

Innovation Capability for better Performance: Intellectual Capital and Organization Performance of the Apparel Industry in Sri Lanka

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Abstract—Innovation depends heavily on knowledge. Intellectual capital is a vital asset of an organization in a knowledge-based economy. The intellectual capital for Innovation capability in advance of motivation should lead to superior performance. This study traces the impact relationship of intellectual capital on innovation capability and organizational performance of the Apparel industry in Sri Lanka for long-term survival. The quantitative method is adopted and the structured questionnaires were administrated as a research instrument to collect the data using simple random sampling technique. Pearson Correlation was used to test the relationship between the components of intellectual capital, innovation capability and the performance of Apparel Industry. The results demonstrated that the component of intellectual capital has significant positive relationship with innovation capability and the organizational performance. The findings of this research will be useful for Apparel Industry to understand and apply intellectual capital to create innovation in their organizations.

Index Terms—intellectual capital, human capital, social capital, organizational capital, Innovation capability and organizational performance

I. INTRODUCTION

As the economy is moving towards a knowledge-based economy, rich information is flowing from many sources and channels without any limitation. The capability of an organization to manage knowledge effectively becomes a prerequisite for success and innovativeness [1]. The main ingredients of the production-based economy were land, labor, capital and physical assets. However, in a knowledge-based economy intellectual capital has become more important to add values when it is compared to physical assets [2]-[4]. The Intellectual capital has been recognized as the most important source of competitive advantage of various organizations which lead to increase the business performance and a country's economic growth.

[5], [6]. There are little studies that focused on the relationship of intellectual capital with Innovation capability and the organizational performance. However, the apparel industry is very important for the development of economy in Sri Lanka. The role of Apparel industry in economy is highly acknowledged. In the same way, the apparel sector around the world has grown as a knowledge concentrated sector in dynamic and competitive environment. From the last decade, the Apparel sector has been undergoing dramatic change in both organizational and technological advancement pushing top management to reformulate their business strategies [7]. Moreover, the Apparel sector is a good sector for research on intellectual capital issue because this sector is knowledge intensive and its entire staff are moreover are identical intellectually. In addition, [8] it is very important for organizations to understand their intellectual capital assets and should need to be properly managed if the organizations want to compete successfully in competitive environment.

Sri Lanka is a developing country and a small tropical island off the southern tip of India which is situated in South Asia. Today apparel industry has become one of the largest incomes generating avenue in the country. In fact apparel industry is one of the most lucrative foreign exchange earnings for the Asian region. It has contributed to the 45% of the country's export earnings. In addition to that the industry directly employs nearly 300,000 people as workforce all over the country [9]. There are 891 garment factories of which 177 are small, 468 – medium, and 246 – large scale factories and also the industry produces around 500 mn. pcs. per annum of which woven accounts for 55% and knitted 45% [10].The industry spreads the huge area of the country & can be seen number of factories are operating in every district in the country except Northern Province. The significant character of this industry is 85% young women employees are been employed as workforce. Talking about apparel industry, industry use low technology & it can be introduced as labour intensive industry [11].

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II. LITERATURE REVIEW

The importance of intellectual capital in a knowledge-based economy is widely accepted and Stewart [12] pointed out that intellectual capital is referred as to the accumulation of all knowledge, skills and expertise of employees that can lead to take competitive advantages. In the same way [13] intellectual capital is essentially defined as the knowledge assets that can be converted into value. In addition, Intellectual capital comprises three components: human capital, customer capital and structural capital [14]. Moreover, researchers argued that intellectual capital is mainly based on intangible assets for example knowledge, skills of employees, customer satisfaction, loyalty, policies, procedures, social value, intellectual property, industrial property, faith, ethics etc., [4], [14]-[16]. They argued that intellectual capital is mainly based on human capital, customer capital, structural capital, social capital, technological capital and spiritual capital. In this study, only three components of intellectual capital namely human capital, organizational capital and social capital were tested empirically.

Human capital is mainly based on the individual abilities, knowledge, know-how, talent, education, skills and experiences of employees in organizations [17]-[19]. Human capital is a critical factor that crate intellectual capital in organizations. Human capital is the most important component of intellectual capital, and it is critical for creativity and innovation. Human capital is creative, bright and skilled employees with expertise in their function [20].

Organizational capital is also one of the most important components of intellectual capital. Organizational capital is a glue of organization. It based on the internal structure of the organization, to the processes and procedures, guidelines, rules and etc. It encompasses of all non-human storehouse of knowledge in organizations including organizational competitive intelligence, routine, formula, policies, procedures and databases [21].

Social capital is recognized as one of the most important components of intellectual capital. The organizations having high social capital can take more competitive advantage and it mainly based on three dimensions which is widely accepted such as structural, cognitive and relational [22]. These dimensions of social capital create the value of the intellectual capital of an organization. The social capital represents the value of human connections based on confidence and on personal networks [23]. Social capital includes relationships, attitudes and values that manage interactions among people and contribute to economic and social development in a society. These set of relationship with the remaining social agents which is playing highly significant role in the development of intellectual capital in an organization [16].

III. INTELLECTUAL CAPITAL WITH INNOVATION CAPABILITY AND ORGANIZATIONAL PERFORMANCE

The dimensions of intellectual capital are the main sources of firm competitive advantage and superior

performance. The literature stressed that the one or several dimensions of intellectual capital can affect the performance of organizations [4], [17], [21]. New knowledge creation that results from learning from internal and external sources can help firms attain superior performance because of first mover advantages, responsiveness to customers and the ability to adapt to changing and uncertain environments. Innovation capability is further not tradable in factor markets, path dependent, and is influenced by a firm's previous experiences [24]. The key to competitive advantage lies in a firm's ability to identify and respond to environmental changes in advance of competitors. Therefore, the intellectual capital for Innovation capability in advance of motivation should lead to superior performance. The innovation type has a significant impact on business performance, especially incremental innovation. The innovativeness is an important determinant of organizational performance, even after culture had been controlled. Previous studies on innovation and organizational relationship indicated mixed results, some positive, some negative and some showed no relationship at all.

Innovation capability is as the ability to create new and useful knowledge based on previous knowledge [25]. The innovation capability is the comprehensive set of characteristics of an organization that facilitate and support innovation strategies. The definition considering that an innovation capability is a higher order integration capability: they have the ability to mold and manage different key organizational capabilities and resources that successfully stimulate the innovation activities. The potential impact of a firm's innovation capability on its competitive advantage has been widely recognized and documented in the literatures. Incremental innovations refine and reinforce exiting products, services, and processes typically by exploiting the existing knowledge base of a firm [1]. Such innovations should be more prevalent in subsidiaries compared to radical innovations that, major transformations of exiting products, services, processes, unless a subsidiary. According to the resource-based view of competitive advantage, a resource is valuable when it enables a firm to take advantage of opportunities or neutralize threats that exist in its environment. It refers to the capability to exploit acquired knowledge through finding out new, improved, and refined ways of doing things that create organizational value or increase operational efficiency [24].

Bonoma & Clark [26] found what's used more commonly by the enterprise to measure the financial side included the rate of profit, sales growth rate, market share, and cash flow. When a company is judging whether it's organizational marketing capabilities can shape its organization's competitive advantages, it can carry out measurement from three performance indicators, in order to measure effectively whether its marketing capability possesses a competitive advantage, these three measuring indicators must be established on the basis to compared against the company's major competitors. However, the

characteristics and the content of these three measuring indicators are: Customer satisfaction, Market performance, and Expected or existing earning power. Atkinson [27] believed that the trends of performance development were to jointly improve existing financial indicators that: added economic values, etc. and the non-financial indicators that can guide the organization to look ahead: customer satisfaction, employee satisfaction, product defect rate, etc. Therefore, what the enterprise needs is a dynamic performance measurement system. That is, a vision that surpasses the traditional financial performance with a changing environment.

In order to identify the relationship of intellectual capital with the Innovation capability and Organizational performance of apparel industry in Sri Lanka, three components of intellectual capital, namely human capital, organizational capital and social capital were employed. Previous studies revealed that intellectual capital is positively associated with the organizational performance of organizations [17], [28]. The research model adopted for this study is mainly based on three independent variables namely human capital, organizational capital, social capital and two dependent variables, i.e., innovation capability and organizational performance. The research model hypothesized that there is a direct and positive association between intellectual capital and organizational performance. The flow of relationship between the variables is depicted in Fig. 1.

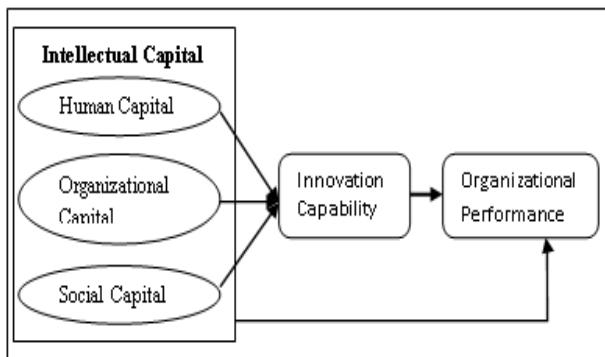


Figure 1. Conceptual framework

Based on the above model, the following five research hypotheses were constructed:

- *Hypothesis1*: Human capital has positive association with innovation capability of the Apparel Industry in Sri Lanka.
 - *Hypothesis2*: Organizational capital has positive association with innovation capability of the Apparel Industry in Sri Lanka.
 - *Hypothesis3*: Social capital has positive association with innovation capability of the Apparel Industry in Sri Lanka.
 - *Hypothesis4*: Innovation capability has a significant, positive effect on organizational performance
 - *Hypothesis5*: Intellectual capital has a significant, positive effect on Innovation capability and organizational performance

IV. RESEARCH METHODOLOGY

This study is a preliminary study of intellectual capital and innovation capability and organizational performance in Apparel Industry of Sri Lanka. Prior to the main study, a pilot study was undertaken that helped refine data collection plans with respect to both the contents of the data and the procedure to be followed. The pilot study explored the main challenges faced by Apparel Industry of Sri Lanka in innovation capability and performance. A structured questionnaire based survey having 42 items was used to collect the data from Apparel Industry in Sri Lanka. The amended version of [16], [17], [29], [30], questionnaires items were used for this study. The amendments were made to ensure that the constructs is relevant to this research in Sri Lankan context. A total of 150 set of questionnaires were distributed in Sri Lanka. A total of 70 set of completed questionnaires were returned from various backgrounds participated in the questionnaire survey. The response rate was 47% which was considered as a good.

The data were screened and cleaned, to ensure the reliability of the instrument, Cronbach Alpha was used. Cronbach Alpha value is widely used to check the reliability of the construct. The results showed that human capital had a coefficient of 0.0.848, organizational capital of 0.911, social capital of 0.881, Intellectual capital of 0.857 and organizational performance of 0.910. All constructs had showed above the suggested value 0.5. Therefore, on the basis of reliability test it was assumed that the scales used in this research is reliable to capture the constructs. Reliability of the constructs is shown in Table I.

TABLE I. RELIABILITY TEST OF CONSTRUCTS

Variables	Cronbach Alpha
Human Capital	0.848
Organizational Capital	0.911
Social Capital	0.881
Innovation Capability	0.857
Organizational Performance	0.910

Source: Survey data

V. RESULTS AND DISCUSSIONS

This research study attempted to explore the relationship between the components of intellectual capital and organizational performance of apparel industry and three research hypotheses were constructed. To test research hypotheses Pearson correlation was used. The results of the study indicate that the components of intellectual capital are positively related to the innovation capability and organizational performance of apparel industry in Sri Lanka. The result also shows that human capital has more positive relationship with innovation capability and organizational performance as compared to other variables. Moreover, the finding shows that social capital and organizational capital also have positive relationship with innovation capability and organizational performance. Therefore, the findings supported the three

research hypotheses of the study. The results of Pearson correlation are depicted in Table II.

TABLE II. DESCRIPTIVE STATISTICS AND PEARSON CORRELATION

Variables	M	SD	HC	OC	SC	InC
HC	3.73	0.745	1			
OC	3.70	0.813	0.826 0.000	1		
SC	3.85	0.734	0.743 0.000	0.712 0.000	1	
InC	3.88	0.713	0.7580 .000	0.785 0.000	0.714 0.000	1
OP	3.78	0.883	0.781 0.000	0.800 0.000	0.742 0.000	0.812 0.000

Correlation is significant at the 0.01 level (2-tailed)

Source: Survey data

The objective of this study was to examine theoretically and empirically the relationship of the components of intellectual capital on the innovation capability and organizational performance of the Apparel Industry in Sri Lanka. The empirical results of the study showed that the components of intellectual capital have positive significant relationship with the innovation capability and organizational performance of Apparel Industry in Sri Lanka. Previous studies also supported the findings of this research study such as [4], [19], [21], [29], [31]. The result shows that the employed components of intellectual capital have vital contribution to achieve the innovation capability and organizational performance.

The study also found that Intellectual capital positively affects innovation capability, and, thus, leads to higher performance, which is in line with other researchers, that organization increasingly need to develop their innovation capabilities beyond that of technical innovation. Furthermore, with the support of government, Apparel industry can embark on incremental innovation, which eventually leads them to radical innovation whenever they are ready. The managers need to focus on products, technology and processes as well as on culture, norms, values and beliefs, which is important for Apparel industries that operate in a close-knit circle. Studies have shown that Apparel industry contributed to the main innovation of the twentieth century. More than that, innovation in Apparel can be more efficient and effective. Innovation has demonstrated a strong and influential relationship with performance.

VI. CONCLUSION

This preliminary study gives brief insights into Apparel industry of Sri Lanka in defining their understanding of intellectual capital and innovation capability. By refining their objectives in operating their business, Apparels must understand their own capabilities, especially their internal strengths. Their people, their practices and their external support are important in assisting apparels to be innovative in order for them to be competitive. Innovation is happening in Apparels and most innovation is related to products and service. The main purpose of study was to find out the impact relationship of intellectual capital with

the innovation capability and organizational performance of Apparel Industry in Sri Lanka. Generally, the study concludes that intellectual capital is a very important factor for the success of the organizations in a knowledge based economy.

The component of intellectual capital, namely human capital, organizational capital, and social capital showed positive relationship with innovation capability and organizational performance. On the basis of findings the study suggests that the components of intellectual capital can play a significant role to enhancing the innovation capability and organizational performance of Apparel Industry in Sri Lanka. Although Intellectual capital in itself can lead to greater levels of Innovation capability and firm performance, its real impact may depend on the extent to which there are individuals who are capable of exploiting the acquired knowledge, organizational norms for sharing and exchanging knowledge within the organization, and systems and structures in place for storing and withdrawing information in the organization. There are several reasons to believe that organization will be more conducive to innovation capability in the higher levels of intellectual capital.

Therefore, Apparel industry of Sri Lanka should find a way to be competitive globally. No more labour capital but knowledge capital. Innovation capability is still in its infancy in Sri Lanka. This framework can be applied into the Apparel scenario for their long-term competitive advantage. The findings of the study will be helpful to practitioners, policy makers and top level managers to understand the concept and role of intellectual capital in depth. This study also has some limitations for example; in this study the sample size was small, therefore the findings of the study may not be applicable in all industries. The researches would like to suggest future researchers to extend the sample size for more generalized results. Finally, the researchers would also like to recommend the potential contributors to conduct their study which incorporated all the major components of intellectual capital.

REFERENCES

- [1] M. Subramaniam and M. A. Youndt, "The influence of intellectual capital on the types of innovative capabilities," *Academy of Management Journal*, vol. 48, no. 3, pp. 450-463, 2005.
- [2] B. Nick, "Assessing knowledge assets: A review of the models used to measure intellectual capital," *International Journal of Management Review*, vol. 3, no. 1, 2001.
- [3] A. Yalama and M. Coskun, "Intellectual capital performance of quoted banks on the Istanbul stock exchange market," *Journal of Intellectual Capital*, vol. 8, no. 2, pp. 71-256, 2007.
- [4] M. Khalique, J. A. N. Shaari, and A. H. Md. Isa, "Intellectual capital and its major components," *International Journal of Current Research*, vol. 3, no. 6, 2011.
- [5] S. Cohen and N. Kaimenakis, "Intellectual capital and corporate performance in knowledge-intensive SMEs," *The Learning Organization.*, vol. 14, no. 3, pp. 241-262, 2007.
- [6] S. C. Chong and B. Lin, "Exploring knowledge management (KM) issues and KM performance outcomes: Empirical evidence from Malaysian multimedia super corridor companies," *International Journal of Technology Management*, vol. 43, no. 4, pp. 285-303, 2008.

- [7] M. do R. Cabrita and N. Bontis, "Intellectual capital and business performance in the portuguese banking industry," *International Journal of Technology Management*, vol. 43, pp. 212–237, 2008.
- [8] K. R. Bhartesh and Bandyopadhy, "Intellectual capital: Concept and its measurement," *Finance India*, vol. 19, no. 4, pp. 74-1365, 2005.
- [9] V. Sivalogathasan and A. S Happuarachhi, "Herzberg vs job satisfaction: A study of the apparel industry in puttalam district," in *Proc. HSS/OUSL Annual Research Session*, The Open University of Sri Lanka, 2010, pp. 27.
- [10] A. H. M. Saheed, "SRI LANKA`S Apparel industry," *Sri Lanka Garments: The Apparel Digest*, Ceylon Printers Ltd, no. 83, pp. 9–14, August 2005.
- [11] H. S. C. Perera and Mahakalanda, "Knowledge management practices in apparel sector," in *Proc. International Research Conference on Management and Finance*, University of Colombo, 2008, pp. 1-7.
- [12] T. Stewart, "Intellectual capital: The new wealth of organizations," *Doubleday/ Currency*, New York, NY, 1997.
- [13] S. L. Edvinsson and Sullivan, "Developing a model for managing intellectual capital," *European Management Journal*, vol. 14, no. 4, pp. 356-364, 1996.
- [14] N. Bontis, "Intellectual capital: An exploratory study that develops measures and models," *Management Decision*, vol. 36, no. 2, pp. 63-76, 1998.
- [15] K. E. Sveiby, *The New Organizational Wealth- Managing and Measuring Knowledge- based Asset*, Berrett- Koehler Publisher, San Francisco, CA, 1997.
- [16] E. Bueno, M. P. Salmador, and O : Rodriguez, "The role of social capital in today's economy empirical evidence and proposal of a new model of intellectual capital," *Journal of Intellectual Capital*, vol. 5, no. 4, 2004.
- [17] N. Bontis, W. C. C. Keow, and S. Richardson, "Intellectual capital and business performance in Malaysian industries," *Journal of Intellectual Capital*, vol. 1, pp. 85-100, 2000.
- [18] L. Edvinsson and M. S. Malone, "Intellectual capital: Realizing your company's true value by finding its hidden brainpower," Harper Collins, New York, NY, 1999.
- [19] J. A. N. Shaari, , K. Muhammad, and A. H. B. Md. Isa., "Ranking of public and domestic private sector commercial banks in Pakistan on the basis of the intellectual capital performance," in *Proc. International Borneo Business Conference*, vol. 1, 2010.
- [20] S. A. Snell and J. W. Dean, "Integrated manufacturing and human resources management: A human capital perspective," *Academy of Management Journal*, vol. 35, 1992.
- [21] M. R. Cabrita, N. Bontis, M. Cabrita, and N. Bontis, "Intellectual capital and business performance in the Portuguese banking industry," *International Journal of Technology Management*, vol. 43, no. 1-3, pp. 212-37, 2009.
- [22] J. Nahapiet and S. Ghoshal, "Social capital, intellectual capital and the organizational advantage," *Academy of Management Review*, vol. 23, no. 2, 1998.
- [23] D. Cohen and L. Prusak, *In Good Company: How Social Capital Makes Organizations Work*. Boston: Harvard Business School Press, MA, 2001.
- [24] S. A. Zahra and G. George, "Absorptive capacity: A review, reconceptualization, and extension," *Academy of Management Review*, vol. 27, no. 2, pp. 185-203, 2002.
- [25] J. Choudhury, "Performance impact of intellectual capital: A study of indian it sector," *International Journal of Business and Management*, vol. 5, no. 9, 2010.
- [26] T. V. Bonoma and B. C. Clark, *Marketing Performance Assessment*, Boston: Harvard Business School Press, 1988.
- [27] G. Atkinson, D. Boore, and J. Boatwright, "Comment on earthquake source spectra for eastern North America by R. Haddon," *Bull. Seism. Soc. Am.*, vol. 87, pp. 1697–1702, 1997.
- [28] Y. Huang and Y. C. Wu, "Intellectual capital and knowledge productivity: The Taiwan biotech industry," vol. 48, no. 4, 2010.
- [29] L. Kim, *Imitation to Innovation: The Dynamics of Korea's Technological Learning*, Harvard Business School Press: Boston, MA, 1997.
- [30] M. A. Youndt, M. Subramaniam, and S. A. Snell, "Intellectual capital profiles: An examination of investments and returns," *Journal of Management Studies*, vol. 41, no. 2, pp. 335-361, 2004.
- [31] P. C. Goh, "Intellectual capital performance of commercial banks in Malaysia," *Journal of Intellectual Capital*, vol. 6, no. 3, pp. 385-396, 2005.



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