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**Innovation Needs the Motivation: Organization Motivation Mediate Between  
Intellectual Capital And Innovation Capability of The Textile & Apparel Industry  
in Sri Lanka**

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**Abstract**

*The purpose of this paper is to exhibit the mediation and moderation influence of organizational motivation and organization characteristics between intellectual capital and innovation capability of Textile & Apparel industry in Sri Lanka. The shift of the traditional tangible assets towards more subtle forms of intellectual capital creates a crucial factor for the achievement of the innovation capability and competitive advantage. In this study, the previous works have exclusively focused on the co-alignment between intellectual capital and innovation capability as compelled to deliver competitive advantage. The random sampling technique and structured questionnaires were administrated as a research instrument to collect the data. The results demonstrated that the intellectual capital has significant positive relationship on innovation capability with mediated and moderated effects. The findings of this research will be useful for the Textile & Apparel Industry to understand and apply intellectual capital to create innovation capability in their organizations.*

**Key words-** *Intellectual capital, Innovation capability, Organizational motivation, and Organization characteristics.*

**Introduction**

Innovation is diverse and pervasive. It is applicable to every facet of business activity of each enterprise. The importance of innovation to both the organizations and the society has been highlighted in the literature. (Huber, 1984) postulated that innovation, and institutionalized experimentation, will take on an added importance in post-industrial organizations, whose environments will be characterized by increasing knowledge, complexity and turbulence. More research have established a positive link between innovation and firm performance (Dess, 1997; Morris, 1996; Xiaobo Wu & Sivalogathanan, 2013; S. A. C. Zahra, J.G., 1995). The ability to innovate on a sustained basis, an innovation capability, is important as research has shown that organizations possessing innovation capabilities have a sustained competitive advantage and use it to achieve higher levels of performance (J. B. Barney, 2001; Hurley & Hult, 1998).

The intellectual capital is recognized as the most important and vital ingredient for the success of organizations in a competitive environment. The main ingredients of the production-based economy were land, labor, capital and physical assets. However, in a present knowledge-based economy, intellectual capital (IC) has become more important to add values when it is compared to physical assets (Bontis, 2001; Khalique, Shaari, & Isa, 2011; Yalama & Coskun, 2007). In the same way that intellectual capital has been recognized as the most important source of competitive advantage of various organizations which lead to increase the innovation capability, organizational performance and economic growth of the country. Therefore, it is indispensable that the employees of the textile & apparel industry learn to employ the intellectual capital to improve their innovation capability and organizational performance in a knowledge-based economy. Thus, the overarching research question of this paper is, "What are the factors and intellectual capital practices that facilitate the development of innovation capability of Textile & Apparel Industry of Sri Lanka?" To answering this question, we draw on the theoretical approaches of the resource based theory of the firm (J. Barney, 1991) and the innovation literature that focuses on the organization level of analysis (Nohria & Ghoshal, 1997).

The textile & apparel sector around the world has grown as a knowledge concentrated sector in dynamic and competitive environment. From the last decade, the textile & apparel sector has been undergoing dramatic change in both organizational and technological advancement pushing top management to reformulate their business strategies (Cabrita & Bontis, 2008). The textile & apparel industry is very important for the growing economy of Sri Lanka. Sri Lanka is a developing country and a small tropical island off the southern tip of India which is situated in South Asia. Today textile & apparel industry has become one of the largest incomes generating avenue in the country. In fact textile & apparel industry is one of the most lucrative foreign exchange earnings for the Asian region. It has contributed to the 52% of the Sri Lankan export earnings in 2012. In addition to that the industry directly employs nearly 390,000 people as workforce all over the country. There are 891 garment factories of which 177 are small, 468 medium, and 266 large scale factories. The industry spreads the huge area of the country and can be seen number of factories are operating in every district in the country. The significant character of this industry is 87% young women and educated employees are been employed as workforce. Talking about apparel industry, industry use low technology & it can be introduced as labour intensive industry (Perera & Mahakalanda, 2008; Sivalogathan & Hapuarachchi, 2010).

## **Review of Literature**

### **Intellectual Capital**

The term of intellectual capital was first proposed by Gilbraith (1969), as a form of knowledge, intellect, and brainpower activity, which used knowledge to create value (Chen, 2010). The importance of intellectual capital in a knowledge-based economy is widely accepted and (Stewart, 1997) 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 Edvinsson & Sullivan (1996) argues that intellectual capital is essentially defined as the knowledge assets that can be converted into value. In addition, Bontis (1999) illustrated that intellectual capital comprises three



components: human capital, customer capital and structural capital. 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., (Bontis, 1999; Brooking & Motta, 1996; L. Edvinsson & Malone, 1997; Khalique et al., 2011; Sveiby, 1998; Xiaobo Wu & Sivalogathanan, 2013). 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 (L. Edvinsson & Malone, 1997; Khalique et al., 2011). Human capital is the most important component of intellectual capital, and it is critical for creativity and innovation. Snell (Snell & Dean, 1992) pointed out that human capital is creative, bright and skilled employees with expertise in their function. Human capitals refer to processes that relate to training, education and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values, and social assets of an employee which will lead to the employee's satisfaction and performance, and eventually on a firm performance. Rastogi (2000) stated that human capital is an important input for organizations especially for employees' continuous improvement mainly on knowledge, skills, and abilities. Thus, the definition of human capital is referred to as "the knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" (OECD, 2001). The human capital focuses two main components which are individuals and organizations.

Organizational capital is also one of the most important components of intellectual capital. Organizational capital is a glue of organization. It is 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 (Khalique, et.al, 2011). Firms in order to share the knowledge need structural assets, such as information systems, laboratories, competitive and market intelligence and management focus (Stewart, 1997). Organizational capital is everything that gets left behind at the office when employees go home. On the contrary to human capital, organizational capital belongs to organization as a whole and it can be reproduced and shared.

Social capital is recognized as one of the most important components of intellectual capital. Naphat and Goshal (1998) argued that organizations having high social capital can take more competitive advantage and they pointed out that it mainly based on three dimensions which is widely accepted such as structural, cognitive and relational. These dimensions of social capital create the value of the intellectual capital of an organization. Social capital includes relationships, attitudes and values that manage interactions among people and contribute to economic and social development in a society (Yazdanifard & Nia, 2011). Social capital has facilitated theoretical debates which have stimulated reconsideration of significance of human relations, of networks, of organizational forms, of trust for quality of life and of developmental of organization

performance. The literature stressed that the one or several dimensions of intellectual capital can effect on the innovation capability of organizations. However, previous studies have found that intellectual capital has significant relationship with the innovation capability and organizational performance (Bontis, 1998; Bontis et al., 2000; Cabrita and Bontis, 2008, Sivalogathanan & Wu, 2013).

### **Innovation Capability**

The innovation capability as higher-order integration capabilities and a mixed model comprising vision and strategy, harnessing the competence base, organizational intelligence, creative and idea management, organizational structures and systems, culture and climate, and management of technology. Teece (1997) further developed the area proposing dynamic capabilities theory as the "subset of the competences/capabilities which allow the firm to create new products and processes and respond to changing market circumstances". As Lawson (2001) note, there is no one generic formula of innovation capacity. Innovation capacity can be proposed as a higher-order integration capability, that is, the ability to manage multiple capabilities that successfully stimulate the innovation activities. An innovation capability can be defined as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders.

Innovation capability is the comprehensive set of characteristics of an organization that facilitate and support innovation strategies. The innovation capability is critical for competitive advantage; however, we still do not know how to develop it. This capability has been discussed as "dynamic capability" (Teece, 1997), "core capability" (Leonard-Barton, 1995), "combinative capability" (Kogut, 1992), "core competence" (Prahalad & Hamel, 1990), and "integrative capability" (R. & Lorsch, 1967). However, despite the extensive debate about its importance, there is still limited understanding of "how" organizations develop it. As (Foss, Knudsen, & Montgomery, 1995) indicate: "The question of intentionality becomes particularly salient when considering how a firm sets out to build a given set of capabilities. Innovation is one of the primary means by which an organization can achieve sustainable growth (McEvily, Eisenhardt, & Prescott, 2004). The potential impact of a firm's innovation capability on its competitive advantage has been widely recognized and documented in the international management and strategy literatures. Therefore, the intellectual capital for Innovation capability in advance of motivation should lead to superior performance. Therefore, an importance of management literature indicated that innovation capability has also become to be an important part of the competitive power of the firms. Concisely, innovation also needs the transformation and exploitation of existing knowledge.

### **Organizational Motivation**

The effects of Intellectual capital on Innovation capability and firm competitive advantage should be mediated by organizational motivation of internal and external factors. This argument is consistent with the work of Zahra S. A. & George (2002) who claim that firms that focus extensively on learning from and exploring the environment can constantly renew their knowledge stock but cannot benefit from it unless they can exploit what they have learned from their environment. Similarly, March (March, 1991) notes that Adaptive systems that engage in exploration to the exclusion of exploitation are likely to find that they suffer the costs of experimentation without gaining many of its benefits. They exhibit too many underdeveloped new ideas and too little distinctive



competence. Therefore, the absorptive capacity theorists suggest organizational motivation should play a mediating role in the Intellectual capital and Innovation capability lead to firm competitive advantage and performance. In this study Cost efficiency, Reputation status, Market share, and Government support are considering as mediating variable of organizational motivation.

Innovation is market driven; the firms innovate in order to gain an advantage over competitors, perhaps by becoming more cost-efficient, by tailoring products to meet unique customer requirements, or by improving access to service in new markets. The challenges of the marketplace are met by product developers in two ways: development of innovative products and reducing product costs. Reputation and Demanding customers/users are the key driving forces for the firm to innovate. Also the customer requirement provides the important and direct input for firms. A deep understanding of the consumer is seen as a driver of innovation. Build a market share and opportunity identification are the start of any innovation. The right opportunity identification is the key to the firm innovation results. It can be the new market or new application industry, customer requirement change, new technology change, new business models and alliance opportunity. Government support plays an important role for country innovation system. With unique challenges and barriers of innovation faced by firms, government need to build up conducive environment for firm innovation, like facilitate the entry of small new players, provide necessary incentives, lower the entry and exit barriers, helping with network buildup, market intelligence etc. With limited resources and capabilities firms have difficulty to build-up necessary research and development of innovation capability.

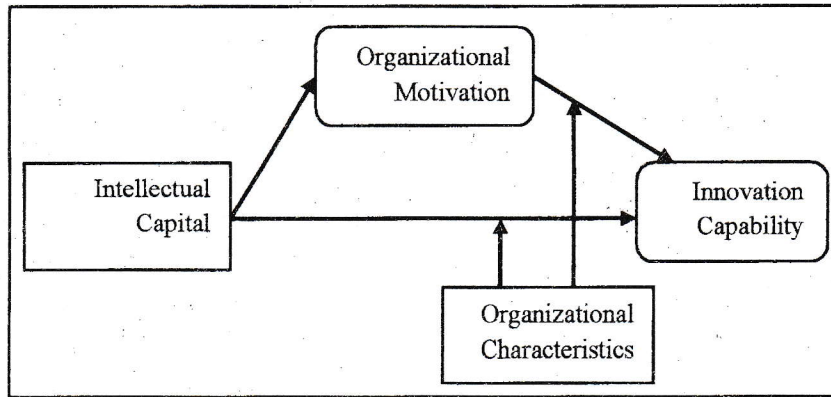
#### **Organizational Characteristics**

Several firm-level variables that can potentially affect the outcomes of this study were used as moderate variables such as size of firm, age of firm, reward winner, and union present. Firm size was measured as the total number of employees of the operation. Firm age was measured as the age when the firm was originally established in. Upstream competence of the firm was also controlled for. Presence of an upstream value activity was measured by combining two items which asked about the firm status by measured the rewards winning status and the employee involvement in the business process. Numerous organizational factors beyond intellectual capital may influence innovative capabilities. For example, large organizations may be more likely to develop innovative capabilities owing to their extensive resource bases (Cockburn & Henderson, 1998), however, smaller organizations may be more innovative owing to their flexibility (Cohen & Levinthal, 1990). Lastly, the nature of the organization, we measured how employee can contribute effectively to achieve the organization goals The nature of the organizations and employee contribution are competing in environment control which is known to influence their innovative capabilities.

In order to identify the relationship of intellectual capital with the Innovation capability of textile & 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 innovation capability and organizational performance. (Bontis, 2001; Huang & Wu, 2010; Xiaobo Wu, Sivalogathanan, & Xiong, 2013). The research model adopted for this study is mainly based on three independent variables namely human capital, organizational capital, social capital and dependent variable as innovation capability,

mediating variable as an organizational motivation, and moderating variable as an organizational characteristics. The flow of the hypothesized research model relationship between variables is depicted in Figure 1.

**Figure 1: Conceptual Framework**



Based on the above model, the following four research hypotheses were constructed.

**H1:** Intellectual capital has a significant, positive effect on Innovation capability of the Textile & Apparel Industry in Sri Lanka.

**H2:** Organizational motivation has positive association with Innovation capability of the Textile & Apparel Industry in Sri Lanka.

**H3:** Organizational motivation will mediate the relationship between Intellectual capital and Innovation capability of the Textile & Apparel Industry in Sri Lanka.

**H4:** Organizational characteristics will moderate the relationship between Intellectual capital and Innovation capability of the Textile & Apparel Industry in Sri Lanka.

**H5:** Organizational characteristics will moderate the mediated relationship by organizational motivation between Intellectual capital and Innovation capability of the Textile & Apparel Industry in Sri Lanka.

### **Research Methodology**

A structured questionnaire based survey having 42 items was used to collect the data from Textile & Apparel Industry in Sri Lanka. The amended version of 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 450 set of questionnaires were distributed in Sri Lanka. A total of 304 set of completed questionnaires were returned. The response rate was 67% which was considered as a good. The research divided the questionnaire into four concept variables of intellectual capital, organization motivation, organization characteristics, and innovation capability, although the questionnaire design followed the method of itemized measurement.



The simple mediation model, which is the focus of this article, is diagramed in Figure 1. If it is assumed that  $M$  and  $Y$  are treated as continuous,  $X$  is either dichotomous or treated as continuous, and all effects are modeled as linear, then the various effects in this model ( $c$ ,  $c'$ ,  $a$ , and  $b$ ) can be estimated with a set of ordinary least squares regressions or simultaneously using a structural equation modeling (SEM) program. In the regression context, two linear models are required to estimate  $M$  and  $Y$ , as such: (1) and (2). There are two effects of  $X$  that are of primary interest in mediation analysis. Most central is the indirect effect of  $X$ , quantified as the product of coefficients  $a$  and  $b$ . This product,  $ab$ , is interpreted as the amount by which two cases that differ by one unit on  $X$  are estimated to differ on  $Y$  as a result of the effect of  $X$  on  $M$  which in turn affects  $Y$ . The indirect effect of  $X$  serves as a quantitative instantiation of the mechanism through which  $X$  influences  $Y$ . But it is not the only path of influence from  $X$  to  $Y$ .  $X$  can also influence  $Y$  directly, independent of its indirect effect via  $M$ . The direct effect ( $c'$ ) quantifies how much two cases who differ by one unit on  $X$  but who are equal on  $M$  are estimated to differ on  $Y$ .

$$M = i_1 + aX + eM \quad (1)$$

$$Y = i_2 + c'X + bM + eY \quad (2)$$

$$Y = i_3 + cX + eY \quad (3)$$

Though not a focus in modern approaches to mediation analysis, the total effect of  $X$  on  $Y$ , represented as coefficient  $c$ , is the sum of  $X$ 's direct effect on  $Y$  and its indirect effect on  $Y$  through  $M$ , i.e.,  $c = c' + ab$ . Thus, the total effect can be estimated by combining estimates derived from Equations (1) and (2). A separate model is not needed to estimate  $c$ . However, researchers frequently do begin their mediation analysis by first estimating  $Y$  from  $X$  in isolation to establish whether there is a total effect to explain prior to deciding whether to proceed with the estimation of the indirect effect. In that case,  $c$  can be equivalently estimated from (3). The simple mediation model is parameterized with two linear models, one for  $M$  and one for  $Y$ . Although formal estimation of the relative total effects is straightforward, the relative total effects are equal to the sum of the corresponding relative direct and indirect effects.

Moderator variable is an interaction variable that affects the strength of the relationship between an independent variable and dependent variable. Specifically within a correlational analysis framework, a moderator is a third variable that affects the zero-order correlation between through other variables. A moderator variable is a variable that moderates the relationship between other variables, Example; the relationship between  $X$  and  $Y$  depends on the level of some third variable,  $Z$ . size of the firm ( $Z$ ) may moderate the relationship between intellectual capital ( $X$ ) and Innovation capability ( $Y$ ).

$$Y = i_1 + aX + eY \quad (4)$$

$$Y = i_2 + aX + bZ + eY \quad (5)$$

$$Y = i_3 + aX + bZ + cXZ + eY \quad (6)$$

$$Y = i_4 + c'1X + c'2Z + c'3XZ + b1M + b2MZ + hXM + jXMZ + eY \quad (7)$$

In this model, the XM and XMZ interactions are added to the individual mediation and moderation equations to form a general model that includes all effects (including additional  $c'$  and  $b$  effects). Here the  $h$  coefficient represents the test of whether the M to Y relation differs across levels of X, and the  $j$  coefficient represents the three-way interaction effect whereby the relations between Z and M and Y differ across levels of X. If a statistically significant  $j$  coefficient is found, further simple interaction effects and simple mediated effects are explored.

## **Results and Discussions**

### **Sample Description**

The demographic percentages are based on the questionnaires without missing data. As mentioned before, the respondents come from a variety of different firms with 55.3% male and 44.7% female. Their ages ranged from 20 to 59, around 50% from 25-35 years old. 17.4% are upper level managers, 55.9% are middle managers, and 21.7% are lower managers (Supervisors). Their functions include accounting, advisory, engineering, finance, human resources, educational instructors, marketing, operations, research, sales, and technology services. Respondents were indicated that around 78% come from 501-2000 employee size of firm Regarding education level, 25% are from 10-13 years school education, and 43% from certificate and diploma, 32% from bachelors and master degrees More than 70% have 2-7 years of experience in their present organization The industries represented are dominated by those industries with a higher probability of importance of intellectual capital. This sample attempts to represent various levels within an organization in which knowledge management processes would exist to encourage employees to participate in this study. The strategic nature of the survey demands that executives and managers fill in the questionnaire developed for this study. However, while executives are the most knowledgeable sources of firm-level strategic phenomena, where the research shows that more than 50% are having above diploma and degree, which satisfy respondents' survey of intellectual capital and innovation capability and firm performance in the textile & apparel industry in Sri Lanka. The individual respondents for this study had an average tenure of 4-5 years working experience in the same company in Sri Lanka. Therefore, we can conclude that the responses came from key informants from each organization who have the knowledge and experience to address the issues under investigation in this study.

### **Reliability and Validity**

The data were screened and cleaned, to ensure the reliability of the instrument, Cronbach Alpha was used. The results showed that human capital had a coefficient of 0.869, organizational capital of 0.878, social capital of 0.865, Intellectual capital of 0.857, Organizational motivation of 0.809, and Innovation capability of 0.874. All constructs had showed above the suggested value 0.5 (Nunnally and Bernstein, 1994). Therefore, on the basis of reliability test it was assumed that the scales used in this research is reliable to capture the constructs. Confirmatory factor analysis (CFA) was further used to verify reliability and validity of the scales. The composite reliability (CR) values for the five constructs ranged from .73 to .94, exceeding the acceptable level (.60) suggested by Bagozzi & Yi, (1988). As a further confirmation, the majority of the values for average variance extracted (AVE) exceed the threshold level (.50) suggested standard. Table 1 shows that the Cronbach alpha of these constructs indicated that all constructs were highly reliable because all constructs were higher than 0.70,



ranging from the lowest reliability of 0.809 of organizational motivation to the highest reliable construct of 0.878 of organizational capital.

Table 1: Reliability and Validity of Variables

Variables	Items	Factor loading	Cronbach $\alpha$	AVE	CR
Human Capital	Competency	0.840	0.869	0.658	0.905
	Ability to adopt	0.799			
	Skill experience	0.847			
	Techniques/processes	0.813			
Social Capital	Creative knowledge	0.754	0.865	0.653	0.904
	Client satisfaction	0.866			
	Relationship	0.825			
	Trust building	0.780			
	Networking	0.784			
Organizational Capital	Communication	0.792	0.878	0.672	0.911
	Procedures/processes	0.824			
	Way of working	0.831			
	Develop knowledge	0.792			
	Uses of resource	0.819			
Organizational Motivation (mediate)	Org.Environment	0.833	0.809	0.658	0.885
	Market share	0.834			
	Reputation status	0.883			
	Government supports	0.752			
Organizational Characteristics (moderate)	Low cost	0.770	0.084	0.814	0.911
	Size of firm.	0.868			
	Age of firm	0.741			
	Awards winner	0.777			
Innovation Capability	Union present	0.402	0.874	0.666	0.908
	Tech.fusion, push enables	0.801			
	Fundamentally change	0.816			
	New products/services	0.814			
	New processes /operations	0.854			
Explicit coordination	0.792				

Source: Survey Data

From the descriptive results, it can be seen that there are many constructs: namely, human capital, social capital, organization capital, organizational motivation, and innovation capability, and finally organizational characteristics such as size of firm, age of firm, awards winner, and union present. From the observed variables, the scale was from 1 to 5. The mean of all data was in the range of 3.80 to 4.00. The construct is with the highest mean (4.218) of firm performance and lowest mean (3.956) of human capital. However, all average of constructs was near 4 and above.

**Direct Model Analysis**

We assume direct model validation, found intellectual capital of the firm has a certain role in influence on innovation capability, in which the role of the firms organizational motivation has strongest coefficient of 0.483,  $p < 0.05$ ; followed by intellectual capital, has impact coefficient of 0.313,  $p < 0.05$  significantly. The impact factor of organizational characteristics is 0.029,  $p < 0.05$  not significance; here we found that the intellectual capital of the firm has the most significant influence on innovation capability, this also confirms the intellectual capital of the human, social, and organizational capital as the company's core research ideas. Organizational characteristics have no significant impact on innovation capability, but it may be indirectly impact on innovation capability, able to make a sensitive response to the market, deliberately raising the company's intellectual capital efficiency, and promote innovation capability.

Model control variables: firm size, firm age, awards winner, and union present for innovation capability effects vary, it can be seen from the results in these four variables, only firm age on innovation capability not significantly affected, the coefficient of -0.088,  $p < 0.05$ , indicating that firm age and innovation capability have certain negative correlation and not significant, startups often called faster than the age-old company's growth is relatively slow, but size of firm has significant negative affected on innovation capability, firm size affect the innovation capability, significant coefficients is -0.354,  $p < 0.05$ . The Awards winner and Union present were also significantly impact on innovation capability, coefficient was significant respectively 0.487, 0.595,  $p < 0.05$  in (Table 2).

Table 2: Summary Correlation Matrix (N=304)

Variables	HUC	SOC	OGC	OGM	INNOC	Size	Age	Awards
SOC	0.691** 0.000	-						
OGC	0.769** 0.000	0.791** 0.000	-					
OGM	0.782** 0.000	0.658** 0.000	0.748** 0.000	-				
INNOC	0.688** 0.000	0.689** 0.000	0.751** 0.000	0.797** 0.000	-			
Size	-0.468** 0.000	-0.275** 0.000	-0.338** 0.000	-0.397** 0.000	-0.354** 0.000	-		
Age	-0.194** 0.001	-0.089 0.122	-0.133* 0.021	-0.029 0.613	-0.088 0.124	0.690** 0.000	-	
Awards	0.504** 0.000	0.443** 0.000	0.551** 0.000	0.489** 0.000	0.487** 0.000	-0.199** 0.000	0.001 0.983	-
Union	0.595** 0.000	0.527** 0.000	0.562** 0.000	0.557** 0.000	0.595** 0.000	-0.456** 0.000	-0.280** 0.000	0.458** 0.000

\*\* indicates statistical significance at the 1% level (2-tailed),

\* indicates statistical significance at the 5% level (2-tailed)

Source: Survey Data

This research study attempted to explore the relationship between the components of intellectual capital and innovation capability of textile & apparel industry and five 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 of textile & apparel industry in Sri Lanka.



The result also shows that organizational motivation has more positive relationship with Innovation capability as compared to other variables. Moreover, judging from the findings of the Pearson correlation organizational capital is the second variable and social capital is the third variable, and human capital is the fourth variable that shows positive relationship with innovation capability. Therefore, the findings supported these research hypotheses of the study. The results of Pearson correlation are depicted in Table 2.

#### **Mediation and Moderation Model Analysis**

The most popular method for testing mediation in organizational research is the (Baron & Kenny, 1986) procedure. In this procedure, one must estimate three regression equations and satisfy four conditions in order to establish mediation, and the (Sobel, 1986) test also is a formal test of the joint significance of the two effects comprising the mediating variable effect which were used to test mediating effects.

Hypothesis *H2*, and *H3* proposed that the relationship between intellectual capital and innovation capability is mediated by organization motivation. The results in Table 2 show that intangible assets have a significant impact on innovation capability to satisfy the first condition (*condition 1*) of the Baron and Kenny (1986) procedure for establishing mediation. To testing the indirect effect of intellectual capital on innovation capability requires a significant relationship between intellectual capital and organization motivation (*condition 2*) and between organization motivation and innovation capability in the presence of intellectual capital (*condition 3*). There was support for the second condition based on the results of Hypothesis *H1* reported in the Table 4, model 3 shows that organization motivation and innovation capability are also significantly related in the presence of intellectual capital ( $\beta = .487, p < .05$ ) – satisfying the third condition. Based on the support found for both of these relationships, the presence of an indirect relationship is supported between intellectual capital and innovation capability through organization motivation. Sobel (1982) test was further conducted to test the significance of the indirect effect of intellectual capital on innovation capability. The result of this test provided further support for the significance of such an indirect effect (Sobel  $z = 4.263, p < .05$ ). Therefore, there was evident to supported Hypothesis *H3*.

Hypothesis *H4* proposed that the relationship between intellectual capital and innovation capability is moderated by organizational characteristics. The results in Table 3, show that intellectual capital are significantly and positively related to the dependent variable ( $\beta = 0.777, p < .05$ ) – satisfying the first condition of Baron and Kenny (1986) procedure. The second condition that the independent variable (intellectual capital) be related to the mediator (organizational motivation) was also satisfied, given the support found for Hypotheses *H2* reported above. Finally, as shown above, in the presence of organization motivation, and organizational characteristics, the effect of intellectual capital on innovation capability was reduced ( $\beta = 0.368, p < .05$ ), while the impact of organization motivation was positive and significant ( $\beta = 0.475, p < .05$ ), and organization characteristics has positive impact ( $\beta = 0.070, p < .05$ ), satisfying the third and fourth conditions for establishing partial mediation. Thus, Hypothesis *H3* was supported based on the original (Baron and Kenny, 1986) procedure. The results of the Sobel test provided further support for the significance of the indirect relationship

between intellectual capital and innovation capability through organization motivation when organization characteristics is moderating the Sobel results shown significant (Sobel  $z = 3.895, p < .05$ ).

The moderation effect is present when the addition of the interaction terms to the model that contains the control, independent, and the moderator variables causes a significant change in the  $F$  value and the coefficients of the interaction terms are significant. Table 3 presents the results of the moderated regression analysis for innovation capability. In the first set of hypotheses, it was predicted that organization motivation will be more strongly related to innovation capability in cases when organization motivation and the three facets of intellectual capital are high. Model 1 and 3 in Table 3 reports the results of the moderated regression analysis for these hypotheses. In Model 4, independent, mediating and moderator variables were entered. The results show that mediating and moderating variable were positive and significantly related to innovation capability.

Yet, in the presence of organizational characteristics, organization motivation was a significant predictor of innovation capability. Model 5 and Model 6, show that a significant  $F$  change in the model compared with first step suggesting that the interaction terms explained additional variance over and above that accounted for by variables. In model 6, while the interaction term of organizational characteristics was significant ( $\beta = 0.122, p < .05$ ), the only one of interaction beta coefficient was negative, but overall is to support Hypothesis  $H4$ . The interaction term of organizational characteristics and intellectual capital had also the same trend with a significant and negative coefficient. Thus, there was only minor support for Hypothesis  $H4$ . The two facets of organizational characteristics (awards, and union) would have a positive moderating impact on the relationship between intellectual capital and innovation capability.

The two significant and negative interaction terms which were contrary to predictions can also be a statistical artifact for including highly correlated terms in moderated regression analyses. In order to rule out this possibility, we tested the predicted interactions one at a time. The results did not change substantially – intellectual capital and organizational characteristics interaction was negative and no significant. When includes organization motivation the interactions were changed and significant. Organizational characteristics and organization motivation interaction were not significant, but organization motivation and intellectual capital interaction were negative and significant with organizational characteristics. The original analysis was thus retained since it provides a more conservative test for the proposed relationships and keeps the theoretical unity of the intellectual capital construct intact.

**Table 3: Intellectual Capital and Innovation Capability Model Summary**

Variables	Model1	Model2	Model3	Model4	Model5	Model6	Model7
Innovation Capability (INC)	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>
Intellectual Capital (IC)	0.777 (0.000)	0.735 (0.000)	0.387 (0.000)	0.368 (0.000)	0.597 (0.000)	0.751 (0.000)	0.154 (0.319)
Organizational Motivation (OM)			0.487 (0.000)	0.475 (0.000)	0.792 (0.000)		2.137 (0.000)
Organizational Characteristics		0.105 (0.008)		0.070 (0.046)		0.122 (0.354)	-0.079 (0.771)



(OCH)							
IC x OCH					-0.028 (0.892)	1.014 (0.001)	
OM x OCH						-1.416 (0.095)	
IC x OM					-0.495 (0.026)	-1.540 (0.015)	
IC x OM x OCH						0.652 (0.406)	
$\beta$	0.503	0.252	0.528	0.359	-0.335	0.189	-0.924
$R^2$	0.604	0.614	0.690	0.694	0.695	0.614	0.715
$F$	461.31	238.97	334.35	226.47	227.53	158.80	106.11
$Sig.$	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Survey Data

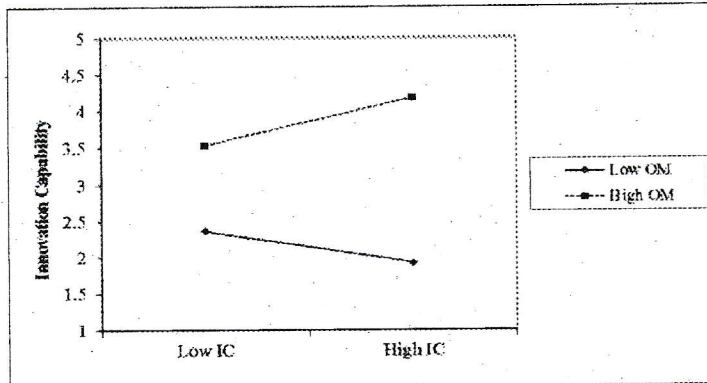
Model 5 and Model 6 independent, mediating, and moderating variables are present with interaction. In Model5, intellectual capital has positive significant ( $\beta = 0.597$ ,  $p < 0.05$ ) relationship with innovation capability while mediating variable associated with interaction. Organization motivation has positive and statistically significant ( $\beta = 0.792$ ,  $p < 0.05$ ), but interaction of organizational motivation and intellectual capital have negative significant with innovation capability ( $\beta = -0.495$ ,  $p < 0.05$ ), and explaining 70 percent of variance. In the Model7, include independent, mediating, and moderating variable with interaction. The intellectual capital and organizational characteristics have no significant ( $\beta = 0.154$ ,  $p < 0.05$ ;  $\beta = -0.079$ ,  $p < 0.05$ ) respectively, but organization motivation has strong positive significant with innovation capability ( $\beta = 2.137$ ,  $p < 0.05$ ). Only intellectual capital and organizational characteristics interaction have positive significant ( $\beta = 1.014$ ,  $p < 0.05$ ), other interaction have negative and no significant with innovation capability. Overall Model7 explained 72 percent of variance of sample.

In order to increase the interpretability of the interaction effects found in this set of hypotheses, the regression equation in Table 3, Model 2 was solved for high and low levels of the significant moderators. These results suggest that under low levels of organizational characteristics, the relationship between intellectual capital and innovation capability is positive. However, under high levels of organizational characteristics this relationship becomes positive trend, suggesting that intellectual does not have any big impact on innovation capability under conditions of high organizational characteristics. On the other hand, Figure 2 illustrates the positive and dis-ordinal mediating impact of organization motivation on the relationship between intellectual capital and innovation capability. Visual inspection suggests that when firms possess high levels of motivation, the relationship between intellectual capital and innovation capability is positive and under low levels of organization motivation the relationship between intellectual capital and innovation capability is negative. Finally, this positive impact of organizational motivation on the relationship between intellectual capital and innovation capability suggest that there are positive mediating effects of organizational motivation on innovation capability.

Therefore, the estimated correlation relationships are consistent with theoretical presumptions. The evidence shows that textile & apparel Industry has benefited from intellectual capital in innovation capability. More precisely, focusing on the Textile & Apparel Industry of Sri Lanka, we estimate model that mediate by organizational motivation on intellectual capital and innovation capability. These results are, in some

way, confirmed by other recent empirical studies. Concerning the greater importance intellectual capital compared to that of innovation capability efforts, as our results show, in these industries, the capability of innovation seems indeed to be more important. The estimates of the parameters seem to confirm that intellectual capital and innovation capability efforts are enormously important to the Textile & Apparel Industry of Sri Lanka. In addition, the indirect effect of intellectual capital, through motivation, emerges here as critical denoting the importance of having a reasonably higher stock of intellectual capital to enable a firm to reap the benefits of its innovation capability efforts.

**Figure 2: Mediating Impact of Organization Motivation**



Source: Survey Data

### Conclusion

The main purpose of study was to find out the impact relationship of intellectual capital with the Innovation capability and this impact result is mediated by organizational motivation, and moderated by organizational characteristics of Textile & 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. On the basis of findings the study suggests that the components of intellectual capital can play a significant role and organizational motivation is mediating and moderating to enhance the innovation capability of Textile & Apparel Industry in Sri Lanka.

Competition is the fundamental factor driving businesses to be innovative and ultimately to be more productive. Competition in the domestic economy helps and forces sometimes the firms expand internationally. Competition keeps the firms to be responsive and flexible. The struggle to attract and retain customers through competition obliges firms to be innovative. Organizational motivation factors such as reputation status, low cost, market share and government support are very important and influence on innovation capability. But sometimes too intensive competition may have negative impact on Firm's growth without innovation. Finally, the researchers would also like to recommend the potential contributors to conduct their study which incorporated all the major components of intellectual capital in different industries may also generate



different patterns in the knowledge management and innovation process. Hope that the findings of the study will be helpful to practitioners to understand the concept and role of intellectual capital in depth.

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