

Performance Impact of Intellectual Capital: A Study of Indian it Sector

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Abstract

Intellectual capital can be defined as the 'economic value' of three categories of intangible assets of a company-that includes human capital, organisational capital and social capital collectively. Sustained advantage can occur only in the situations in which physical, human, and organisational capital varies across the firms and where some firms may be unable to obtain necessary resources that are benefiting other firms. Intellectual capital is viewed as a sub-set of intangible capital, where the term intangible relates to assets without physical existence and capital refers to assets retained by the organisation to contribute to future profits. Intangible resources are more likely to produce a competitive advantage because they often are rare and socially complex there by making them difficult to imitate. A company's intangible assets are increasingly crucial and positively related to organisational performance in today's knowledge economy.

Keywords: Intangible asset, Knowledge economy, Human capital, Organisational capital, Social capital, Bottom-line

1. INTRODUCTION

Intellectual capital (IC) represents the collective knowledge that is embedded in the personnel, organizational routines and network relationships of an organization (Stewart, 1997; Bontis & Choo, 2002; Kong, 2008). IC has been recognized as an important resource that organizations need to develop to gain sustained competitive advantages (Chen, 2008; Kong & Prior, 2008; Schiuma & Lerro, 2008). Intellectual capital can be defined as the 'economic value' of three categories of intangible assets of a company-that includes human capital, organisational capital and social capital collectively. Strategic analysts argue that sustained advantage can occur only in the situations in which physical, human, and organisational capital varies across the firms and where some firms may be unable to obtain necessary resources that are benefiting other firms. Intellectual capital is viewed as a sub-set of intangible capital, where the term intangible relates to assets without physical existence and capital refers to assets retained by the organisation to contribute to future profits. Intangible resources are more likely to produce a competitive advantage because they often are rare and socially complex there by making them difficult to imitate (Black and Boal, 1994).

Intellectual capital is "firm's overall or holistic capacity and capability which emerges from its creative and flexible orchestration and co-ordination of its human capital, innovativeness, competencies and capabilities, streamlined processes and expertise. Intellectual capital bundles knowledge resources like constellation of employees, users, processes and technologies and work enabling a company to make a difference to users".

With the service driven companies in today's economy out pacing in numbers the manufacturing based companies, there has been a corresponding shift to include intangible assets on corporate balance sheets and to incorporate them into market capitalization or valuation and calculation. In addition, since service based companies rely more on intangible assets than on tangible assets as an indicator of their success; it is logical that these assets be counted for when reporting financial results to investors. Market leaders such as Charles Schwab in financial services, Accenture in management consulting Little Mendelson in legal service and even the Walt Disney Company are where they are because of the knowledge leveraged within each company rather than because of their tangible assets.

Today, the intangible assets move into the driver's seat in successful corporations. Forward looking companies are recognizing the need to measure and manage these assets as carefully as they do their tangible ones. There are several reasons for this change. First, these companies recognize that human capital drive's innovation. It is people not building or machines create new product and service ideas, improve processes, and help companies shift direction in order to create new sources of value. Whether it is a factory worker, a computer programmer or

an attorney, the human talent is responsible for inspiring changes. To gain competitive advantage companies need highly skilled, experienced and motivated people to meet global need. A company's intangible assets are increasingly crucial in today's knowledge economy. In fact, intangible assets are more important to a company's survival than are its raw materials. Just as rivers, ports and railroads were the infrastructure of the industrial revolution; talent and knowledge constitute the infrastructure for growth of economy to-day.

2. OBJECTIVE & METHODOLOGY

The study is intended to open few windows towards intellectual capital management and measurement. Since the accumulation of intellectual capital is outpacing the accumulation of physical assets as the key driver of competitiveness in the so called new economy the study is aimed at measuring the extent to which intellectual capital enhances organisation performance and adds value to the bottom line of the organisation and the hypotheses for the study is described as follows.

HYPOTHESIS 1: An organisation's level of human capital is positively related to organisational performance.

HYPOTHESIS 2: An organisation's level of social capital is positively related to organisational performance.

HYPOTHESIS 3: An organisation's level of organisational capital is positively related to organisational performance.

The study is carried out primarily on the basis of field survey. A broad group of IT organisations are included in the study deliberately. It is because, intellectual capitals constitute the major asset of the IT industry and simultaneously the sector is also facing enormous challenges maintaining their human resource pool by attracting the new prospects and retaining the existing one. Although it is the greatest challenge the IT industry is facing all over the world but the study is confined to some of the Indian IT sector only because of author's proximity.

Since the population for the study is heterogeneous, a stratified random technique has been adopted to select the respondents for the study. 844 respondents were selected randomly from lower middle as well as upper levels management of the Indian IT organisation out of which 466 responded. A linear regression model was drawn to explain the relationship between organisation performance and intellectual capital.

$$Y = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \dots + \beta_n Z_n + \epsilon$$

Y (Y_1, Y_2, \dots, Y_n) are Dependent variables

$\beta_0, \beta_1, \beta_2, \dots, \beta_n$ are unknown parameters

Z_1, Z_2, \dots, Z_n are independent variables

ϵ ($\epsilon_1, \epsilon_2, \dots, \epsilon_n$) are error terms

OP is function of ($HC_1, HC_2, HC_3, HC_4, HC_5$)

OP is function of ($OC_1, OC_2, OC_3, OC_4, OC_5$)

OP is function of ($SC_1, SC_2, SC_3, SC_4, SC_5$)

OP is function of ($HC_1, HC_2, HC_3, HC_4, HC_5$), ($OC_1, OC_2, OC_3, OC_4, OC_5$), and ($SC_1, SC_2, SC_3, SC_4, SC_5$)

Questionnaire-1 consisted 15 items to measure intellectual capital of the concerned organisation in three different dimensions such as human capital, social capital and organisational capital. Questionnaire-2 designed to study organisational performance and value of the organisation consisting of 26 items in four different dimensions like customer service, quality productivity, and innovativeness.

3. PERFORMANCE IMPACT OF INTELLECTUAL CAPITAL

Intellectual capital forms the root of a corporation - and of a Nation - that supplies the nourishment for future strength and growth. It includes all factors of production, invisible on the traditional balance sheet, but decisive of a company's long term profitability. It is a contemporary topic in the business world. Content and message of intellectual capital has turned traditional accounting upside down. Traditional accounting methods look backwards into the past and measure physical asset only. Intellectual capital includes assets such as brands, customer relationships, patents, trademarks and of course knowledge. The growing discrepancy between market value and book value of a corporation is largely attributed to intellectual capital, the intangibles of business that underpin future growth.

The importance of people has become increasingly important. HRM is the key factor for increasing employees' productivity. HR practices turn employees into a resource for development and a source of competitiveness (Nina Poloski Vokic, Maja Vidovic, 2008.) Money talks, but it does not think. Machines perform, often better

than human beings can, but they do not invent. Thinking and invention is the assets upon which knowledge work and knowledge companies depend (Stewart, 1997). There is no longer just a physical employee rather there is knowledge employee. The work is less mechanics and more thinking oriented. As Quinn says, "ideas and intellect, not physical assets built great companies" (Quinn, 1992).

If we are to designate the past as "the old economy" and the present and future as the "new economy", the old economy stands for material and the new economy stands for 'knowledge and creativity'. Intellectual capital are receiving increased interest both from academic community and companies because of the influence of innovation and learning on the achievement of competitive advantage for the firm in the new economy. The rise of the "new economy" one primarily driven by information and knowledge, international competitiveness and changing patterns of interpersonal activities is attributed to the increased prominence of intellectual capital management as a management and research topic.

We are living in a knowledge boom, where the common paradigm is that people are the most important asset for the company. As a result, efforts have been focused on hiring and retaining people with best intellectual abilities to do the job. Charismatic people always contribute with new ideas, innovations to improve business process and procedure. Nothing better exemplifies the revolutionary transformation from industrial age thinking to information age thinking than the new management philosophy of how employees contribute to the organisation (Kaplan and Norton, 1996). It's referred by Kerry Bunker that there should be a move "to develop more healthy learning environments and creating more effective learning individuals." If employers can truly create environment where bright, creative, secure people can learn on their own and land on their feet no matter what happens to them, Bunker says, then "people would feel a lot less threatened and a lot more resilient. But that doesn't happen by magic." Intellectual capital is rapidly becoming a very important measure of the company's future performance. It is therefore vital that indicators and measures are developed to allow managers to handle this variable better. It tries to assess the intangible difference between market value and book value of publicly listed companies. It is a very new topic and therefore theories behind it are very recent.

Management theory has gradually accepted that 'hidden assets', which includes both knowledge of employees, as well as customer and supplier relations, brand loyalty, market position and knowledge that increasingly play a major role for survival of more companies. Intellectual capital is becoming the most valuable asset of a company and can be its sharpest competitive weapon. The challenge is "to find, what you have and use it", wrote Thomas Stewart (1991).

According to Thomas Stewart (1991), in his article 'brain power' intellectual capital is the sum of everything everybody in your company knows that gives you a competitive edge in the market place. Stewart makes intellectual capital as attributes of an organisation, and describes intellectual capital as the dynamics effect of individual's intellect. These assets are hidden because they do not show up on the balance sheet of companies. At the same time, as business journals and magazines demonstrate daily, many senior executives realise that successful companies will be those who do the best job of capturing, nurturing and leveraging employees knowledge. Skandia, a Swedish financial group has pioneered intellectual capital reporting. It has been rightly said, "Intellectual capital is the possession of the knowledge, applied experience, organisational technology, customer relationship and professional skills that provide Skandia with a competitive edge in the market".

It is rightly said by (Drucker; 1993, Savage; 1996), "we are currently transitioning from industrial era to a knowledge era, where the traditional factors of production of land, labour and capital are being replaced by the creation of value through knowledge". It is individuals, not the company, that own and control the chief source of competitive advantage that is the knowledge of organizational members. As Peter Ducker has said, *in the knowledge era, the company needs to serve and nurture the "knowledge worker" but at the same time, the knowledge worker needs the value creative processes and infrastructures of the organisation, as well as conversation with other knowledge workers to unleash and leverage their knowledge.* Both Skandia and Ernst & Young emphasises the static properties of knowledge that is inventions, ideas, computer programs, patents, etc as intellectual capital.

Skandia has taken the approach of telling the world about its internal value driver to show the wealth of its intellectual capital and how it drives organisation's performance. That's why concepts like hidden assets, intangible resources, or most recently, "intellectual capital" often says more about the future earning capabilities of a company than any of the conventional performance measures we currently use. If the top - fifty programmers suddenly left Microsoft, the share price of the company is likely to drop drastically. The absurdity is because of *intellectual bankruptcy*. As a result of which, the short term profit may very well rise because of

cost reduction but in long run, it will have negative impact on its financial measures. So the need of the hour is to better visualise and even measure the growth or decline of intellectual capital (intellectual performance).

Edit Penrose in 1950s, has suggested that competitive advantage did not arise only via various product market combinations in a given industry, on the contrary, it is mostly due to difference in organizational resources of different kinds. It is because resources cannot always be transferred or imitated. She has pointed out the importance of experience and knowledge accumulated within the firm making the firm different from others. We must look inside the firm to find the real sources for sustainable differences in the resources. Laurence Prusak, Ernst and Young (Klein and Prusak, 1994) characterises intellectual capital as the ‘intellectual material that has been formalised, captured and leveraged to produce high valued asset’.

Literature on intellectual capital suggests that, competitive advantage flows from the creation, ownership, protection, storage and use of certain knowledge based organisational resources. Superior organisational performance depends on firm’s ability to be good at innovation, learning, protecting, deploying, amplifying and measuring these strategic intangible resources.

Building on the balance scorecard approach, Skandia, pioneered in developing and implementing a systematic way of visualizing and measuring intellectual capital. It has come to view, intellectual capital as both what is in the heads of the employees (human capital) and what is left in the organisation when people go home in the evening (structural capital). The initiative of Skandia has been followed by other companies including Dow-chemicals, CIBC, Hewlett- Packard, and Canon.

Firms have increasingly recognised the potential for their people to be a source of competitive advantage (Pfeffer, 1994). Organisations accredit their “capability differential” essentially to their intangible resources. Varied literatures and perspectives (Human Capital Theory, Organisation Learning, Information processing theory, and Resource Based Theory) suggest intellectual capital can create value and enhance organisational performance by lowering costs, increasing customer benefits, or doing some combination of the two. Hence a study By Khandekar and Sharma (2005), indicates the focus on intellectual capital is a means of both maintaining competitive advantage and improving the odds of survival in today’s business world.

4. ANALYSIS & RESULT

The data for the study were collected from 466 respondents from various IT organisations. The data set covers various aspects of intellectual capital and organisation performance. As per the table-1 demographic profiles of the respondents consist of small, medium, and large organisation, where respondents from large organisation constitute almost half of the total population in the study. Female participants in the study was one third where as male participants consisted of two third of the total population. Age wise distribution depicts 26-34 age group dominates in the study consisting of more than 50% of the total sample. The respondents having 5-10 years of experience at current organisation is very well present in the study consisting of 51% of the total sample.

As defined in table-2 the linear regression equation customer satisfaction with human capital and social capital depicts that the model is well fit with adjusted R^2 all close to 0.7. The model does not explain the fit between customer satisfaction and social capital of the organisation with R^2 value 0.373. All the parameters of intellectual capital in combination drives customer satisfaction component of organisation performance with R^2 value 0.785 corroborating all the hypotheses under study i. e, intellectual capital drives organisational performance.

The regression equation of the service quality component with human capital, and organisational capital shows both the component of intellectual capital influences significantly product or service quality with R^2 value close to 0.7. The effect social capital on service quality is not significant with R^2 value 0.279 but intellectual capital as a whole has strong influence on service quality with R^2 value 0.709.

The regression equation of productivity component with human capital, and organisational capital clearly depict the model is poorly fit with R^2 less than 0.45. Social capital is weak in explaining the relationship with R^2 value 0.12.

The regression equation of organisational innovation with human capital, and organisational capital clearly depict the model is well fit with R^2 above 0.6. Only social capital is weakly explaining the model with R^2 value 0.272 but intellectual capital as a whole drives innovation with R^2 value 0.727.

5. DISCUSSION

The present study found that each of the three types of intellectual capital to be associated with increased organisational performance. Human capital exhibited strong relationship with performance lending support to the widespread anecdotal evidence suggesting that talented people are critical ingredient in developing and

delivering superior products and services that generate high consumer demand. Scholars and practitioners have argued for quite some time that many of the fastest growing companies over the past several decades (Southwest Airlines, Tyson Foods, Wal-Mart) achieved their phenomenal growth and competitive advantage through their talented people (Pfeffer, 1994). Hence the elements of human capital management are central to the successful implementation of most other management initiatives and achieving the firm's strategic goal (Verreault and Hyland 2005).

Social capital is regarded as the strongest predictor of performance (Adler and Kwon, 2002; Kostova and Roth, 2003). Such a strong linkage between social capital supports that knowledge tied up in relationship among employees, customers, suppliers, alliance partners, and the like tends to lead to process and product innovations, better problem solving which tends to increase production and service delivery efficiencies as well as customer satisfaction. Social capital also enable organisations to utilise their knowledge base by leveraging it across the entire organisation and thereby reduce redundancies, effort duplication and ultimately organisational costs but the study found social capital is poorly related with all the components of intellectual capital. So collaborative management and consensual decision making is in preaching only. It is yet to be recognised and practiced,

The relationship between organisational capital and performance become statistically significant in the study. Since individuals form the basis of organisational level of learning and knowledge accumulation (Organisational Capital) and institutionalisation of knowledge and knowledge sharing is highly encouraged in Indian IT sector, there is strong co-relation between organisational capitals with its bottom line.

6. CONCLUSION

We are living in a knowledge economy. "Knowledge driven economy is one which the generation and exploitation of knowledge play the predominant part in creation of wealth" (United kingdom department of trade and industry 1998). People are an organisation's greatest asset, providing the intellectual capital that drives differentiation and value-added services. Intellectual capital is considered as the number one business driver in the organisation since the currency of the knowledge economy is intellectual capital. So there is a growing need for reporting on intangibles by intellectual capital reports, which complement traditional financial statements.

Talented people are critical ingredient in developing and delivering superior products and services that generate high consumer demand. By recognizing, developing, and utilizing capabilities embedded in the collective knowledge of firm's members, HRD can play a very important role in developing people's capabilities as a source of sustainable competitive advantage. Therefore organizations are designing their HR systems to enable employees to use their knowledge for a competitive edge (Khandekar and Shrama 2005a).

Knowledge tied up in relationships among employees, customers, suppliers, alliance partners, and the like tends to lead to process and product innovations, better problem solving and so on increasing production and service delivery efficiencies as well as customer satisfaction. Codified and documented knowledge helps in institutionalisation of knowledge and knowledge sharing for further analysis by knowledge workers.

Therefore intellectual capital does play significant role in determining organisational performance, we need to better understand how to build, manage and leverage it. Transparency through intellectual capital reporting is not only demanded by capital markets but also by other firm stakeholders such as employees, customers, suppliers and in general the society. In conclusion it can be stated that intellectual capital reporting is a highly efficient communication device and all the recent hype surrounding intellectual capital appears to be warranted. All the business leaders, researchers; academicians should be appreciative of the power of intellectual capital as an organisation performance driver. The study of intellectual capital stocks and its exponential growth due to organisational learning produces tremendous energy, which can take companies far beyond their current vision.

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Appendix-A

Table 1. Respondents Profile

Parameter	Group	#	%
Size	Small	143	30.7
	Medium	108	23.2
	Large	215	46.1
Sex	Female	172	36.91
	Male	294	63.09
Role	Senior Management	106	22.75
	Middle Management	132	28.33
	Junior Management	142	30.47
	Non Management	86	18.45
Age	26-	56	12.02
	26-34	246	52.79
	34-42	92	19.74
	42-50	52	11.16
	50+	20	4.29
Organisation Experience	2yr-	106	22.75
	2 To 5	78	16.74
	5 To 10	239	51.29
	10 To 20	33	7.08
	20-	10	2.14
Total Experience	2yr-	30	6.44
	2 To 5	94	20.17
	5 To 10	168	36.05
	10 To 20	138	29.61
	20-	36	7.73
Total		466	100

Appendix-B

Table 2. Organisation Performance Vs Intellectual Capital

Organisation Performance	Intellectual Capital	Multiple R	R ²	Adjusted R ²	Std. Error
Customer Satisfaction	HC	.815(a)	0.665	0.664	0.3123
	SC	.611(a)	0.373	0.372	0.4271
	OC	.881(a)	0.776	0.776	0.2551
	HC,SC,OC	.887(a)	0.786	0.785	0.25
Service/Product Quality	HC	.777(a)	0.604	0.603	0.3274
	SC	.528(a)	0.279	0.277	0.4419
	OC	.838(a)	0.702	0.702	0.2838
	HC,SC,OC	.843(a)	0.711	0.709	0.2804
Productivity Innovations	HC	.647(a)	0.418	0.417	0.4087
	SC	.349(a)	0.122	0.12	0.502
	OC	.616(a)	0.379	0.378	0.4221
	HC,SC,OC	.655(a)	0.43	0.426	0.4055
Innovations	HC	.777(a)	0.603	0.602	0.4555
	SC	.523(a)	0.274	0.272	0.6161
	OC	.850(a)	0.722	0.721	0.3814
	HC,SC,OC	.853(a)	0.728	0.727	0.3776

Appendix- C. Intellectual Capital Questionnaire**Human Capital**

1. Our employees are highly skilled and talented
2. Our employees are widely considered one of the best in our industry
3. Our employees are very creative and innovative
4. Our employees have enough knowledge and skill to finish their own job
5. Employees generally use new idea and knowledge to develop a solution

Social Capital

6. Our employees are skilled at collaborating with each other to diagnose and solve problem and issues.
7. Our employees share information with other and learn from other within their own team and department
8. Our employees interact and exchange ideas with cross functional department and division.
9. Our employees partner with customers, vendors and other alliance partners to develop solutions.
10. Our employees apply knowledge from one area of the organisation to problem and opportunities that arises in another part of the organisation.

Organisation Capital

11. Our organisation uses white paper, case studies, patents as a way to store knowledge.
12. Much of our organisation's knowledge is contained in manuals, and databases.
13. Our organisation has an enterprise information portal having easy access to various information source.
14. Our organisation's culture (stories, rituals) contains variable ideas and ways of doing certain businesses.
15. Our organisation embeds much of its knowledge and information in structures, systems and processes.

Appendix- D. Organisation Performance Questionnaire**Customer Service**

1. Complaints on our products/solutions are negligible
2. Customers are delighted with our service capabilities
3. Our service turnover time is one of the lowest in our industry.
4. We give maximum importance to our customers commitments
5. Our employees understand current and future need of our customer
6. Meet customer expectations and strive to exceed customer expectations
7. Our repeat business is above 90% which is one of the highest in the industry
8. We get a decent percentage of new customers because of positive customer referrals
9. Mutual relationship with customer and supplier is increased over the period
10. Deliver the promises made to customer

Quality

11. Our solutions are very reliable and stable
12. Our solutions are cost effective
13. The defect injection rate is below the industry average
14. We usually prevent repeat mistakes
15. Our acceptance defects density is very low
16. The cost of quality is one of the lowest in the industry

Productivity

17. The solution cycle time is reduced drastically over the period.
18. Our productivity is continuously improving over the time.
19. Our in time solution delivery record is one of the best in industry.
20. Our people easily adapts to new platform compare to our counterparts.
21. Organisation's per person productivity is better than the industry average
22. We share the productivity benefits with our customer which in turn generates repeat business.

Innovations

23. Usage of reusable components increases the productivity drastically.
24. Reusable components increase the product stability and reduce defect injection rates.
25. We use white papers, case studies, project artefacts in our solutions.
26. Our solution design is very robust

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