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Impact of Intellectual Structural Capital and Knowledge-Based Dynamic Capabilities on the Financial Performance of the Indigenous Craft Industry in Sri Lanka

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Abstract

This study attempts to identify the relationships between Intellectual Structural Capital (ISC), Knowledge-Based Dynamic Capabilities (KBDCs), and Financial Performance (FP), with special reference to the Indigenous Craft Industry (ICI) in Sri Lanka. The data were collected through a structured questionnaire from 231 owners of firms selected from indigenous crafts villages in Sri Lanka. The PLS-SME method was used to analyse data. The study found that ISC positively influences KBDCs, but does not directly affect the FP of ICI firms in Sri Lanka. Further, it revealed that the owners' ability to acquire knowledge and create knowledge have a positive impact on FP, and both variables fully mediate between ISC and the FP. By strengthening knowledge acquisition and knowledge creation capabilities of owners of ICIs and applying a proper mechanism to utilise ISC to transform tacit intellectual knowledge into explicit intellectual knowledge, the FP of firms in the ICI can be optimised.

***Keywords*:** Intellectual Structural Capital, Knowledge-Based Dynamic Capabilities, Financial Performance, Indigenous Craft Industry

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Introduction

Craft and craft-related industries can be recognised as heritage industries. These entities considerably influence the growth of the Gross Domestic Production (GDP) through direct and indirect job opportunities and entrepreneurial opportunities as well as adding a significant amount to foreign surpluses (Abrahman & Ramli, 2016; Tambunan, 2011). Considering the present state of Sri Lanka, the craft and related industries account for 24% of the national export volumes and 17% of the GDP. Further, 16.92% of the total employment was recorded from craft and related industries (Central Bank of Sri Lanka, 2019). In the Sri Lankan context, most of the craft industries are based on their indigenous knowledge, skills, and experiences. Therefore, firms in the Indigenous Craft Industry (ICIs), which produce numerous indigenous craft products (De Silva, 2019) are playing a vital role in Sri Lanka. When examining the current situation of ICIs, they have low levels of sales and stagnated profit which has ultimately led to low growth rate and low performances (Bailetti et al., 2012; Clark & Estes, 1998; Hallback & Gabrielsson, 2013; Kannan, 2013). These issues ultimately influence national and global competitiveness through low capital and labour productivity, lack of financial facilities, non-adoption of advanced technology, and deficiency of managerial and entrepreneurial skills as well as experiences. Most of the past researchers have already addressed most of these issues and problems encountered by craft industries.

Intellectual Structural Capital (ISC), the components of which include databases, routings, strategies, patents and copyrights, processes, models, computer and administrative software, and anything relevant to non-human knowledge, has been identified as an essential intangible asset which generates competitive advantage and higher performance (Arslan & Zaman, 2014; Bontis, 1998, 2003; Bontis et al., 2000; Cabrita, 2009; Hsu & Fang, 2009; Joshi et al., 2010; Kamukama et al., 2010; Kurt & Zehir, 2016; Ozkan et al., 2017; Wu et al., 2007). Chen et al. (2005) found that ISC has a strong positive impact on the value of the firm and its profitability. Bontis et al. (2000) pointed out that the ISC and financial performance (FP) are positively related regardless of firm type. However, Isanzu (2015) mentioned that financial performance is negatively related to ISC. According to Kamukama et al. (2010) ISC is an important determinant of financial performance.

Further, these studies highlight that ISC and Knowledge-Based Dynamic Capabilities (KBDCs) of owners of ICIs have a considerable impact on the financial performance as well as the growth of the entity. More importantly, ICIs cannot be developed only through components of ISC. Therefore, these ICIs need to develop

the KBDCs of their owners and employees (Bontis, 1998, 2003; Bontis et al., 2000). Hsu and Wang (2010) identified a firm's KBDCs of the owners and the employees in an entity as a primary strategy. They found that there is a significant positive relationship between KBDCs of owners and employees and organisational overall performance. Similar findings can be recognised from the research conducted by Aminu and Mohmood (2015), Barkat (2018), Barczak and Wilemon (2003), Bontis (1998), Bosma et al. (2004), and Carmeli and Tishler (2004). However, only a few scholars examine the mediating role of KBDCs between ISC and FP. Among those few studies, Han and Li (2015); and Hsu and Wang (2010) identified a mediating effect of KBDCs, while Wu et al. (2007) recognised a moderating effect of KBDCs. Further, most of the past research has integrated a few dimensions of ISC as well as KBDCs into a firm financial performance and some of the scholars emphasised some selected variables of ISC and KBDCs with overall organisational performance (Li & Liu, 2014; Muhammad & Ismail, 2009). However, it was not possible to find a single study identifying the impact of ISC on financial performance by considering the main dimensions of ISC.

The ICIs in Sri Lanka highly depend on the indigenous craft knowledge of the owners of those entities, which is recognised as a unique feature of the indigenous knowledge management system (Darroch, 2005). Therefore, the financial performance of those ICIs is strongly linked to the KBDCs of the owner of the entity. Therefore, the current study focused on the mediating role of two dimensions of KBDCs of owners of ICI in Sri Lanka. There are numerous dimensions of dynamic capabilities related to knowledge management, such as knowledge directions and routines (Grant, 1996a, 1996b), knowledge acquisition capabilities, knowledge conversion capabilities, knowledge application and protection (Gold et al., 2001), knowledge enhancement capabilities and knowledge utilisation capabilities (Hsu & Sabherawal, 2012), knowledge generation (Spender, 1992), knowledge creation and discovery (Nahapiet & Ghoshal, 1998), knowledge transformation (Carlile & Rebentisch, 2003), knowledge conversion (Gold et al., 2001; Nonaka & Takeuchi, 1995), and knowledge acquisition capabilities (Gold et al., 2001). Out of these dimensions, the study recognised two main dimensions of KBDCs i.e., Knowledge Acquisition Capabilities (KACs) and Knowledge Creation Capabilities (KCCs) of owners of ICIs as the mediator between ISC and financial performance. Especially these two dimensions of KBDCs can be recognised as the most relevant dimensions which represent the socioeconomic characteristics of ICIs.

More specifically, the current study attempted to fill the above mentioned research gaps by investigating the effect of ISC on the FP of ICI in Sri Lanka through

KBDCs of owners of ICI in Sri Lanka. The paper contains a brief literature review including the underlying theoretical support, the conceptual model applied and hypotheses developed, the methodology applied, the data analysis, a discussion of the results, the conclusions of the study, limitations, policy implications, and recommendations.

Literature Review and Conceptualisation

The intellectual capital concept is associated with two theories, namely, human capital theory and resource-based theory, and has been adopted by many researchers (Becker, 1962; Schultz, 1961). According to Bontis (2001), intellectual human capital consists of the employees' skills, competencies, experiences as well as behavioural attitudes. According to Kodithuwakkku and Priyanath (2022), acquiring knowledge and creating knowledge are the two main components of accepting knowledge from the external environment and transforming it into a representation within an organisation. According to Gold et al. (2001), key dimensions of KBDCs include enhancing the existing knowledge stock of employees and acquiring new knowledge. Gold et al. (2001) have identified tacit knowledge as an important component of the acquisition of knowledge by employees during work. Hsu (2006) recognised KBDCs as the backbone of an organisation, which brings numerous benefits such as low production cost, efficient delivery, improved quality, early insight into new technologies, on-time product launches, etc. Law and Ngai, (2008) highlighted that the KBDCs affect the quality of the business processes, products, and services and better operational performance of an organisation.

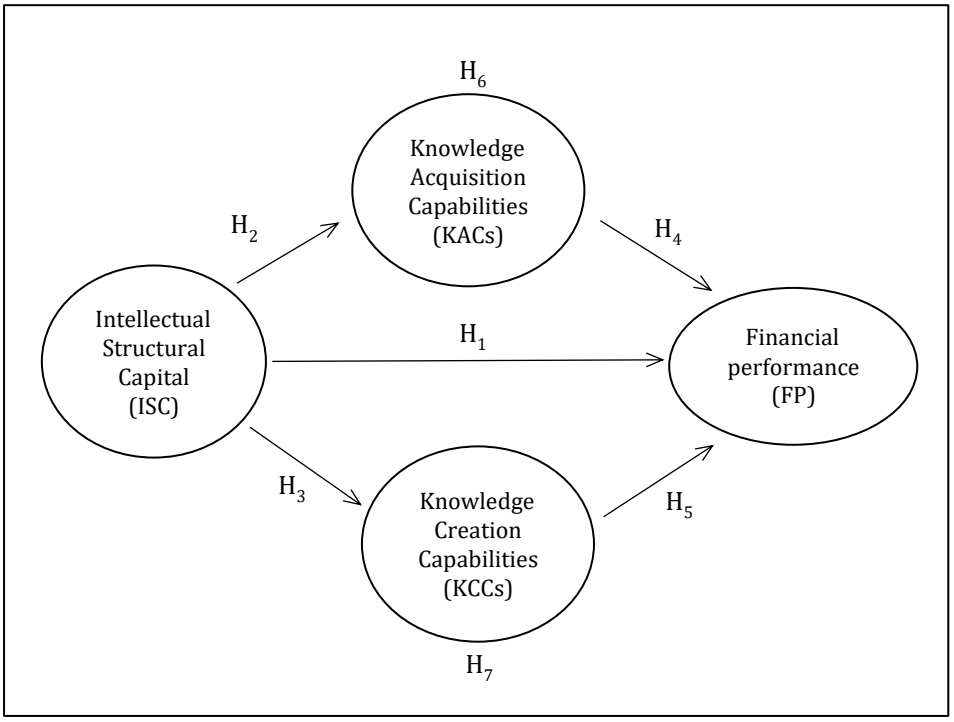
Theoretically, there are two broad categories of performance measures, namely financial measures and non-financial measures (Henri, 2006; Hoque & Adams, 2008; Hoque & James, 2000; Ittner et al., 2003; Kaplan & Norton, 1996). Nahapiet and Ghoshal (1998) defined FP as the extent to which the organisation performs in relative profitability, Return on investment, and total sales growth. Venkatraman and Ramanujam (1986) recognised FP as sales growth and profitability. Therefore, FP represents the firm's profitability or profit-generating potential. A considerable number of researchers (Barnes, 1983; Edwards, 2004; Orlitzky et al., 2003) have described difficulties in quantifying FP in informal entities such as ICIs, which were established as sole proprietorships or partnerships. This study used financial measures to evaluate FP.

Hypotheses

Several authors have investigated the relationship between ISC and FP and have concluded that ISC has a significantly more positive impact on FP than other

dimensions of intellectual capital (Barkat, 2018; DeCarolis & Deeds, 1999; Musa & Semasignha, 2014; Rastogi, 2000; Samad, 2013; Wu et al., 2007). Hsu and Wang (2010) found a significant positive relationship between ISC and business performance. When considering the ICI in the Sri Lankan context, scholars have not paid much attention to examining the relationship between ISC and FP. Therefore, a conceptual framework is developed to investigate the relationship between ISC and the FP, including the mediating effect of KBDCs of owners of ICI, which consists of KACs and KCCs dimensions, as shown in Figure 1.

Figure 1: Conceptual Framework



The study developed five direct hypothetical relationships between ISC, KBDCs, and FP. Further, the study developed two hypotheses to test the mediating effects of the KACs and KCCs of owners of ICI on the relationship between ISC and an FP. Therefore, this study posits that the firm's financial performance can be improved through investment in ISC.

ISC and FP. Kamukama et al., (2010) pointed out that ISC is one of the significant predictors of the financial performance of an entity. Many scholars have highlighted that ISC leads to maximising FP (Bontis, 1999; 2001; 2003; Bontis et al., 1999; Bontis

& Fitz-enz, 2002; De Brentani & Kleinschmidt, 2004; Khalique et al., 2011; Maditinos et al., 2010; Moon & Kym, 2005; Wang & Chang, 2005; Wiagustini et al., 2019; Zheng & Zhu, 2014). Therefore, they suggested developing ISC as it is one of the fundamental solutions for entities to enter the global market. The past literature suggests that the ISC developed through family and society has a significant impact on long-term survival through maximising profit. De Brentani and Kleinschmidt, (2004) highlighted that organisational process capital has a positive impact on firm performance. Hence, this study suggests:

H_1: There is a positive relationship between intellectual structural capital and the financial performance of firms in the indigenous craft industry.

ISC and KBDCs. Many scholars emphasise that ISC promotes KBDCs, which enhances organisational performance (Ahmadi, 2015; Huang & Wu, 2010; Valmohammadi & Ahmadi, 2015). They have established that ISC affects the FP by enhancing the KBDCs – more specifically KACs and KCCs of owners. Yli-Renko et al. (2002) pointed out that knowledge acquisition from internal and external stockholders improves the ability of owners of an entity to absorb new knowledge and generate new knowledge. This further enhances intellectual property rights available in an ICI firm by adding innovative ideas, skills experiences, and capabilities as a result of the owner's KACs and KCCs. Therefore, if an owner of an ICI firm has excellent KACs and KCCs, he/she can reap superior performance by utilising his/her intellectual property such as patent rights, copyright, trademark, or other means of protected assets to improve overall performance (Yew Wong & Aspinwall, 2004). Therefore, the current study hypothesises:

H_2: There is a positive relationship between intellectual structural capital and the knowledge acquisition capabilities of firms in the indigenous craft industry.

H_3: Intellectual structural capital positively affects the knowledge-creation capabilities of firms in the indigenous craft industry.

KBDCs and FP. According to De Brentani and Kleinschmidt (2004), KACs and KCCs of an owner of an entity have a significant positive impact on business performance. These two elements together enhance the firm's financial performance through improved productivity and profitability. Ewang (2005) highlighted that the KBDCs of owners, as well as employees, enhance both the psychological and physical dimensions of an organisation. Several past studies have shown the relationship between dimensions of KBDCs and feasible outcomes of an entity such as growth, profitability, labour productivity, overall business performance, financial

performance, the wealth of the entity, etc. Darroch, (2005) and Nunes et al. (2006) found a positive relationship between effective applications of KACs and organisational performance. According to Akpotu and Lebari (2014), there is a significant positive relationship between knowledge acquisition capabilities and employee productivity. Therefore, KACs can be considered a powerful tool for Sri Lankan ICIs to improve their performance. Nonaka et al. (2006) showed that KCCs involve a continuous process through information accumulation, acquiring new knowledge, and new context. According to Gupta et al. (2007), the theoretical interpretation of knowledge creation capabilities depends on employees' creativity. Cua et al. (2001) found that the KCCs positively influence manufacturing performance outcomes. Further, the knowledge creation capabilities lead to constructive benefits for organisational performance which consists of financial performance (Carmeli & Azeroual, 2009). Song (2008) researched the relationship between knowledge-creation capabilities on overall performance by using three Korean private entities and identified that the overall performance of those entities increased by 40% due to knowledge creation capabilities of employees and owners. Therefore, he concluded that there is a significant positive impact from KCCs on the overall performance of an entity. Accordingly, it can be summarised that both knowledge acquisition capabilities, as well as knowledge creation capabilities, directly influence the enhancement of FP. Therefore, the following hypotheses are developed:

H_4: Knowledge acquisition capabilities positively affect the financial performance of firms in the indigenous craft industry.

H_5: Knowledge creation capabilities positively affect the financial performance of firms in the indigenous craft industry.

ISC, KBDCs and FP. According to Benner and Tushman, (2003) ISC is linked with organisational KBDCs to provide superior performance. The knowledge-based theory highlights that KBDCs have a positive effect on FP. Many scholars emphasize that the ISC promotes KBDCs i.e., KACs, and KCCs of the owner of an organisation to enhance overall performance (Huang & Wu, 2010; Valmohammadi & Ahmadi, 2015). The intellectual property rights and organisational process capital contribute to the wealth of the firm through the KBDCs (Schmidt & Keil, 2013). Hsu and Sabherwal (2012) mentioned that there is no direct effect of the ISC on financial performance; instead, the owners' knowledge management skills play a mediating role between ISC and financial performance. Thus, this study established that ISC affects FP by enhancing the KBDCs of ICIs. Therefore, the ISC affects the financial performance of an entity through the KBDCs of ICIs; in other words, KBDCs play a mediating role. Based on this argument, the study develops two hypotheses:

H_6: Knowledge acquisition capabilities play a mediating role in the relationship between intellectual structural capital and financial performance of firms in the indigenous craft industry.

H_7: Knowledge creation capabilities play a mediating role in the relationship between intellectual structural capital and financial performance of firms in the indigenous craft industry.

Material and Methods

The conceptual model of the study was developed based on existing theories and literature, and therefore, the study applied the deductive approach. Further, the study relates to the positivist research paradigm because it applied universally accepted theories to ICIs in the Sri Lankan context. In addition to that, the study developed hypotheses and statistically examined cause-and-effect relationship. Therefore, the study utilised a quantitative design.

Individual firms in the Indigenous Craft Industry (abbreviated as ICI) are considered as the unit of analysis of the study; because all those entities are sole proprietorships, it is difficult to separate ICIs from their owners. Therefore, data was collected from owners of the firms as they have sufficient knowledge and experience in the industry and the business. The non-availability of an accepted national-level definition to identify ICIs in Sri Lanka was a key issue for determining the total population of the study. The study employed the definition used by the National Craft Council of Sri Lanka (2019), i.e., *small and medium scale industries that are embedded with traditional handicraft products with images of objects of Sri Lankans' cultural heritage*, to determine the population of this study. Since there is no national-level accepted database to identify ICIs, the study selected ICIs located in craft villages in Sri Lanka. A craft village is any village where a craft objects are traditionally produced using indigenous knowledge (De Silva, 2019). The National Craft Council established seven Traditional/Heritage Handicrafts Village under the sponsorship of the Ministry of Industries and Small Enterprises Development in 2013. According to the National Craft Council (2019), there were 576 craft entities functioning in seven craft villages. The owners of those craft entities are considered as the sample frame of this study. Then, the study selected a sample size based on the sample size determination formula developed by Krejcie and Morgan (1970) with the support of http://www.raosoft.com/samplesize.html. Therefore, the sample size was 231 ICIs entities. Then the study selected the sample employing the simple random sampling technique. Accordingly, the sample consists of 21 ICIs from Lacquer Village at Pahalahapuvida in Matale, 38 ICIs from Masks Village at Batuvita in

Kalutara, 67 ICIs from Wood Craving Village at Bope Poddala in Galle, 32 ICIs from Musical Instruments Village at Kooragala in Kandy, 31 ICIs from JewelleryVillage at Neelawala in Kandy, 23 ICIs from Sesath Village at Unveruwa in Matale and 19 ICIs from Musical Instruments Village at Hitthetiya in Matara.

As previously noted, data was collected from owners of the ICI. Of the sample, 97.84% of owners of ICI- were male and 2.16% represent female. Most of the owners had average educational qualifications of GCE O/L or/and A/L. Majority of the owners (86.15%) had more than 10 years ofexperience in their business field. Almost all the firms were owner-managed entities and nearly 46.7% of the ICIs did not have employees. In the sample,99.2% of ICIs were established as sole proprietorships and only 0.8% were registered as partnership entities.

Data were gathered using a structured questionnaire and all the questionnaire items were measured through a 7-point Likert scale. The study conducted face-to-face interviews to collect data for a structured questionnaire with the expectations of a high rate of response and improving accuracy since the interviewers could explain the questions and answers in simple words.

ISC is the independent variable, which reflects two main dimensions i.e., Intellectual Property Rights and Organisational Process Capital. Intellectual Property rights consist of two constructs, namely protected assets, and research and development capital, and organisational process capital consists of information technology and structural process capital. These dimensions, as well as 34related items, were identified through literature which ensured credibility (Bontis, 1998, 2003; Bontis et al., 1999; Bontis et al., 2000). According to Gold et al., (2001), KBDC was measured using two main dimensions, namely Knowledge Acquisition Capabilities (KACs) and Knowledge Creation Capabilities (KCCs). The KACs were measured by using knowledge-extracting capabilities, implementing strategies capabilities, knowledge storage capabilities and knowledge sharing capabilities (Darroch, 2005; Nunes et al., 2006). The KCCs were measured through knowledge application capabilities and knowledge generating capabilities (Carmeli & Azeroual, 2009; Song, 2008). The study measured the financial performance of ICIs through future viability, growth measures, sales-based performance measures, cash flow measures, and profitability measures (Barnes, 1983; Edwards, 2004; Orlitzky et al., 2003). Financial performance is difficult to calculate numerically and directly in ICIs in Sri Lanka because of the non-availability of properly prepared financial statements or accounting records. On the other hand, most of the past researchers have not used

accounting measurements with numerical values since they are based on historical values that do not accurately reflect the reality of the business entity (Neely et al., 2002). Therefore, the current study estimated financial performance quantitatively by using ordinal scales, which are considered and applied in many empirical studies (Barnes, 1983; Edwards, 2004; Orlitzky et al., 2003).

The current study applied Partial Least Squares-Structural Equation Modelling (PLS-SEM) to analyse data. The study used a two-step procedure for analysing data. First, the outer model was evaluated on a hierarchal basis assessing the reliability and validity of the items (Hair et al., 2012; Robson, 2002). Second, hypothetical relationships were tested with the support of the structural model.

Results and Discussion

The study first evaluated items and variables for reliability and validity, using a hierarchical model.

Table 1 illustrates the evaluation of nine first-order latent variables. It indicates that all the factor loadings of first-order constructs are greater than the required threshold value of 0.7 (Hair et al., 2012), which established the indicator reliability of those constructs. The *t*-stat indicates that all the factor loadings are significant at a 95% confidence level. By using Cronbach α and Composite Reliability (CR), the study examined the internal consistency reliability, which indicates a threshold value of 0.7 and above (Hair et al., 2012), These two measures indicate the internal consistency reliability of constructs. Further, the study assessed the convergent validity of each first-order latent variable by using Average Variance Extracted (AVE). The AVE value of each first-order construct is above the required threshold value of 0.5 (Hair et al., 2012), It confirms that the first-order construct fulfilled convergent validity.

Table 1: Reliability and Validity of First-Order Constructs

Construct and Items	Factor Loading	*t*-stat	CR	α	AVE
Protected Assets (PA)			**0.942**	**0.928**	**0.700**
Level of use of Intellectual Properties	0.801	33.609			
Rate of generation of new ideas	0.848	45.702			
The popularity of trademark/brand name	0.835	36.227			
Reputable goodwill	0.835	42.997			
Impact of brand name on growth	0.861	51.419			

Construct and Items	**Factor Loading**	***t*-stat**	**CR**	***α***	**AVE**
Recognisable and positive image in the market	0.856	46.360			
Availability of strategies and procedures to manage IPRs	0.814	37.433			
Research & Development Capital (R & D)			**0.946**	**0.934**	**0.786**
Actions are taken to spread out the values and beliefs of the business	0.832	48.145			
Amount invested in R & D	0.868	59.263			
The amount allocated for IT, hardware, software, etc.	0.882	54.623			
Amount invested in adopting a better operating process and practices	0.902	55.493			
Investments in special and new products and services	0.820	34.542			
Researching the latest technologies	0.716	19.652			
Responding to the adoption of modern technology	0.756	25.651			
Researching to improve the quality	0.835	38.027			
Information Technology (IT)			**0.948**	**0.940**	**0.754**
Impact on the product quality	0.777	2.940			
Systems and procedures support the introduction of innovative products.	0.735	3.439			
Accessibility to relevant information and database	0.921	3.405			
Successfully adopting IT to the need of the entity	0.940	3.546			
It integrates internal work processes and documentation	0.911	3.238			
It develops a strong network	0.904	3.325			
Structural Process Capital (SPC)			**0.977**	**0.975**	**0.768**
Contribute to innovation	0.852	22.523			
Constant review and renewal of products' life cycle	0.865	56.676			
Corporate support infrastructure processes and databases	0.893	62.785			
The operational structure is highly formalised.	0.876	53.874			
Standardisation of production processes	0.902	81.407			
Organisational processes are based on a set of strategies and plans.	0.846	41.680			
Incorporate advanced technologies	0.858	47.391			

Construct and Items	Factor Loading	*t*-stat	CR	*α*	AVE
Runs with a maximum possible efficiency	0.891	66.581			
Helps to enhance the production efficiency	0.893	60.825			
Helps to eliminate waste and/or unwanted variations	0.864	55.620			
Ability to change production volumes in response to market change	0.880	63.077			
Introduce a wide range of products using existing processes and facilities	0.866	54.373			
Availability of unique operating processes and tools	0.901	65.693			
Sales Based Performance (SBP)			**0.948**	**0.932**	**0.786**
Sales revenue	0.879	47.911			
Level of operating income	0.900	57.724			
Net returns to sales	0.891	51.848			
Income-generating capacity	0.898	62.350			
Market share	0.865	44.986			
Profitability (PR)			**0.856**	**0.776**	**0.765**
Gross profit margin to total net sales	0.793	49.783			
Net profit margin to net sales	0.772	59.029			
Return on capital invested	0.764	50.695			
Profitability to capital contribution	0.763	67.841			
Net return to tangible assets	0.754	47.269			
Cost to the selling price	0.730	20.136			
Cash Flow Based Performance (CFBP)			**0.957**	**0.933**	**0.882**
Capability to generate cash flows	0.931	94.203			
Strength of future cash flow potentials	0.940	106.294			
Increase in net operating income	0.947	129.506			
Growth (GR)			**0.921**	**0.871**	**0.795**
Increases in Earning	0.889	60.784			
Increase in Sales	0.883	58.741			
Expansion of market share	0.898	51.343			
Future Viability (FV)			**0.940**	**0.926**	**0.761**
Future income-generating capability	0.873	53.969			
Long-term financial sustainability	0.867	49.868			
Level of leverage	0.864	56.942			
Business growth rate	0.782	27.548			
Ability to pay interest on borrowings	0.812	25.821			
Potential to grow	0.789	23.335			
Level of future sales	0.834	37.559			

Table 2 shows that the square root of AVE values (given along the diagonal), which should be higher than the correlation values of latent variables to establish discriminant validity (Fornell & Larcker, 1981). Accordingly, all the first-order constructs satisfied the discriminant validity because the correlation values of all constructs are lower than the square root AVEs.

Table 2: Discriminant Validity of First-Order Constructs

	PA	**R & D**	**IT**	**SPC**	**GM**	**CFBP**	**FV**	**PR**	**SBP**
PA	0.837								
R& D	0.836	0.887							
IT	0.804	0.861	0.868						
SPC	0.313	0.178	0.169	0.876					
GM	0.223	0.165	0.127	0.667	0.892				
CFBP	0.434	0.429	0.360	0.571	0.804	0.939			
FV	0.281	0.213	0.187	0.754	0.847	0.817	0.872		
PM	0.221	0.206	0.157	0.544	0.617	0.650	0.722	0.875	
SBP	0.430	0.469	0.404	0.534	0.745	0.885	0.781	0.651	0.887

Based on the first-order constructs and their latent variable scores, the second-order constructs were established. For this, the study utilised six endogenous latent variables to evaluate the hierarchical model. As shown in Table 3, all standardised factor loadings were above the required value of 0.7 (Hair et al., 2012). The significance level of each factor loadings was examined through *t*-statistics. All the *t*-statistics were significant at a 95% significance level. The results provide support for the reliability of second-order constructs.

Table 3: Reliability and Validity of Second-Order Constructs

Constructs	**Loading**	***t*-stat**	**CR**	***α***	**AVE**
Knowledge Extracting Capabilities (KEC)			**0.975**	**0.971**	**0.810**
Extracting knowledge from external business parties	0.932	95.201			
Identifying potential business opportunities and threats	0.900	71.572			
Ability to absorb up-to-date and best suit knowledge	0.907	55.504			
Ability to transform competitive intelligence	0.921	77.793			
Helps to create new opportunities for customers	0.920	90.622			

Constructs	**Loading**	***t*-stat**	**CR**	***α***	**AVE**
Ability to create new products	0.890	63.372			
Implement IT facilities	0.884	43.602			
Introduce a mechanism to acquire knowledge from business external stakeholders	0.893	58.892			
Ability to implement potential opportunities	0.851	44.519			
Implementing Strategies Capabilities (ISTC)			**0.963**	**0.955**	**0.986**
Acquiring up-to-date knowledge	0.882	45.302			
Ability to develop competitive intelligence into achievable targets	0.893	58.804			
Transform new opportunities by designing and producing quality and the latest products.	0.859	44.836			
Implement proper processes for acquiring knowledge	0.897	64.996			
Utilise IT facilities to acquire new knowledge	0.895	65.665			
Ability to integrate available sources and existing knowledge	0.881	57.094			
Analyse internal and external environmental updates	0.899	66.319			
Knowledge Storage Capabilities (KSTC)			**0.956**	**0.946**	**0.857**
Availability of knowledge storage practices	0.888	62.452			
Support to take immediate action to resolve issues.	0.875	47.359			
Maintaining available sources of knowledge	0.844	42.004			
Acquire knowledge through storage tools	0.816	28.685			
Knowledge acquired through past mistakes and omissions	0.895	64.035			
Integrating different sources of knowledge	0.862	48.483			
Implementing a process for incorporating knowledge extracted from external stakeholders	0.906	64.419			
Knowledge Sharing Capabilities (KSC)			**0.949**	**0.929**	**0.824**
Replacing outdated knowledge quickly.	0.900	63.980			
The increasing value of the entity	0.916	78.846			
Ability to implement data source aggregation strategies	0.912	81.787			
Availability of formal and systematic database system	0.903	59.560			

Constructs	Loading	*t*-stat	CR	*α*	AVE
Knowledge Application Capabilities (KAC)			**0.970**	**0.961**	**0.866**
Ability to convert knowledge into innovative ideas	0.915	58.107			
Helps to outperform its rivals.	0.930	103.628			
Ability to generate new ideas from their knowledge	0.943	118.791			
Socialisation and externalisation capabilities	0.924	94.037			
Ability to reconfigure KCCs on time	0.939	111.252			
Knowledge Generating Capabilities (KGC)			**0.967**	**0.959**	**0.931**
Make timely decisions in dealing with strategic issues.	0.909	72.804			
Helps to remedy unsatisfactory customers.	0.904	70.919			
Develop the business efficiency	0.930	92.707			
Identify best practices	0.919	89.730			
Utilising best practices	0.894	58.547			

According to Table 3, Cronbach's *α* and composite reliability of all the constructs are above the required threshold value of 0.7. It shows that all constructs have internal reliability. Further, the AVE value of each second-order construct is greater than the threshold of 0.5, and therefore results confirm the convergent validity of the second-order construct.

Table 4 shows the discriminate validity of the selected constructs. All the inter-construct correlation values are lower than the square root of the AVE (depicted on the diagonal). It satisfies the requirements of the discriminant validity of constructs.

Table 4: Discriminant Validity of Second Order Constructs

	KEC	KSC	KSTC	KAC	ISTC	KGC
KEC	**0.900**					
KSC	0.899	**0.907**				
KSTC	0.854	0.904	**0.926**			
KAC	0.835	0.901	0.920	**0.931**		
ISTC	0.853	0.907	0.913	0.922	**0.993**	
KGC	0.841	0.895	0.925	0.928	0.957	**0.965**

Four third-order constructs were formulated on the latent variable scores, namely, Firm Finance Performance (FP), Knowledge Acquisition Capital (KACs), Knowledge Creation Capital (KCCs), and Intellectual Structural Capital (ISC). Table 5 shows the factor loadings which are higher than 0.7, and their *t*-statistics are also significant at the 1.96 level (Hair et al., 2012). Cronbach's α and composite reliability evaluations are also greater than the recommended value of 0.7 on all the constructs, and it indicates that those constructs possess internal consistency reliability. All the AVE values are higher than 0.5. it depicts the third-order construct endorsed by the convergent validity. The evaluation of the discriminant validity of the second-order constructs is shown in Table 6. Square roots of all the AVE values are higher than the inter-construct correlation values, and it satisfies the criterion of the discriminant validity of the third-order constructs.

Table 5: Reliability and Validity of Third-Order Constructs

Construct	Loading	*t*-stat	CR	α	AVE
Firm Finance Performance (FP)			**0.953**	**0.938**	**0.804**
Growth Measures (GM)	0.899	67.14			
Cash Flow Based Performance (CFBP)	0.933	106.42			
Future Viability (FV)	0.932	93.19			
Profitability Measures (PR)	0.800	23.92			
Cash Flow Based Performance (CFBP)	0.911	69.94			
Knowledge Acquisition Capital (KACs)			**0.989**	**0.985**	**0.958**
Implementing Strategies Capabilities (ISTC)	0.982	352.28			
Knowledge Extracting Capabilities (KEC)	0.977	289.38			
Knowledge Sharing Capabilities (KSC)	0.973	280.77			
Knowledge Storage Capabilities (KSTC)	0.982	428.97			
Knowledge Creation Capital (KCCs)			**0.984**	**0.968**	**0.969**
Knowledge Application Capabilities (KAC)	0.984	448.48			
Knowledge Generating Capabilities (KGC)	0.984	428.89			
Intellectual Structural Capital (ISC)			**0.968**	**0.935**	**0.938**
Intellectual property Rights (IPR)	0.976	335.59			
Organizational Process Capital (OPC)	0.961	132.71			

Table 6: Discriminant Validity of Third-Order Constructs

	FP	KACs	KCCs	STC
FP	0.896			
KACs	0.883	0.979		
KCCs	0.870	0.959	0.984	
ISC	0.336	0.380	0.405	0.968

The study initially assessed the collinearity of constructs. The efficiency of the structural model was assessed by considering the recommendation made by Hair et al. (2014). The VIF values for ISC, KACs, and KCCs show minimal collinearity, i.e., 1.198, 4.980, and 4.780. These values are lower than the recommended value of 5. Therefore, it confirmed that there is no multi-collinearity issue between independent and dependent variables in the structural model.

The significance of the path coefficients (β) was evaluated through the PLS bootstrap process. These path coefficients represent the regression coefficient (β). If the path coefficient (β) is greater than 0.1, it indicates the significance of the construct and, if the significance level is 99%, the estimated *t*-value should be 2.57 (Hair et al., 2014). Accordingly, except H_1, the remaining four direct hypothetical relationships developed for the study were significant at the level of 99% (See Table 7). Both the path coefficient and *t*-value of H_1 were not significant and therefore, H_1 could not be accepted. This means there is no significant direct relationship between ISC and the financial performance of the firm.

Table 7: Path Coefficients between Constructs and their Significance

	Relationships	Beta (Path)	*t*-stat	Decision
H_1	Intellectual Structural Capital → FP	0.022	0.634	**Not accepted**
H_2	Intellectual Structural Capital → Knowledge Acquisition Capabilities	0.108	7.865**	**Accepted**
H_3	Intellectual Structural Capital → Knowledge Creation Capabilities	0.102	8.806**	**Accepted**
H_4	Knowledge Acquisition Capabilities → FP	0.137	4.387**	**Accepted**
H_5	Knowledge Creation Capabilities → FP	0.119	2.593**	**Accepted**

Note: $^{**}p < 0.01$

The study assessed the correlation between two variables by using R^2. If the R^2 values are 0.67, 0.33, and 0.19, the model has a substantial, moderate, or weak correlation, respectively (Hair et al., 2014). A substantial explanatory power of 0.786 exists between ISC and FP, and the explanatory power of the relationship between ISC and KACs and ISC and KCCs are 0.144 and 0.164, respectively. The model exhibits that the effect size of predictive variables is small (f^2 of ISC is 0.001, KACs is 0.136, and KCCs is 0.033). The predictive relevance of the FP, KACs, and KCCs,

is 0.350, 0.229, and 0.151, respectively, showing that there is a large and medium predictive relevance.

After examining the direct relationship between variables, the study assessed the hypothesised mediating effect of two constructs of KBDCs, i.e., KACs and KCCs. The results indicate that both hypotheses were supported (i.e., H_6: KACs play a mediating role in the relationship between ISC and FP and H_7: KCCs play a mediating role in the relationship between ISC and FP) with full mediation (see Table 8).

Table 8: Mediating Impact of KACs and KCCs

	Path Coefficient	***t*-Stat**	**Decisions**
ISC → KACs → FP	0.228	3.625	**Fully Mediated**
ISC → KCCs → FP	0.120	2.596	**Fully Mediated**

In summary, the study developed five hypotheses to evaluate the direct relationship between independent variables and dependent variables, namely ISC, KACs, KCCs, and FP. Although the ISC positively influences FP, the effect is insignificant, i.e., H_1 is rejected. However, both H_4 and H_5 were accepted. Therefore, these results revealed that the two dimensions of KBDCs, i.e., KACs and KCCs have a significant positive impact on the financial performance of the ICIs. This indicates that the KBDCs have a significant impact on maximising the financial performance of ICIs in Sri Lanka. Further, it reveals that knowledge-extracting capabilities from external sources, knowledge-implementing strategies for data sourcing, knowledge storage capabilities, knowledge-sharing capabilities, knowledge application capabilities as well as knowledge-generating capabilities have a significant positive impact to improve the financial performance of an entity. The owners of ICIs can utilise their KBDCs to recognise organisational strengths, business opportunities, weaknesses, and threats and to make correct decisions on time. The findings also established that KBDCs (both the KACs and KCCs) have a positive, fully mediating impact on the relationship between the ISC and the financial performance of firms in ICI in Sri Lanka. So, this result shows that KBDCs owners of ICIs have a strong effect on the financial performance of firms in ICI in Sri Lanka. So, this result shows that KBDCs owners of ICIs have a strong effect on the financial performance of ICIs in Sri Lanka Barkat, (2018), DeCarolis and Deeds, (1999), Hsu and Wang, (2010), Musa and Semasignha, (2014), Rastogi, (2000), Samad, (2013), and Wu et al. (2007) also identified similar findings and highlighted that the owners with high KBDCs have more capabilities to translate collective actions into processes, and to use those capabilities to adapt better strategies reap more benefits.

The results of the current study confirmed that the ISC has an insignificant direct positive impact on the financial performance of ICIs. Both the intellectual property rights and organisational process capital of the ISC have a considerable positive impact on the FP. Theoretically, the protected assets such as property rights as well as organisational process capital of ICIs are considered very important and compulsory resources for ICIs, which help to develop strategies to increase FP (Bontis, 2001). The findings of the current study are similar to the results of Kamukama et al. (2010), who pointed out that the ISC is an insignificant predictor of the financial performance of an entity. However, intellectual property rights, which consist of protected assets of owners and research and development capital, and organisational process capital i.e., information technology and structural process capital, contribute immensely to enhancing the FP through KBDCs of owners of ICIs. The study revealed that ISC, i.e., intellectual property rights and organisational process capital, of ICIs has a significant positive influence on KACs (and KCCs of ICIs. Therefore, the impact of intellectual property rights and organisational process capital, or ISC, contributes to optimising a firm financial performance indirectly through KBDCs. The owners of ICIs can use their intellectual property rights and organisational process capital to produce more innovative products in the market with new features by using their knowledge-based capabilities. The information technology facilities available with the entity impact to enhance the KACs and KCCs of owners of the ICIs.

The foregoing explanation implies that KBDC plays a mediating role to maximise the financial performance of ICIs. This was supported in the findings related to hypotheses H_6 and H_7**.** The mediating effect of KACs and KCCs between ISC and the financial performance of ICIs indicates a significant positive impact on financial performance by contributing 22.8% and 12% of the total effect, supporting the hypotheses, H_6, and H_7, respectively. When considering past literature, only a few scholars have explored the mediating impact of KBDCs on the relationship between intellectual capital and financial performance. Among those few studies, Han and Li (2015); Hsu and Wang (2010) identified a mediating effect of KBDCs between intellectual capital and FP. The current study results augmented this literature by, providing empirical evidence for the mediating effect of KBDCSs on the relationship between a key dimension of intellectual capital.

Conclusion

This study investigated the relationships between ISC, KBDCs, and FP, and found that ISC has a significant positive influence on KBDCs but does not directly

affect the FP of ICI in Sri Lanka. The study identified that the KBDCs i.e., knowledge acquisition capabilities and knowledge creation capabilities of owners of ICIs, play a fully mediating role on the relationship between ISC and FP. More specifically, ISC has a positive significant impact on both dimensions of KBDCs, i.e., the knowledge acquisition capabilities and knowledge creation capabilities, which, in turn have a significant positive effect on FP of ICIs.

The research has made a valuable contribution to the theoretical knowledge by strengthening the knowledge on how the resource-based view can be used to explain the financial performance of ICIs. Most past research have been conducted about large-scale corporations in developed countries. The current study contributed to the literature by adding empirical evidence on the impact of ISC on FP of ICIs in Sri Lanka. In doing so, the study contributed to the theoretical literature by examining the applications of resources-based theory and intellectual capital theory in a different socio-economic context. The study established that ICIs in developing countries such as Sri Lanka do not seem to apply their ISC at the optimum level so as to directly impact on FP, as suggested by the knowledge-based view. One of the most important findings of the current research is the identification of the mediating role of selected dimensions of KBDCs on the relationship between ISC and the financial performance of ICIs in Sri Lanka since most previous research examined the impact of ISC on the overall performance and not on financial performance. Finally, only a few studies had previously used quantitative methods to evaluate the relationships between ISC, KBDCs, and FP.

The study provides several valuable insights for owners of ICIs and policymakers to develop ICIs in Sri Lanka. Specifically, these insights are highly applicable to three main institutions, namely the National Design Centre, the National Crafts Council, and the Sri Lanka Handicrafts Board (*Laksala*), which are dedicated to the task of developing the craft sector in Sri Lanka. Since the study found that the ISC of ICIs does not have direct positive impact on FP, the study suggests that owners of ICIs and policymakers incorporate strategies to develop and strengthen the efficiency and productivity of ISC to improve their financial performance. The study suggests that owners of ICIs may not have fully utilised the structural capital in transforming tacit intellectual capital into explicit intellectual capital. Further, the study recommends that the owners of ICIs apply their knowledge acquisition capabilities and knowledge creation capabilities to reap the FP. The study further suggests that the owners of ICIs recognise and utilise the KBDCs embedded with owners in the ICI. To acquire the full range of benefits of their ISC, the owners of ICIs should incorporate

measurement, and recording of ISC into their financial accounting system. The study confirmed that the ISC is one of the most important intellectual capital dimensions, which the owners should pay attention to enhance their FP. Therefore, it is the responsibility of the stakeholders, including owners, to strengthen the effective and efficient usage of their ISC by incorporating the KBDCs of owners of ICIs to improve their financial performance.

The study was ego-centred and thus collected data from the owners of ICIs. The sample was limited to the owner-manager ICIs. Therefore, it may not be possible to generalise the findings to manager-managed ICIs in Sri Lanka. In addition, the study selected only manufacturing-oriented craft entities that use their indigenous knowledge, which continued from generation to generation, for their craft products, excluding those craft entities that use modern technology and updated knowledge for their entities. The exclusion of such enterprises from the sample also imposes limits in generalising the results. Further, the findings of the study may not be generalisable to ICIs in other developing countries because their socioeconomic and cultural background is completely different to Sri Lanka. Therefore, the findings will apply only to ICIs in Sri Lanka. Future researchers can carry out a study in another developing country with a different socioeconomic environment to analyse how the findings differ from Sri Lanka. Finally, measuring variables empirically were not easy because all variables were broad and multi-dimensional concepts. For most concepts, there is no standard methodology to measure empirically, particularly KBDC and ISC. The use of limited items to measure some variables was a major limitation. Developing a systematic methodology to measure KBDCs and ISC needs to be addressed by future researchers.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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