consumers who take an active role in their care which results in an increase of demand for productivity and innovation and causes major challenges to business performance in healthcare (Herzlinger, 2002). This paper describes the importance and impact of intangible resources on business performance in healthcare organizations.

1.1 Intellectual capital

The intellectual capital analysis in healthcare organizations received very little attention from researchers and experts, so that literature related to this field is therefore scarce (Dumay, 2014). Various researchers have contributed in the development of intellectual capital (Feiwal, 1975; Hudson, 1993; Stewart, 1997; Sullivan, 1999; Zamboni, 2002; Marr et al., 2004; Yitmen, 2011). Intellectual capital, this term was first published by the economist, John Kenneth Galbraith in 1969 (Feiwal, 1975) but it was Stewart's (1991) significant article that

recovered the term intellectual capital after more than three decades and conveyed it decisively onto the schedule of management and research (Yitmen, 2011). Stewart (1997) referred intellectual capital as the aggregation of all knowledge and competencies of employees that can bring about competitive advantages for companies. Intellectual capital has been identified as a key source and driver of organizational performance and value creation (Marr et al., 2004).

Majority of the researchers (Shih, Chang and Lin 2010, Kavida and Sivakoumar 2009, Cabrita&Bontis 2008, Bontis, Keow and Richardsson 2000, Edvinson 2000, Sullivan 1999, and Roos and Roos (1997), Sveiby 1997, Roos et al. 1997) among others have agreed upon three- dimensional concept of IC, which encompasses: human capital, structural capital and relational capital. Human capital (HC) is majorly related with the knowledge and skills which is inhabited in the employees in an organization. Researchers related human capital to the skills, creativity, attitudes, capabilities and competencies of people which are used to generate organizational value. (Edvinson& Malone, 1997; Sveiby, 1997 and Roos&Roos 1997; Li and Chang, 2010).

The structural capital (SC) is related to organizational structure and systems including organizational process, time and access to information which support employees' productivity and that remains in the company even after employees leave an organization (Edvinson& Malone, 1997 &Roos et al., 1997). Relational capital (RC) revolves around the relationships of an organization and its employees with internal and external stakeholders. Researchers such as Shih et al. (2010) and Cabrita and Bontis (2008) underscored that relational capital is the knowledge embedded in relationships with employees, customers, suppliers, competitors, and Government that influence organizational life create value and adds to enhanced organizational functioning.

1.2 Business performance

It is claimed that high performance in healthcare organizations is achieved through professional competences in application of knowledge, available technologies and resources. These resources need to be used competently with the objective to reduce risks to patients and for the growth of their satisfaction (WHO, 2003). The shifting nature of the health care organisations, affected by cost-reduction pressure, rise in demand and strict guidelines, forces managers to reconsider the business performance (Habersam and Piper, 2003). In India, public performance statistics are lacking and most hospitals regard business performance as confidential and reluctant to reveal any such data in a highly competitive environment. Rondeau and Wagar (2001) found in their study in Canadian nursing homes, that the use of perceptual measures is frequently the only available assessment for comparative purposes across a large sample of organizations. They used subjective organizational effectiveness measures to examine the business performance with three categories of dependent variables: employee outcomes; customer/client outcomes; and facility performance outcomes. Ngo and Loi (2008) suggested the human related aspects of business performance such as employee satisfaction, employee retention, customer satisfaction and customer retention along with market- related aspects.

2. LITERATURE REVIEW

The literature reviewed has created an impression that intellectual capital influences the business performance (Andreeva and Garanina, 2016; Scafarto et al., 2016; Tastan and Davoudi, 2015; Khalique et al., 2015; Carrington, 2013; Sharabati et al., 2013; Mention and Bontis, 2013; Gabriela et al., 2012; Carrington and Tayles, 2011; Sharabati et al., 2010; Jardon and Martos, 2009; Cabrita and Bontis, 2008; Tayles et al., 2007; Bozbura, 2004). Andreeva and Garanina found in their study conducted in Russian manufacturing companies that structural and human capitals positively influence organizational performance while relational capital does not. Scafarto et al. asserted in their study that relational capital and process capital have a positive impact on corporate performance in the global agribusiness industry. Tastan and Davoudi concluded in their study that intellectual capital had increased employee's behavioural outcomes of business performance. It was affirmed that intellectual capital had a significant influence on employee's in-role and extra-role performance. Khalique et al. examined the relationship between Intellectual capital and organizational performance (i.e., financial perspective, customer perspective, internal business process perspective and learning and growth perspective) on a sample of 247 respondents from Pakistani SMEs in Gujranwala and Gujarat. They confirmed a positive relationship between the five (customer capital, structural capital, social capital, technological capital and spiritual capital) dimensions of intellectual capital and business performance of SME's. Further the study revealed that human capital appeared to be insignificant in achieving higher business performance of SME's and it requires attention by the government and supporting agencies. Carrington in his study found a significant and positive relationship between measurement of intellectual capital and performance. Sharabati et al. confirmed a positive significant effect of intellectual capital on Jordanian Telecommunication Companies' business performance. The results also indicated that relational capital is positively and significantly affect business performance, then human capital, while SC does not significantly affect business performance.

Further, the study confirmed that there are strong inter-relationships among the three components of intellectual capital (HC, SC, RC). Gabriela et al. stated that the intellectual capital consists of stocks and flows of knowledge available in an organization. They can be regarded as intangible assets, and together with tangible resources compose the market value of a business. In another study, Sharabati et al. found that there was a positive significant effect of intellectual capital on Jordanian manufacturing pharmaceutical organizations' business performance, they also found that relational capital and human capital affect business performance, while structural capital did not. Carrington and Tayles concluded that intellectual capital can be a major factor that can aid Caribbean policy makers as the region transitions from agricultural based to services based economies with tourism being the largest contributor to GDP. The study showed that human capital, relational capital and structural capital are related to sense-making, that measurement of intellectual capital is associated with performance. Tayles et al. stated that intellectual capital encourages value creation, which in turn leads to superior performance in today's knowledge-based economy. Cabrita & Bontis and Sharabati et al. found that both relational capital and structural capital had a positive impact on firm performance, whereas Jardon and Martos reported that structural capital alone had a positive and significant relationship with firm performance. In contrast, Mention and Bontis found that only human capital had a positive and significant relationship with business performance. Bozbura affirmed in his study that a strong positive relationship between human capital & market value of Turkish firms and relational capital and market value of Turkish firms. It is also confirmed that there is a strong positive relation between organizational capital and human capital; and between organization capital and relation capital.

3. OBJECTIVES

1. To study the intellectual capital of healthcare organizations.
2. To assess the impact of intellectual capital on business performance in healthcare organizations.

4. RESEARCH HYPOTHESIS

H_0 : There is no significant impact of intellectual capital on business performance.

5. RESEARCH METHODOLOGY

5.1 Population, Sample and Sampling Technique

The population studied is consisted of selected healthcare organizations of Uttarakhand. The population of senior managerial employees and doctors was targeted because they are well educated and responsible for planning and management in healthcare organizations. A sample of 50 hospitals located in Haridwar and Dehradun districts of Uttarakhand was selected from a list of hospitals and nursing homes in Haridwar and Dehradun. Then another list of 500 doctors and managers was prepared from which a sample of 200 was selected by simple random sampling technique.

5.2 Statistical Techniques

Mean, standard deviation and SEM were used for the data analysis and interpretation.

5.3 Measures

The data for the measures of the variables is collected through self-designed questionnaire using five-point Likert scale, where 1 represents "strongly disagree" and 5 represents "strongly agree". The intellectual capital was measured by twenty three items modified from the studies (Sharabati et al. (2010), Tumwine et al. (2012), Peng et al. (2007). Business Performance was measured by sixteen modified items from the study of Bontis (2009), on the basis of statements suggested by Ngo and Loi (2008). They emphasized on the human related aspects of business performance such as Employee Satisfaction, Employee Retention, Customer Satisfaction and Customer Retention along with market-related aspects. Reliability of the questionnaire was tested through Cronbach's Alpha (0.862). The generally accepted level of reliability is 0.70 (Nunnally). The values for the scales are greater than 0.7, indicating the high reliability of the scale.

5.4 Instrument

A total of 200 questionnaires were distributed to the managers and doctors of selected 50 healthcare organizations, in Haridwar and Dehradun districts of Uttarakhand state. Out of 200, a total of 153 questionnaires were returned. The correct questionnaire were 132. This resulted in the total usable sample size of 132

participants with a response rate of 66 %. Out of the 132 respondents 79 (59.85%) were male and 53 (40.15%) were female.

6. ANALYSIS & INTERPRETATION

SEM was performed on the data collected from the respondents. Figure 1 presents the path analysis of the model.

There are several indices that can describe the overall fit between the observed data and a model. Some of these major indices are Chi Square (χ^2) Goodness of Fit, Root Mean Square Error of Approximation (RMSEA), Goodness-of-Fit Index (GFI) and Tucker Lewis Index (TLI) etc. Table 1 describes the model fit statistics for the measurement model of this study.

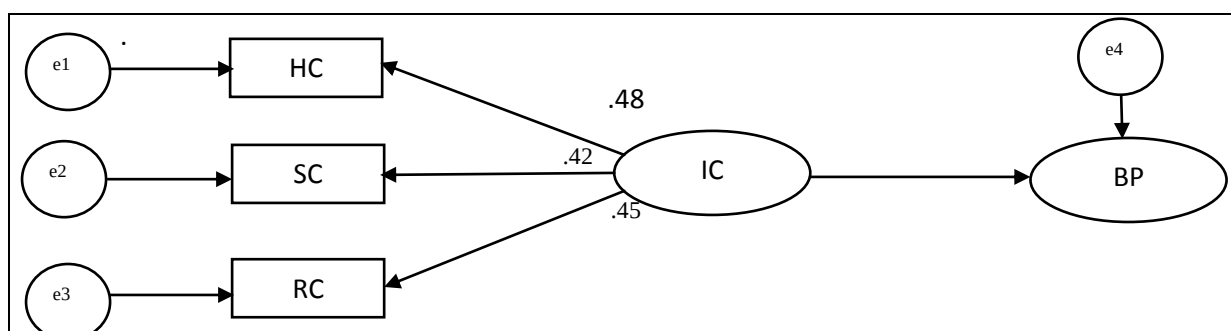


Figure1 Relationship between Intellectual Capital and Business Performance

Key: IC- Intellectual Capital, HC- Human Capital, SC- Structural Capital, RC- Relational Capital, BP- Business Performance, e1 to e4 = Errors

Table 1 Model fit statistics for the measurement model

Fit statistic	Recommended	Obtained
Significance	P<=0.05	0.000
χ^2/df	<3 good; <5 permissible	2.939
CFI	>0.9 good; >0.8 permissible	0.995
GFI	>0.9	0.898
IFI	>0.9	0.996
NFI	>0.9	0.947
TLI	>0.9	0.989
RMSEA	<0.5 good; 0.05-0.10 moderate; >0.10 bad	0.076

Source: Malhotra and Dash (2010), Netmeyer et al. (2003), MacCallum (1996)

7. Results and Discussion

The study found that there is a statistically significant impact of intellectual capital on business performance in healthcare organizations in Uttarakhand. The study results provide a clear indication that there exists statistically significant and strong relationship between intellectual capital and business performance as the critical ratio (CR) value is 9.757 and SRW is arrived as 0.808. Hence the hypothesis is rejected. The SEM model investigating the relationship between intellectual capital and business performance is found to be robust fit as the model fit indices came out to be $\chi^2/df = 2.939$, RMSEA=0.076, NFI=0.947, IFI=0.996, TLI=0.989 and

CFI=0.995. Literature reviews suggest that the values of CFI and IFI >0.9 along with the value RMSEA less than 0.10 represent a good model (Browne & Cudeck 1993; Hu & Bentler 1999). The findings of the study are supported by previous studies (Sharabati et al., 2010, Longo and Mura, 2011). Sharabati et al. (2010) remarked that intellectual capital has significant relationship with business performance. Longo and Mura (2011) remarked that intellectual capital positively influence employee's satisfaction and retention.

References

- Andreeva, T., & Garanina, T. (2016). Do all elements of intellectual capital matter for organizational performance? Evidence from Russian context. *Journal of Intellectual Capital*, 17(2), 397-412.
- Baccarini, M., Castellini, M., Guercini, AM, Vagnoni, E. (2007). The Disclosure of Intellectual Capital in Health Care Organizations. Emilia Romagna Region
- Bollen, L., Vergauwen, P. and Schnieders, S. (2005), Linking intellectual capital and intellectual property to company performance", *Management Decision*, Vol. 43 No. 9, pp. 1161-1185.
- Bontis, N. (1998), "Intellectual capital: an exploratory study that develops measures and models", *Management Decision*, Vol. 36 No. 2, pp. 63-76.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage focus editions*, 154, 136-136.
- Cabrita, M. D. R., & Bontis, N. (2008). Intellectual capital and business performance in the Portuguese banking industry. *International Journal of Technology Management*, 43(1-3), 212-237.
- Carrington, D. (2013). The Influence of the Process of Measuring IC on Performance: Abstracts of Papers, Presented at the 5th European Conference on Intellectual Capital(pp. 8). Bilbao, Spain: University of the Basque Country.
- Carrington, D., & Tayles, M. (2011). The Mediating Effects of Sensemaking and Measurement on the Intellectual Capital and Performance Linkage: Proceedings of the 3rd European Conference on Intellectual Capital (113-122). Cyprus: University of Nicosia.
- Dumay, J. (2014). Reflections on interdisciplinary accounting research: the state of the art of intellectual capital. *Accounting, Auditing & Accountability Journal*, 27(8), 1257 – 1264.
- Edvinsson, L., & Malone, M. S. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*. New York, NY: Harper Business.
- Feiwei, G. R. (1975). *The intellectual capital of Michal Kalecki* (p. 72). Knoxville: University of Tennessee Press.
- F-Jardón, C. M., & Susana Martos, M. (2009). Intellectual capital and performance in wood industries of Argentina. *Journal of Intellectual Capital*, 10(4), 600-616.
- Gabriela, H.M., Dorinela, N., & Alexandra, I. (2012). Learning Organization: The Importance of Innovation and Adaptation. "Ovidius" University Annals, Economic Sciences Series, XII (special issue 2), 145-150.
- Garlatti, A., Massaro, M., & Bruni, V. (2015). Intellectual capital evaluation in a health care organization. A case study. In XIX IRSPM Conference–E102, Accountability in the Health Care Sector: Beyond the Blame Game, (30, Birmingham.
- Habersam, M. and Piper, M. (2003). Exploring intellectual capital in hospitals: two qualitative case studies in Italy and Austria. *European Accounting Review*, 12(4), 753-79.
- Herzlinger, R. E. (2002). Let's Put Consumers in Charge of Health Care. *Harvard Business Review*, 80(7), 44 – 55.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modelling: a multidisciplinary journal*, 6(1), 1-55.
- Khalique, M., Bontis, N., Abdul Nassir bin Shaari, J., & Hassan Md. Isa, A. (2015). Intellectual capital in small and medium enterprises in Pakistan. *Journal of Intellectual Capital*, 16(1), 224-238.
- Longo, M. & Mura, M. (2009). Intellectual Capital and Innovative Capabilities. Does Health Care? Proceedings of the International Forum on Knowledge Assets Dynamics (IFKAD), Glasgow (UK).
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, 1(2), 130.
- Malhotra, N., & Dash, S. (2010). *Marketing research: An applied orientation* (6thed.). New Delhi, ND: Pearson Publications.
- Marr, B., & Adams, C. (2004). The balanced scorecard and intangible assets: similar ideas, unaligned concepts. *Measuring business excellence*, 8(3), 18-27.
- Mention, A. L., & Bontis, N. (2013). Intellectual capital and performance within the banking sector of Luxembourg and Belgium. *Journal of Intellectual capital*, 14(2), 286-309.
- Morath, J. (2003). Changing the Healthcare Culture: The Consumer as Part of the System and Care Implement Strategies Built around Improving the Quality of Care and with an Evidence-based Perspective of the Patient at the Centre. *Frontiers of Health Services Management*, 19(4), 17-28.

- Morath, J. (2003). Changing the healthcare culture: The consumer as part of the system of care. *Frontiers of Health Services Management*, 19(4), 17–28.
- Mouritsen, J. (2006). Problematising intellectual capital research: ostensive versus performative IC. *Accounting, Auditing & Accountability Journal*, 19(6), 820-841.
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Sage Publications.
- Ngo, H. Y., & Loi, R. (2008). Human resource flexibility, organizational culture and firm performance: An investigation of multinational firms in Hong Kong. *The International Journal of Human Resource Management*, 19(9), 1654-1666.
- Peng, T. J. A., Pike, S., & Roos, G. (2007). Intellectual capital and performance indicators: Taiwanese healthcare sector. *Journal of intellectual capital*, 8(3), 538-556.
- Scafarto, V., Ricci, F., & Scafarto, F. (2016). Intellectual capital and firm performance in the global agribusiness industry: the moderating role of human capital. *Journal of Intellectual Capital*, 17(3), 530-552.
- Sharabati, A. A. A., Naji Jawad, S., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management decision*, 48(1), 105-131.
- Sharabati, A. A. A., Nour, A. N. I., & Shamari, N. S. (2013). The impact of intellectual capital on Jordanian telecommunication companies' business performance. *American Academic & Scholarly Research Journal*, 5(3 special issue), 32.
- Shih, K. H., Chang, C. J., & Lin, B. (2010). Assessing knowledge creation and intellectual capital in banking industry. *Journal of intellectual capital*, 11(1), 74-89.
- Singh, M. & Davoudi, S.M.M. (2014). *Business Economics and Management Issues: Evidence from India*. ISBN 978-3-639-66732-5, Scholars' Press, Germany.
- Singh, M. & Davoudi, S.M.M. (2014). *Recent Trends in Business Management and Organizational Studies*, ISBN 978-3-659-52887-3, Lambert Academic Publishing, Germany.
- Stewart, T. A. (1997). *Intellectual Capital: The New Wealth of Organizations*, New York: Nicholas Brearley Publication.
- Tastan, S., & Davoudi, S. M. M. (2015). A research on the relevance of intellectual capital and employee job performance as measured with distinct constructs of in-role and extra-role behaviors. *Indian Journal of Science and Technology*, 8(S7), 724-734.
- Tayles, M., Pike, R. H., & Sofian, S. (2007). Intellectual capital, management accounting practices and corporate performance: perceptions of managers. *Accounting, Auditing & Accountability Journal*, 20(4), 522-548.
- Thomson, S., Foubister, T., & Mossialos, E. (2009). *Financing health care in the European Union: challenges and policy responses*. World Health Organization.
- Tumwine, S., Nixon, K., & Joseph M. N. (2012). Relational capital and performance of tea manufacturing firms. *African Journal of Business Management*, 6 (3), 799-810.
- TuncBozbura, F. (2004). Measurement and application of intellectual capital in Turkey. *The Learning Organization*, 11(4/5), 357-367.
- World Health Organization (WHO) (2003), "Measuring hospital performance to improve the quality of care in Europe: a need for clarifying the concepts and defining the main dimensions", Report on a WHO Workshop, Barcelona, pp. 1-20.
- Yitmen, I. (2011). Intellectual capital: A competitive asset for driving innovation in engineering design firms. *Engineering management journal*, 23(2), 3-19.
- Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management studies*, 41(2), 335-361.