

Intellectual Capital and Organizational Performance: An Empirical Study in Telecom Sector of Pakistan

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Abstract: Intellectual capital is most important concept that gains fame now these days. The rationale behind this study is to observe the pressure of intellectual capital on progression of telecom sector of Pakistan. This investigation also determines the factors of intellectual capital and their relationship with functioning of an institution. Telecom sector is selected due to versatility of skills and knowledge it shows. For this purpose components of intellectual capital are taken as independent variables and performance of an organization as dependent variable. Here positivist approach is adopted and with the help of deductive reasoning, study concludes that there is association in intellectual capital and performance of an organization. For this study questionnaire is selected as tool of data collection and for maintaining the reliability questionnaire is adopted from past studies. SPSS is adopted for data analysis. With the help of SPSS, regression analysis applied to get accurate results. Study used sample size of 200 employees of telecom sector of Pakistan. For this intent different telecom companies are taken for the investigation of the study like Mobilink, Warid and Zong etc from different cities of Pakistan. Study concludes that there is positive relation between intellectual capital and telecom sector of Pakistan.

Key words: Human capital • Intellectual capital • Relational capital • Structural capital

INTRODUCTION

Intellectual capital is a way to achieve the competitive edge by utilizing human, structural and relational capital in unique manner. It's an intangible asset so it is as important as other assets. Word intellectual means knowledgeable and capital means resources on the basis of it study determine that intellectual capital is basically related to our knowledge and skills which helps to achieve institutional objective. Here it is also significant to observe that by enhancing skills some time we are able to gain edge on competitors by sacrificing employees comfort level and learn new skills for sake of organization progression [1]. At start no doubt it required huge investment but that investment proves gratifying for company progression [2].

Further focus is on “*telecom sector*” because telecom sector is biggest factor of “modernism” in economy and

biggest promoter of innovation these days. Pakistan was considered the 3rd fastest growing telecom market in 2008 because they try to introduce new skills, software and structure in stretched time for customer contentment [3].

Major rationale behind this concept is to define the components of intellectual capital. Further illustrate its significance and components interrelationship. Prior studies also investigate the relationship of components of intellectual capital and working of organization [4]. So, reason behind this study is to check that either there is any role of humans in progress of an organization?, Structure of any organization affects the progression?, relations with stakeholders show influence on growth of any firm? And what is role of overall intellectual capital in progression of any firm?

This paper has its own uniqueness because the concept is not familiar in telecom sector of Pakistan. Hence, the probable part of this paper is as follow:

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- To observe the association of human capital and progression of telecom sector of Pakistan.
- To observe association of structural capital and progression of telecom sector of Pakistan.
- To observe the association of relational capital and progression of telecom sector of Pakistan.
- To observe the association of intellectual capital with progression of telecom sector of Pakistan.

This study is quantitative based and positivist approach adopted to draw results. On the basis of this study deduced the relationship of intellectual capital and business performance in telecom sector of Pakistan. In this study questionnaire conducted for data collection. Thus, try to capture major telecom sectors of Pakistan like PTCL, Mobilink, U-Fone etc. for data collection. The study captured five cities of Pakistan just for getting reliable results. Sample size is 200 employees of telecom sector of Pakistan. This study used multiple regression analysis that is calculated with the help SPSS. With the help of multiple regressions here check the upshot of components of intellectual capital on working of an organization.

So, 2nd part of the study shows literature review. And in 3rd part shows theoretical framework in which all the variables of the study discuss in detail. In 4th part of the study hypothesis are made. These hypotheses were made for further utilization in data analysis. And on the basis of it study also shows the relation of independent and dependent variables. Methodology of research discuss in 5th part of the study. At last in 6th and 7th portion show the results and conclusion of the study.

Literature Review: Intellectual capital is condemnatory factor for organizations goal accomplishment. At start no doubt it required huge investment but that investment proves gratifying for company progression. It might be an exceptional case where it can't works well. Principle motive behind is some external factors and terror of losing the previous skills prohibit them to not adopt new skills and use previous one [2, 5]. Intellectual capital is some time use as synonym of knowledge management [6]. A study explains its link with management working. And elaborate that management works well by grasping new skills and due to that organization progress will improve [7].

It is shown that intellectual capital is interrelated with the progression of an institute. Further a study of Iran justify this concept by taking insurance company as sector and give constructive consequences regarding

intellectual capital [8]. From Indian pharmaceutical and software organization perceptive it is explain that return, advancement and its awareness in market totally depend upon on same factor. So, it is not wrong to say that intellectual capital is new way to see the organization refinement and these studies also provide beneficial results. Another study also represent the same concept of association [9, 10]. Further in research Intellectual capital represent same trend in Nigerian bank and discuss the effective skill management is also an internal constituent that show direct influence on organization effectiveness and performance [11, 12, 13]. A study of indian bank also explain the association among these two variables and elaborate that Intellectual capital expresses favorable relation between performance and skills on banking sector. For checking its relation annual reports analysis done and firm structure takes constant [14].

Some time it can't show prolific results and in that case intellectual capital inversely related to the progression. In a study Stam [15] explained the same concept according to which intellectual capital become burden on organization just because misuse of resources and can't utilize their skills in effective way. Further in case it is elaborated, the association between intellectual capital and job rotation is some time show inverse relationship exists. But risk is major factor that show influence on both variables. Due to departmental change stress in employees enhanced and they also have to learn new skills. Major risk is unable to learn new skills and fear of loss of old skills. So, job rotation is main negative cause that shows effect on intellectual capital [16]. Further a study explained, when intellectual act as liabilities. Through this study we are able to check liabilities influence on progress of an organization and sometime prove to be the major cause of dismay of company. Mostly organization spend huge amount to learn the skills but when employee are unable to utilize that skills in proper way then that investment become burden for the organization. So, it is necessary for the org to effectively convinced employee to utilize their skills as effectively as they can to gain positive results [17]. Same concept is explained in an other study that diversity in intellectual capital causes dismay causes decline in productivity [18-20].

In an investigation intellectual capital constituents taken and it is demonstrated that all these constituents are directly related with the progression. A study illustrate the importance of human capital and its link with working of an organization. Employee improvement is major factor because if they are healthy then they works well and try

to grasp new skills that are use further for organization well being [21]. Same concept is discuss by focusing the export business. It show that by introducing new skills in organization it is prove that exports can be improve. So, it's not wrong to say that improvement in IC causes the starter of new skills, which further relate towards progression [22]. Further same bond is explained with the past companies data, that is use as base for validity of results [23]. With help of demonstration of study it is illustrate that intellectual capital act as promoters of change. It is elaborate from study that intellectual capital is way to introduce new concepts and process in world. They must only tell the new techniques of fame of organization and also tell new way for its further progress. For accurate result two time data collection done in two different seasons. But results prove that diversity in intellectual is biggest promoter of skills [24].

Second constitute which is structural capital also show significant relationship with progression of an organization. Identical relationship is explained by wood industry and the study is conduted in argentina. Here major reason is to enlighten the same association that stuctural capital is associated with progression [25]. In an investigation same concept is explained that illustrate effect of intellectual capital's interdependence on enterprise worth and it operations show that all hierarchy shows correlation. Alipour [8] in his study explained the same positve association of variables. A study from literature also explains the same relationship and explains the association between structural capital and progress [26].

Third constituent of the study which is relational capital also show association with progression. This relation is explained in literature and elaborate that both are interrelated [27]. A further study of Iran explains this concept by taking insurance company as sector explains the concept that both are directly related [8]. Further it is

justify that it act as tool for making decision and elaborates its association with progress [28]. Study elaborate Intellectual capital information must display in company progress reports because this is one of the most essential component to gain loyalty of stakeholders and also good for reputation. So, display of intellectual capital in reports gives awareness among society regarding brand and that make it easy for them to take final decision about product [29]. After that same concept is check in Jordan's pharmaceutical organization perceptive. And it also has same purpose to establish association among IC and prosperity [4].

Previuos studies use organization database or annual reports in which study is conducated [2]. A study of MNCs of Serbia also used annual reports for analysis [19]. On the other hand many studies used questionnaires as a tool for data collection. Like in previous studies to check the influence of intellectual same tool is adoped [24]. Further a study of jordan use questionnaire technique for data collection and apply the results on whole pharmaceutical sector [4]. Further investigations use different methods for analysis but mostly different inquires use SPSS for examination. Same concept of SPSS is used in study of governance structure. This study is conducted in Malaysia. The results are interpreted on the basis of similar SPSS software [12]. From literature it is shown that studies use regression and correlation analysis for precise outcomes. So, few studies like indian pharmaceutical industry by Kamath [9], argentina's wood industry by Jardón and Martos [25] utilize regression and in some cases correlation for achieveing results.

Figure 1 show four variables in which human, structural and relational capital that are components of intellectual capital and becomes "explanatory variable". Right sided element of stature illustrates the working of telecom sector of Pakistan and become "explained variable". Sharabati, *et al.* [4] represent the same statue.

Theoretical Framework:

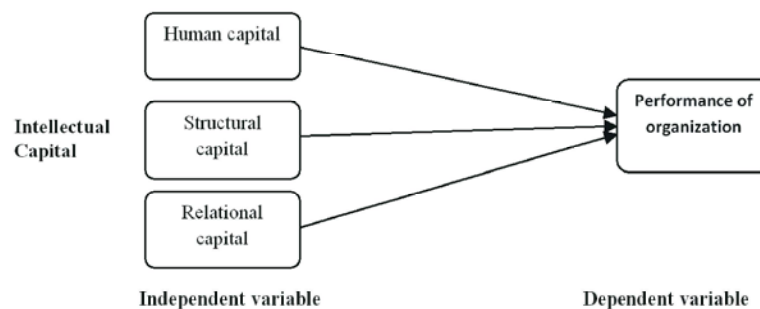


Fig. 1: Research model

Variable in inquiry were adapted and these variables also check individually that they are positively related or negatively related when this study will applied in Pakistani scenario.

Research Hypothesis

Human Capital and Organizational Performance: *Human capital* is associated to lead employees in a competent way to gain predominance on others. Human capital provoke to educated employees. In this way they acquire talent that differentiates that employee from other [30]. Experience also plays an focal task because if anyone have experience then automatically he/she have more awareness regarding environment [31]. All above factors are included in human capital. Means enhancement in human capital required improvement in all above factors is necessary. So, it is also important to do on investment in human capital to gain efficiency [32]. On the basis of previous study the hypothesis develop for the study is:

H1: There is association between Human capital and performance of telecom sector of Pakistan.

Structural Capital and Organizational Performance: *Structural capital* acts as an important donor to organization performance. It included all scheme and plans that are essential for the organization progression. In structural capital R and D also an important particle that helps to improve the present situation means leads the organization from better to best [4]. So, it is not wrong to say that it is a way to add value to the performance of an organization [8]. In this way organization proves it's self as a separate body. It counts not only the processes and system but also focuses on technology and tactic through which they are able to gain edge. So on the basis of previous research we get the hypothesis:

H2: There is association between structural capital and performance of telecom sector of Pakistan.

Relational Capital and Organizational Performance: *Relational capital* explains how effectively organization manages its commitment with other organizations as well as with its stakeholders [27]. So, from a study it was also shown that whenever relational capital use in organization it show the focus on coalition, promise, partner relationship etc. It helps us to establish and expand the organization [28]. It is way through which organization able to gain customers satisfaction, reputation and enhance its progression. For that organization must try to focus on this capital and also try to improve it to gain separate place not only in minds but also in market in

which they works. So, on the basis of previous studies we developed hypothesis:

H3: There is association between relational capital and performance of telecom sector of Pakistan.

Intellectual Capital and Progress of an Organization: Literature explains that there is interrelationship between components of intellectual capital and performance of an organization. After that if combine all the components observe its effect then it is also prove that intellectual capital is major component that show effect on performance [33]. So on the basis of previous studies we develop hypothesis:

H4: There is association between intellectual capital and performance of telecom sector of Pakistan.

Research Methodology: Main objective of the study is to inspect the influence if intellectual capital on effective working of telecom sector of Pakistan. This is cross sectional study because at a point of time data will be collected. And this study is quantitative based as well because rather than driving results from literature and previous studies study used numeric data through questionnaire for data collection.

Data Collection Method: For data collection questionnaire in which 5 point likert scale used as tool conducted. Instrument used in this study is adapted from previous studies. All the components of intellectual capital were also adapted. Employees of telecom sector of Pakistan were taken as target population. In study random sampling technique was used to collect the data. Sample size of this study was two hundred because this sample size is enough for getting accurate result. The sample is taken from telecom companies working at this time in Pakistan like PTCL, Mobilink etc. Random sampling is used because it removes the unfairness and give everyone equal chance to become part of sample. In this study dimensions of intellectual capital were also adapted from previous studies.

Data Analysis Method: For data analysis method "SPSS" software is used. In which mean, range, standard deviation, variance and skewness calculated. Further multiple regression functions applied to get the idea regarding relationship. Multiple regression equation that is formed for the test is

$$\text{Performance of organization} = \beta_0 + \beta_1 (HC) + \beta_2 (SC) + \beta_3 (RC) + \quad (1)$$

Table 1:

		Coefficients				
		Un-standardized Coefficients			Standardized	
Model	B	Std. Error	Beta	Coefficients	t	Sig.
1	(Constant)	.121	.483		.251	.802
	Human Capital	.405	.126	.312	3.211	.002
	Structural Capital	.284	.122	.247	2.332	.022
	Relational Capital	.296	.127	.214	2.325	.022

a. Dependent Variable: P

*results are taken by applying multiple regression technique on variables

This equation shows the effect of independent variables on dependent variable. And “ ϵ ” show the error term. Basically error is added to reduce the effect of other variables that are also directly or indirectly related to the dependent variable which is productivity of organization but not added for convenience.

Findings of the Study

Reliability: Tool adopted in the study to check reliability is cronbach’s α . From the results of the study *human capital* has. 754 cronbach’s α . And *structural capital* has. 768 cronbach’s α and *relational capital* has. 678 cronbach’s α . All these values show those independent variables are significant. And Performance which is dependent variable has. 816 cronbach’s α which show its highly significant nature.

Regression: Regression shows relationship between independent and dependent variables. Means if there is change in independent variable then there must change occur in dependent variable that is due to independent variable. Adjusted R square value show that 39.0 percent change explained in dependent variable due to independent variable. And Durbin- Watson value is 1.97 that shows there no auto-correlation in the model. F-value is 22.977 which are greater than 5 also act as a symbol of significance.

T-value show significant results of the value are greater than 1.95 and in table t values show fruitful results. That is favorable for study. Beta values show that if other factors remain constant then one percent change in human capital causes 40.5 percent change in productivity. After human capital other value of beta show that one percent change in structural capital causes 28.4 percent change in productivity and one percent change in relational capital causes 29.6 percent change in productivity.

CONCLUSION

From the above results is proved that all types of capitals included in the study are directly related to the performance of an organization. Broadly capture all the factors of intellectual capital it is deduced that all factors have positive relation with performance of an organization.

First focus on *human capital* it is not wrong to say that it act as asset for that organization because major component of this capital is employees of the organization. So, if the performance of the employee improves automatically performance of organization improves. It is statistically prove that human capital is major component for the organization improvement. Value of p showed significant outcome having smaller then 0.05. On the basis of it first hypothesis that there is direct relation of human capital and performance of an organization proved statistically. So, from study we wrap up decision that human capital and performance of organization are positively associated.

Second component under study is *structural capital* in which we focus on system working and research promotion of an organization. It is most important it capture all the components of structural capital. Through the study it is shown that not only structure of organization matters a lot but also technology and way of doing that work also counts. On the basis of it study draw results that structural capital shows association with performance of an organization which it also the second hypothesis. And statistically it is also shown significant results by showing p-value less than 0.05. Means if structural capital works well then performance of an organization also show improvement.

Third component is *relational capital* in which majorly focus on relationship building with customers and suppliers. Statistically it shows significant results by giving again p-value less than 0.05. Also table showed the

positive association among relational capital and performance. And if relations are strong then organization must works well. On the basis of it third hypothesis also prove not only with the help of literature but also on the basis of statistical calculations.

Value of reliability also shows that results of this study are significant. And value of Durbin- Watson show that there is no auto correlation exist in the model of the study. F-value is also greater than 5 that show it's significant. Above are the three conclusion draw from the study and we conclude that all the components have positive relation with performance of an organization. Thus, study concludes that improvement in intellectual capital causes improvement in performance of an organization.

This investigation is applied on the telecom sector of Pakistan so from study it is concluded that relationship exists between intellectual capital and performance of telecom sector. So, same as previous studies it is concluded that intellectual capital is absolutely related and have direct impact on performance of telecom sector of an organization.

REFERENCES

1. Narvekar, R.S. and K. Jain, 2006. A new framework to understand the technological innovation process. *Journal of Intellectual Capital*, 7(2): 174-186.
2. Pulic, A., 2004. Intellectual capital-does it create or destroy value? *Measuring Business Excellence*, 8(1): 62-68.
3. Hashim, S., K.U. Zaman, A. Munir and A. Khan, 2009. Telecom Infrastructure and Economic Development of Pakistan: An Empirical Analysis. *International Research Journal of Arts and Humanities*, 37: 147-156.
4. Sharabati, A.A.A., S.N. Jawad and N. Bontis, 2010. Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, 48(1): 105-131.
5. Castro, G.M.D., J.E.N. López, P.L. Sáez and E.A. Salazar, 2006. Organizational capital as competitive advantage of the firm. *Journal of Intellectual Capital*, 7(3): 324-337.
6. Zhou, A.Z. and D. Fink, 2003. The intellectual capital web: A systematic linking of intellectual capital and knowledge management. *Journal of Intellectual Capital*, 4(1): 34-48.
7. Demartini, P. and P. Paoloni, 2013. Implementing an intellectual capital framework in practice. *Journal of Intellectual Capital*, 14(1): 69-83.
8. Alipour, M., 2012. The effect of intellectual capital on firm performance: an investigation of Iran insurance companies. *Measuring Business Excellence*, 16(1): 53-66.
9. Kamath, G.B., 2008. Intellectual capital and corporate performance in Indian pharmaceutical industry. *Journal of Intellectual Capital*, 9(4): 684-704.
10. Ghosh, S. and A. Mondal, 2009. Indian software and pharmaceutical sector IC and financial performance. *Journal of Intellectual Capital*, 10(3): 369-388.
11. Haji, A.A. and S. Mubaraq, 2012. The trends of intellectual capital disclosures: evidence from the Nigerian banking sector. *Journal of Human Resource Costing and Accounting*, 16(3): 184-209.
12. Taliyang, S.M. and M. Jusop, 2011. Intellectual Capital Disclosure and Corporate Governance Structure: Evidence in Malaysia. *International Journal of Business and Management*, 6(11): 109.
13. Joshi, M., D. Cahill and J. Sidhu, 2010. Intellectual capital performance in the banking sector: An assessment of Australian owned banks. *Journal of Human Resource Costing and Accounting*, 14(2): 151-170.
14. Mondal, A. and S.K. Ghosh, 2012. Intellectual capital and financial performance of Indian banks. *Journal of Intellectual Capital*, 13(4): 515-530.
15. Stam, C.D., 2009. Intellectual liabilities: lessons from The Decline and Fall of the Roman Empire. *The journal of information and knowledge management systems*, 39(1): 92-104.
16. Brunold, J. and S. Durst, 2012. Intellectual capital risks and job rotation. *Journal of Intellectual Capital*, 13(2): 178-195.
17. Giuliani, M., 2013. Not all sunshine and roses: discovering intellectual liabilities "in action". *Journal of Intellectual Capital*, 14(1): 127-144.
18. Stähle, P. and J. Hong, 2002. Dynamic intellectual capital in global rapidly changing industries. *Journal of Knowledge Management*, 6(2): 177-189.
19. Komnenc, B. and D. Pokrajcic, 2012. Intellectual capital and corporate performance of MNCs in Serbia. *Journal of Intellectual Capital*, 13(1): 106-119.
20. Whiting, R.H. and J. Woodcock, 2011. Firm characteristics and intellectual capital disclosure by Australian companies. *Journal of Human Resource Costing and Accounting*, 15(2): 102-126.

21. Roslender, R., J. Stevenson and H. Kahn, 2006. Employee wellness as intellectual capital: an accounting perspective. *Journal of Human Resource Costing and Accounting*, 10(1): 48-64.
22. Pucar, S., 2012. The influence of intellectual capital on export performance. *Journal of Intellectual Capital*, 13(2): 248-261.
23. Donnell, D.O., *et al.*, 2006. On the essential condition of intellectual capital: labour!. *Journal of Intellectual Capital*, 7(1): 111-128.
24. Ling, Y.H., 2012. The influence of intellectual capital on global initiatives. *The journal of information and knowledge management systems*, 42(1): 129-144.
25. Jardón, C.M.F. and M.S. Martos, 2009. Intellectual capital and performance in wood industries of Argentina. *Journal of Intellectual Capital*, 10(4): 600-616.
26. Aminbeidokhti, A.A. and S. Darvishkhademb, 2012. A study of effects of intellectual capital on organizational performance: A case study of Keshavarzi bank branch in Semnan, Iran. *Management Science Letters*, pp: 971-978.
27. Leana, C.R., 1999. Organizational social capital and employment practices. *Academy of Management Review*, 24(3): 538-555.
28. Hormiga, E. and R.M.B. Canino, 2011. The role of intellectual capital in the success of new ventures. *Int Entrep Manag*, pp: 71-92.
29. Anam, O.A., A.H. Fatima and A.R.H. Majdi, 2011. Effects of intellectual capital information disclosed in annual reports on market capitalization: Evidence from Bursa Malaysia. *Journal of Human Resource Costing and Accounting*, 15(2): 85-101.
30. Rompho, B. and S. Siengthai, 2012. Integrated performance measurement system for firm's human capital building. *Journal of Intellectual Capital*, 13(4): 482-514.
31. Baum, J.A. and B.S. Silverman, 2004. Picking winners or building them? Alliance, intellectual and human capital as selection criteria in venture financing and performance of biotechnology startups. *Journal of Business Venturing*, pp: 411-436.
32. Bontis, N. and J. Fitz-enz, 2002. Intellectual capital ROI: a causal map of human capital antecedents and consequents. *Journal of Intellectual Capital*, 3(3): 223-247.
33. Mehralian, G., A. Rajabzadeh, M.R. Sadeh and H.R. Rasekh, 2012. Intellectual capital and corporate performance in Iranian pharmaceutical industry. *Journal of Intellectual Capital*, 13(1): 138-158.