



## Entrepreneurial versus Cooperative Social Capital: the impact on operational performance

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**Entrepreneurial versus Cooperative Social Capital: the impact on operational performance**

**Abstract:**

Research has extensively focused on how firms can become more competitive, by discovering new knowledge domains while exploiting current ones. Prior research has shown the positive impact of social capital on performance, however, there have been no empirical studies that distinguished between the architectures of social capital and how they impact the operational performance dimensions. Building upon the knowledge-based theory, we propose a model to examine the effects of the two architectures of social capital (entrepreneurial and cooperative) on individual dimensions of operational performance (quality, delivery, flexibility and cost). The hypotheses are tested using structural equation modelling and data collected from 182 companies in Ireland. The results show that the cooperative social capital archetype supports the operational performance dimensions, while the entrepreneurial social capital archetype only impacts the cost dimension. The findings extend the current understanding about the complex relationships among the architectures of social capital and provide guidance for managers on how to leverage their investments in social capital to enhance specific operational performance dimensions.

**Keywords:** entrepreneurial social capital, cooperative social capital, operational performance, empirical research, knowledge-based view

## **1. Introduction**

Globalisation has changed the nature of operations management with many organisations opting to outsource their operations in order to compete (Roxas, 2021). Furthermore, there is a real lack of clarity with regards to business arrangements across Europe as a result of the UK's exit from the European Union, with 'disruption' being the only element foreseen (PwC, 2020). As a result of this, companies are relying on their intangible assets to compete globally. This is particularly the case in a small-open economy such as Ireland (Zhang et al., 2019, Ettlé and Rosenthal, 2011). As open economies are exposed to international trade regimes, rapid changes in technology, and cheaper labour costs elsewhere, it is important for firms to continuously examine their competencies in order to achieve competitive advantage (Central Bank of Ireland, 2019, Lee et al., 2011, Teece, 2007). The growth of business networks has attracted increasing research attention in recent years, particularly on how social capital, through its set of social resources, contributes to firm performance (Gölgeci and Kuivalainen, 2020, Heuer et al., 2020, Dost and Badir, 2019, Neumeyer et al., 2019, Westman et al., 2019, Zou et al., 2019, Liao, 2018).

Social capital (SC), an intangible asset, describes the knowledge gained and shared through an individual's relationships (Ferreira and Franco, 2017). This knowledge, for example, could include introductions to new contacts and/or the development of operational knowledge from others. It plays a key role in organisational learning as such learning is collective and hence fundamentally social (Wang et al., 2019, Teece et al., 1997). Organisational learning is becoming progressively more important in the knowledge economy; helps firms determine strategic pathways, and identify and improve their unique capabilities (Kang and Snell, 2009, Teece et al., 1997). This learning relates to both the individual and the organisation, and is acquired through knowledge shared from inside and outside of the firm. The knowledge, mechanisms and processes developed within the organisation can facilitate knowledge transfer (Grant, 1996). Studies such as Carey et al. (2011) and Zhang et al. (2016) show the benefits of SC in relation to operational performance. By utilising knowledge exchanged internally (Zhang et al., 2017) and externally (Krause et al., 2007) both firm performance and innovation performance has been seen to improve. Moreover, SC can lead to a better understanding of customers' preferences that, in turn, can lead to repeat business and even long-term relationships (Nguyen et al., 2020).

SC comprises of entrepreneurial and cooperative dimensions (Kang and Snell, 2009). Entrepreneurial social capital (ESC) is described as a work style which seeks the advancement of the individual (Swart and Kinnie, 2013). This form of SC might make the individual more likely to seek knowledge or connections outside of their working group or organisation. Cooperative social capital (CSC) emphasises team work and collective trust (Wu, 2008), suggesting that workers are encouraged to seek knowledge within their working or peer groups. There is a lack of quantitative research on ESC and CSC from an operations perspective; therefore, this study assesses the impact of the dimensions of SC on operational performance. Previous papers, such as Onofrei et al. (2019), use operational performance as a single construct. This study decomposes operational performance into four elements as measured by quality, cost, delivery and flexibility. Based on the arguments presented above, the current study advances knowledge on the relationship between SC and operational performance, by addressing the following research question: *How companies can leverage their SC dimension in order to increase their operational performance, thus, enhancing their competitive advantage?*. This paper is organised as follows: section 2 provides a review of the literature related to SC, both ESC and CSC, and operational performance. From this review, we develop the research hypotheses in section 3. The subsequent sections present the research methodology followed by analysis and results. The paper concludes with the discussion, conclusions and further research.

## **2. Theoretical background**

Management researchers have recently been using the knowledge-based view (KBV) as the theoretical underpinning for their studies, likely realising that knowledge provides a foundation for organisational learning (Onofrei et al., 2019, Secchi and Camuffo, 2016, Hsu and Sabherwal, 2012, Menor et al., 2007). According to the KBV, all knowledge stems from the individual while the organisation acts as tool to facilitate knowledge distribution (Grant, 1996). An offshoot of the resource-based view (RBV) (Barney, 1991), the KBV considers knowledge as a core strategic resource for a firm, hence similarities can be made between it and the RBV (Hitt et al., 2016, Hsu and Sabherwal, 2012, Grant, 1996). Developing and disseminating tacit and explicit knowledge in a firm may lead to competitive advantage (Zhang et al., 2018). Grant (1997, 1996) suggests that employees, as the creators of knowledge, are the paramount stakeholders in an organisation and it is the role of the organisation and management to promote

knowledge and its exchange, through developing structures for the creation, development and dissemination of knowledge.

## ***2.1 Social capital (SC)***

SC, a dimension of intellectual capital, may be described as a firm's relationships with its stakeholders and the resources acquired therein (Liao, 2018, Ferreira and Franco, 2017). Several authors suggest that intellectual capital, a company's intangible resources, are an indispensable source of value creation and is a popular measure of wealth (Subramaniam and Youndt, 2005, Youndt and Snell, 2004, Youndt et al., 2004, Ekins, 1998, Stewart, 1997). SC can be utilised to access resources from financing to innovation to market opportunities (Roxas, 2021). Kang and Snell (2009) describe SC as knowledge available through relationships within an organisation, facilitating internal information exchange. Further to this, some authors consider SC to consist of relationships both within the company and externally, suggesting that knowledge exchange is important between employee and employee, and between a firm and its suppliers (Carey et al., 2011, Nahapiet and Ghoshal, 1998). SC is seen as a resource that cannot be owned, rather, it can only be generated (or dissolved) through the interactions and knowledge exchanges of individuals (Anderson et al., 2007). Additionally, SC, unlike other forms of capital (e.g. physical capital), increases with use (Nahapiet and Ghoshal, 1998). Nahapiet and Ghoshal (1998) introduced three sub-elements of SC: cognitive, relational and structural SC. The cognitive element refers to shared goals and values among people in a social system; the relational element regards trust, respect, friendships and obligations; the structural element involves the strength of the ties between actors in the social system (Carey et al., 2011, Villena et al., 2011, Nahapiet and Ghoshal, 1998). Deriving from these elements, Kang et al. (2007) introduce two differing, yet complementary, dimensions called entrepreneurial and cooperative SC; respectively associated with explorative and exploitative learning.

### ***2.1.1 Entrepreneurial social capital (ESC)***

ESC is associated with traits including: enough common knowledge to recognise the value of new learnings; bilateral trust with necessary players for individual advancement; and weak, yet beneficial relationships. These qualities fall under the cognitive, relational and structural elements respectively (Kang et al., 2007, Nahapiet and Ghoshal, 1998). Entrepreneurship

involves finding new and superior methods of working, and noticing opportunities to fulfil these methods (Teece, 2007). ESC may be regarded as the development of fresh opportunities via new professional networks which were created by individuals seeking career progression (Swart and Kinnie, 2013). This view of the concept is, arguably, similar to the cultural dimension of low 'humane orientation' within an organisation, where individuals act opportunistically and are influenced by the possibility of personal advancement (Bortolotti et al., 2015). An individual may be entrepreneurial in that they are seeking methods to advance themselves by creating opportune linkages. Looking outside of their immediate firm or working group may provide a valuable advantage to the person, yet it emphasises the lack of collective trust and cooperation associated with ESC (Kang and Snell, 2009) as these individuals may choose to do so without the consideration of their team.

### *2.1.2 Cooperative social capital (CSC)*

Within the cognitive, relational and structural elements of SC, the cooperative side is affiliated with a common understanding of working operations; trust among the working group; and robust relationships. CSC is based on institutionalised trust (Swart and Kinnie, 2013). Within a social group, this form of SC involves strong connections among actors and supports comprehensive procurement and dissemination of knowledge (Kang and Snell, 2009). In the words of Kang and Snell (2009), "strong and dense social connections are advantageous for improving employees' opportunities to acquire fine-grained and in-depth knowledge in limited content domains" (p.239). This shared working language and interdependence of employees likely has the advantage of exploiting expertise. Hence, CSC looks to combine the knowledge of those working in the social group to create and retain value, and avoid this knowledge and information being shared firm wide or externally. This retention of knowledge may have the benefit of making better use of a company's current operational resources and avoid exposure of their processes to outsiders. Although, this attitude may be harmful to an organisation's prospects of innovation (Kang et al., 2007).

## *2.2 Operational performance*

Operational performance is considered to be a firm's ability to be consistently correct, on-time and flexible where appropriate, all while being cost effective (Zhang et al., 2016, Ahmad and

Schroeder, 2003, Flynn et al., 1999). It is generally accepted that operational performance is a multidimensional construct, yet indicators are not consistent throughout the literature. However, within the operations management discipline, a list of agreed upon measures were developed to measure operational performance (Krause et al., 2007). These are quality, delivery, flexibility and cost (Bhatia, 2021, Chavez et al., 2020, Chavez et al., 2016). Rho and Yu (1998) describe quality performance as an exogenous construct and measure of conformance. Delivery performance refers to a firm's capacity for quick, reliable delivery of a product or service to the customer (Santos Bento and Tontini, 2018). Flexibility is concerned with a company's ability to respond to an unpredictable market environment and changing customer needs (Bortolotti et al., 2015, Krause et al., 2007). Cost, finally, incorporates any of the finances involved in running operations and often indicates price in comparison to competitors, or total operating costs (Santos Bento and Tontini, 2018).

### **3. Research Hypotheses**

#### ***3.1 Social capital dimensions and operational performance***

Empirical studies have shown the benefits of SC on operational performance (Zhang et al., 2017, Carey et al., 2011, Villena et al., 2011). Aligning with the KBV and recognising the value of workers' knowledge, Zhang et al. (2017) found that SC can improve operations' speed, flexibility and responsiveness through employee knowledge exchange. These authors proceed to state that SC does not have a direct effect on process improvement as the concept is tacit, though it can be mediated through structural capital, i.e., this knowledge exchange between employees can be codified, documented and disseminated. Studies have shown that SC can increase a sense of community and belonging in work, leading to greater willingness to share knowledge and skills, thus improving productivity (Kwon and Adler, 2014). Adversely, too much or too little SC can damage operational performance and outcomes; suggesting that the construct is subject to diminishing returns (Villena et al., 2011). Regardless, the management of social relations is pivotal to organisational learning (Kang et al., 2007).

A significant amount of the SC literature approaches the construct with characteristics associated with CSC, including shared knowledge, trust, obligation and/or commitment (e.g. Roden and Lawson, 2014, Carey et al., 2011, Krause et al., 2007). ESC is associated with an individualistic working style, that is, employees may be more concerned with their own personal advancement than that of the collective or the company. An individualistic stance on

using social networks to gain information insight can lead to an improvement in individual performance and achievement of key performance indicators compared to those who focus on collaboration (Soda et al., 2018). However, there is little evidence to suggest that ESC characteristics can directly improve an organisation's quality or overall operational performance. Taking Bortolotti et al.'s (2015) high humane orientation and low humane orientation as synonymous with CSC and ESC respectively, their study found that companies with a high humane orientation performed better in terms of quality conformance compared to those with low orientation. Examples can be found where investments in CSC development is unlikely to create a positive impact on quality performance; but an environment with high internal competition and opportunistic behaviour (i.e. ESC) may have difficulty in finding quality issues as there is little incentive to work together to solve the issue (Bachrach et al., 2017, Kull and Wacker, 2010). A study of operational agility in retail banks showed that banks with a high level of the cohesive knowledge sharing associated with CSC had increased quality performance due to implementing strategies which were well integrated and cross-functional (Menor et al., 2001). Banks who adopted this SC had greater quality performance compared to competitors, with customer-employee relationships being at the forefront of the concept. This front of house relationship showed the importance of feedback and data from customers which can then be operationalised into performance improvement (Melton and Hartline, 2010). From a manufacturing perspective, employee involvement and managerial commitment (i.e. CSC) can lead to an improvement in product quality and a reduction in defects (Chavez et al., 2013). Similarly, cooperative relationships with customers can lead to improved quality by gathering customer input in the product design process and requesting feedback on the finished good (Flynn et al., 1995). Furthermore, Flynn et al. (1995) advocate for cooperative relationships with suppliers so that product information may be shared and an interdependent relationship established. The psychological safety found in a CSC environment would allow for the safe articulation of problems found in the system (Zhang et al., 2017, Lee et al., 2011). An ESC environment may not allow for such openness, particularly if there is fear of blame involved. This leads us to the first hypothesis:

*H1: Cooperative social capital will have a greater impact on quality performance than entrepreneurial social capital.*



CSC is compatible with delivery performance. It is, arguably, logical to assume that joint efforts within a working group would lead to greater reliability between the functions involved. CSC “tends to enforce repeated cycles of knowledge exchange and combination” (Kang and Snell, 2009, p.77). Looking at the operations management discipline, the standardisation and easy relaying of process knowledge has generally been considered a useful tool for operational performance, particularly in industries with high staff turnover or seasonal workers (Sancha et al., 2020, Zhang et al., 2017). Cooperation among employees can lead to the exploitation of operational resources in a more efficient manner (Lepak et al., 2007). This cooperation, which is often relied upon for delivery performance, opposes the nature of ESC and its characteristics, such as weak relationships and individualistic style that, by definition, is unconcerned with the common goal of the collective (Su and Chen, 2013). Opportunistic tendencies found in an ESC environment may make cooperation more difficult as blame for errors in the process tends to be put on individuals rather than the system (Kull and Wacker, 2010). Studies have found that interdepartmental and inter-team collaboration helped avoid misunderstandings and confusion between organisational functions, thus overcoming delivery delays (Flynn et al., 1994). Furthermore, at a supply chain level, CSC, represented by customer, supplier and employee integration. This integration allows for the smooth exchange of product, process, scheduling and capability information through the supply chain, resulting in improved delivery performance (Flynn et al., 2010). In addition to enhanced quality performance outlined above, Bortolotti *et al.* (2015) also found that companies inclined towards the characteristics of CSC had better delivery performance than those with ESC. CSC also facilitates knowledge acquisition and information sharing in buyer-supplier relationships in some firms (Zhang et al., 2016). Clear relaying and understanding of facts, such as supplier delivery times, means that buyers can potentially improve delivery performance. This is backed up by the result of Krause *et al.*'s (2007) study of buyer-supplier relationships in which shared values, in addition to information sharing, are noted to assist with delivery performance. One study found that, by employing CSC characteristics, delivery performance increased due to a clear understanding of customers and competitors in retail banking services (Menor et al., 2001).

*H2: Cooperative social capital will have a greater impact on delivery performance than entrepreneurial social capital.*

When considering flexibility performance, both CSC and ESC could have potential benefits. The detached nature of ESC suggest that the individual may respond to environmental changes as and when needed (Kang and Snell, 2009). Conversely, the connected nature of CSC means workers may support each other through changing conditions as a CSC environment helps with the absorption of both tacit and explicit knowledge (Zhang et al., 2017, Krause et al., 2007, Adler and Kwon, 2002). A case study of one project management office found that managerial practices hindering ESC ended up negatively affecting project performance as employees were discouraged from speaking to people outside of their appointed working group (Turner and Lee-Kelley, 2013). The study did not directly mention flexibility performance in relation to operations. However, it could be argued that this lack of flexibility in communication channels could lead to a lack of flexibility to deal with operational changes. Kang et al. (2007) posit that ESC is a means for developing flexibility, particularly with regards to the development of new networks and the adaption of processes to suit a dynamic environment. Expanding on Kang et al.'s concept, Medcof and Song's (2013) empirical research showed that ESC in the form of less formal work structures lead to increased flexibility of work processes. Primarily, the flexibility associated with ESC is related to the expansion, acquiring and absorption of new knowledge rather than flexibility from an operational performance perspective, and may even hinder exploitation capabilities (Kang and Snell, 2009). In this study, flexibility relates to an operation's capability to efficiently use its internal resources to quickly and easily change output levels or lead times in response to customer demand (Bhatia, 2021, Chavez et al., 2016). In some studies, high levels of trust and shared values (i.e. characteristics of CSC) are considered perquisites for flexibility performance and improvement (Wiengarten et al., 2017, Krause et al., 2007). Similarly, CSC characteristics like a dense network of relationships, commitment and an accumulated knowledge of the roles of others can increase flexibility (Shaw et al., 2005). As mentioned, the flexibility associated with ESC, however, may be more suited to innovation or exploring new markets by looking outside of the firm. CSC, then, may be more useful for exploiting current flexibility capabilities within the firm as a high level of interaction among workers is needed (Schultz et al., 2003). Therefore, consideration of the operational viewpoint has led to the following hypothesis:

*H3: Cooperative social capital will have a greater impact on flexibility performance than entrepreneurial social capital.*

Cost is possibly the most important or, at least, the most considered aspect of operational performance. Cost incorporates any of the finances involved in running operations and can be influenced by the other performance objectives; therefore, its focus is justifiable. High levels of cooperation between marketing and operations departments in companies can lead to lower unit costs (Sawhney and Piper, 2002). These complementary relationships help improve quality, speed and dependability, thus improving cost performance. Similarly, implying CSC, improvements in cost performance can come as a result of shared goals, objectives, mutual trust and interdependence within and between organisations (Wiengarten et al., 2017, Carey et al., 2011). Specifically, Krause et al. (2007) found that shared values and buyer-supplier dependence (i.e. CSC) influenced cost performance of buying companies. However, overinvestment in these attributes could lead to negative consequences, such as increased risk of opportunism, resulting in decreased return on buyer investments (Villena et al., 2011). In their study of individualism and collectivism cultures (synonymous with ESC and CSC respectively), Su and Chen (2013) found that companies with collective environments benefited from both direct and indirect conceptual learning (learning before doing) and operational learning (learning by doing) which, in turn, positively impacted cost performance. Companies with individualistic natures only benefited from conceptual learning indirectly which had a lower impact on cost performance. These findings imply that CSC may be more beneficial to cost performance than ESC. As mentioned before, ESC may be more suited to innovation or explorative activities (Kang and Snell, 2009). While new product or service innovations could have a positive impact on a firm's profitability in the future, this study is looking at the utilisation of a firm's current operational resources, particularly the expertise and experiences shared among a working group. This expertise may get neglected if an individual is trying to pursue knowledge or open new channels elsewhere.

*H4: Cooperative social capital will have a greater impact on cost performance than entrepreneurial social capital.*

## **4. Research Method**

### ***4.1 Sample and data collection***

Data for this study were collected from service and manufacturing firms on the island of Ireland over three months spanning from mid-September to mid-December 2019. These sectors performed greatest in terms of annual turnover on the island (Central Statistics Office, 2019).

With the firm as the unit of analysis for the study (Forza, 2002), a sample of 1380 companies was randomly chosen using the Financial Analysis Made Easy (FAME) database which contains information on firms in both the Republic of Ireland and Northern Ireland. The firms chosen were mixed in size, therefore, single respondents from each organisation was considered sufficient (Chavez et al., 2020). In a bid to reduce this common method bias, a ‘profile and demographics’ section was included in the questionnaire to screen the capability of the respondent to provide the required information (Podsakoff et al., 2003).

Before distribution, the survey was reviewed by a number of colleagues and academics, and piloted using ten companies in the target audience (Forza, 2002). The questionnaire was then distributed using an online survey tool, along with physical distribution of questionnaires by the researchers. A total of 220 questionnaires were received, of which 182 were usable, leading to a 13.2% response rate. This sample size was deemed adequate for further analysis (Hair et al., 2010). See the sample demographics in table 1.

Table I Sample demographics

|                   | Number of employees |       |        |      | Total |
|-------------------|---------------------|-------|--------|------|-------|
|                   | 1-16                | 17-56 | 57-250 | 251+ |       |
| Annual turnover   |                     |       |        |      |       |
| €750 k or less    | 19                  | 1     | 2      | 0    | 22    |
| €750 k - €2 mil   | 17                  | 14    | 0      | 3    | 34    |
| €2 mil - €10 mil  | 6                   | 19    | 13     | 6    | 44    |
| €10 mil - €50 mil | 2                   | 9     | 26     | 5    | 42    |
| Above €50 mil     | 3                   | 1     | 5      | 31   | 40    |
| Total             | 47                  | 44    | 46     | 45   | 182   |

#### 4.2 Questionnaire design and measures

The research questionnaire was designed following the guidelines provided by previous studies, such as Malhotra and Grover (1998) and Forza (2002). The first section of the questionnaire asked respondents information about their position, company size, turnover and age of the facilities. Section two of the questionnaire focused on the SC dimensions (ESC and CSC). A 7-point Likert scale was used ranging from “1: strongly disagree” to “7: strongly agree” to measure the respondent’s degree of agreement with a set of statements related to the SC dimensions. The ESC dimension consisted of four scales adapted from Onofrei et al. (2019) and Kang et al. (2012). The CSC dimension contained four scales, adapted from Bortolotti et al. (2015) and Kang et al. (2012). The final section of the questionnaire measured operational

performance using four dimensions: cost, quality, delivery, and flexibility. Aligning with much of the operations management literature, perceptual measures were used to gauge operational performance indicating how the respondent considers their company's performance in relation to competitors (Chavez et al., 2020). All the performance measures were adapted from previous studies (Wudhikarn et al., 2018, Negrão et al., 2017). In order to increase the generalisability of the study, we used company size (Durand and Coeurderoy, 2001) and industry sector (Hines et al., 2004) as control variables. Company size was selected as a control due to the fact larger companies tend to have higher budgets to invest in manufacturing practices. Also, certain industries tend to be more proactive towards investments in their firms' capabilities.

#### ***4.3 Nonresponse bias and common-method bias***

An independent samples t-test was used to test early and late respondents for non-response bias. Levene's Test for equality of variance revealed there was no statistically significant difference between the two groups at the 0.05 level, indicating that the potential for non-response bias was not present. This test considers that the late respondents as non-respondents (Armstrong and Overton, 1977). Given the fact that the study relied on a single respondent to provide the responses to the questionnaire, common method variance was a concern (Zu et al., 2010). Harman's one-factor test was performed and accounts for 27.796 percent of variance. A post hoc test was also performed accounting for 33.673 percent. This implies that the common method variance is not a threat as it is below the maximum widely accepted one-factor value of 50 percent (Fuller et al., 2016). Studies such as Wagner and Kemmerling (2010) suggest a complementary approach to testing non-response bias, when the respondents cannot be contacted due to data anonymity issues. Therefore, in order to further corroborate the non-response bias, we carried out independent sample t-tests to compare surveys from questionnaires that were fully completed to those that were only partially completed. This approach is considered more rigorous (Wright and Armstrong, 2008), as it uses the incomplete surveys as a proxy for non-respondents and are not included in our sample. The results were non-significant highlighting that there were no differences between complete and incomplete questionnaires ( $p > 0.05$ ), further reinforcing the absence of non-response bias.

## 5. Data Analysis and Results

### 5.1 Measurement model assessment

Confirmatory factor analysis (CFA) was used to validate all the measures (ESC, CSC, quality, delivery, flexibility, and cost) used in this study and to confirm our proposed factor structures. The results are presented in Table II.

Table II. CFA of the complete model

| Construct                                                                                                                                                          | Indicators                                 | Factor loadings | S.E.  | C.R.   | P   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------|-------|--------|-----|
| <b>Entrepreneurial Social Capital</b><br>CR = 0.889<br>AVE = 0.670<br>Alpha = 0.886                                                                                | Informal individual conversations          | 0.896           |       |        |     |
|                                                                                                                                                                    | Introduce one another to new contacts      | 0.881           | 0.055 | 15.591 | *** |
|                                                                                                                                                                    | Expectation of favours                     | 0.757           | 0.064 | 12.352 | *** |
|                                                                                                                                                                    | Relationships varied and temporary         | 0.725           | 0.063 | 11.559 | *** |
| <b>Cooperative Social Capital</b><br>CR = 0.851<br>AVE = 0.596<br>Alpha = 0.863                                                                                    | Work in the same group                     | 0.864           |       |        |     |
|                                                                                                                                                                    | Mutual trust and respect                   | 0.640           | 0.083 | 9.519  |     |
|                                                                                                                                                                    | Common understanding                       | 0.588           | 0.087 | 8.529  | *** |
|                                                                                                                                                                    | Discuss issues openly                      | 0.839           | 0.080 | 13.989 | *** |
| <b>Quality</b><br>CR = 0.845<br>AVE = 0.646<br>Alpha = 0.838                                                                                                       | Product/service performance                | 0.838           |       |        |     |
|                                                                                                                                                                    | Conformance to customer specifications     | 0.847           | 0.080 | 12.244 | *** |
|                                                                                                                                                                    | Pre-sales and after sales service          | 0.721           | 0.093 | 10.286 | *** |
| <b>Delivery</b><br>CR = 0.909<br>AVE = 0.770<br>Alpha = 0.908                                                                                                      | Delivery speed                             | 0.856           |       |        |     |
|                                                                                                                                                                    | Delivery reliability                       | 0.911           | 0.064 | 15.952 | *** |
|                                                                                                                                                                    | Response to changes                        | 0.863           | 0.064 | 14.806 | *** |
| <b>Flexibility</b><br>CR = 0.844<br>AVE = 0.649<br>Alpha = 0.837                                                                                                   | Flexibility of product/service volume      | 0.899           |       |        |     |
|                                                                                                                                                                    | Flexibility of product/service mix         | 0.867           | 0.066 | 13.708 | *** |
|                                                                                                                                                                    | New products/services introduced each year | 0.623           | 0.068 | 9.069  | *** |
| <b>Cost</b><br>CR = 0.829<br>AVE = 0.618<br>Alpha = 0.826                                                                                                          | Labour unit costs                          | 0.721           |       |        |     |
|                                                                                                                                                                    | Resource unit costs                        | 0.821           | 0.107 | 9.537  | *** |
|                                                                                                                                                                    | Total production/service costs             | 0.813           | 0.110 | 9.499  | *** |
| $\chi^2=1.548<3$ , GFI=0.901, NFI=0.908, IFI=0.961, TLI=0.951, CFI=0.961, all greater than 0.9, acceptable RMSEA=0.055. ***significant at 0.001 level (two-tailed) |                                            |                 |       |        |     |

By comparing the items, coefficients and associated standard errors we checked for unidimensionality and convergent validity (Farrell and Rudd, 2009). Each coefficient was greater than twice its related standard error. All the factor loadings were high, ranging from 0.588 to 0.939. The average variance extracted (AVE) values for each construct ranged from 0.618 to 0.770, which were all above the threshold of 0.5, showing convergent validity. The

composite reliability (CR) values ranged between 0.829 and 0.909, exceeding the recommended limit of 0.6 (Fornell and Larcker, 1981). Additionally, we used the heterotrait-monotrait (HTMT) ratio of correlations to assess the inter-factor correlations (Henseler et al., 2015). All values (see table III), below the diagonal, are lower than 0.85, confirming discriminant validity. This means that at construct level, the scales measure the concepts which are supposed to measure. To assess the internal consistency (reliability) we computed the Cronbach's alpha coefficient for each construct. The values obtained ranged from 0.826 to 0.908, all exceeding the minimum value of 0.7, showing reliable measures (Peterson, 1994).

Finally, to assess the goodness of fit of the proposed model, we compared the fit indices against the Hu and Bentler (1999) thresholds and the results showed that the model is satisfactory ( $\chi^2=1.548$ , Goodness of Fit (GFI)=0.901, Normed-Fit Index (NFI)=0.908, Incremental Fit Index (IFI)=0.961, Comparative Fit Index (CFI)=0.961, all greater than 0.9 and acceptable Root Mean Square Error of Approximation (RMSEA)=0.055). Thus, we concluded that the measurement items represented the main factor structure in a categorical manner (Wang and Wang, 2012).

Table III. Inter-factor correlations

| Constructs                         | Mean | (1)              | (2)              | (3)              | (4)              | (5)              | (6)              |
|------------------------------------|------|------------------|------------------|------------------|------------------|------------------|------------------|
| Entrepreneurial Social Capital (1) | 1.21 | 0.670<br>(0.919) |                  |                  |                  |                  |                  |
| Cooperative Social Capital (2)     | 4.61 | -0.192*          | 0.596<br>(0.772) |                  |                  |                  |                  |
| Quality (3)                        | 6.38 | -0.078           | 0.168*           | 0.646<br>(0.804) |                  |                  |                  |
| Delivery (4)                       | 7.04 | -0.107           | 0.324***         | 0.640***         | 0.770<br>(0.877) |                  |                  |
| Flexibility (5)                    | 7.48 | -0.145           | 0.337***         | 0.580***         | 0.626***         | 0.649<br>(0.806) |                  |
| Costs (6)                          | 6.23 | 0.110            | 0.211*           | 0.526***         | 0.401***         | 0.345***         | 0.618<br>(0.786) |

Value on the diagonal is the AVE and its square root in brackets; \*\*\*Correlation is significant at the 0.001 level (2-tailed); \*Correlation is significant at the 0.01 level (2-tailed)

In the second stage of our analysis, to test the proposed hypotheses, we used four OLS regressions (Onofrei et al., 2019, Wiengarten et al., 2017). Prior to executing the regressions, we checked the assumptions of normality, linearity, homoscedasticity and independence of residuals (Osborne and Waters, 2002). Using the residuals scatterplots, we assessed and confirmed that: residuals were normally distributed about the predicted dependent variable (DV) scores (normality); the residuals were closely to a straight-line relationship with the

predicted DV scores (linearity); and the variance of the residuals about the predicted DV scores is similar for all predicted scores (homoscedasticity). To test the relationship among the independent variables (multicollinearity) we calculated the correlation coefficients. The results show that all inter-factor correlations are below the 0.7 threshold, indicating the absence of multicollinearity (Tabachnick et al., 2007). The results of the OLS regressions are presented in Table IV.

Table IV. OLS regression results

|                                | <b>Model 1</b>      | <b>Model 2</b>      | <b>Model 3</b>      | <b>Model 4</b>      |
|--------------------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Dependent Variable</b>      | Quality             | Delivery            | Flexibility         | Cost                |
| <b>Independent Variables</b>   |                     |                     |                     |                     |
| Industry type                  | 0.023 (0.758)       | 0.106 (0.139)       | 0.037(0.607)        | 0.002 (0.976)       |
| Number of Employees            | 0.042 (0.580)       | -0.039 (0.585)      | 0.027(0.706)        | 0.045 (0.540)       |
| Cooperative Social Capital     | 0.189*              | 0.347***            | 0.358***            | 0.280***            |
| Entrepreneurial Social Capital | -0.050(0.511)       | -0.048(0.505)       | -0.088(0.219)       | 0.177(0.017)**      |
| Max VIF                        | 1.074               | 1.057               | 1.074               | 1.076               |
| R                              | 0.202               | 0.369               | 0.381               | 0.297               |
| Adjusted R <sup>2</sup>        | 0.019               | 0.117               | 0.126               | 0.068               |
| Sig.                           | 0.011               | 0.000               | 0.000               | 0.002               |
| <b>Outcome</b>                 | <b>H1 supported</b> | <b>H2 supported</b> | <b>H3 Supported</b> | <b>H4 Supported</b> |

The values presented are the standardised coefficients. \*\*\*Correlation is significant at the 0.001 level (2-tailed); \*\* Correlation Significant at the 0.05 level (2-tailed); \*Correlation is significant at the 0.01 level (2-tailed)

In H1, it was argued that CSC has a greater impact on quality performance than ESC. Our results show that CSC has a significant impact on quality performance, while the ESC impact was not significant. This finding is in line with Menor et al. (2001) argument that companies which focus on developing high level of cohesive knowledge sharing and collegiality, report an increase in quality performance. This improvement in performance comes as a result of better team integration and more efficient cross-functional knowledge transfer. Furthermore, CSC promotes employee involvement and managerial commitment, which in turn may lead to higher product quality and reduced number of defects (Lee et al., 2011). The results for H2 indicate that CSC has a greater impact on delivery performance than ESC. Su and Chen (2013) found that co-dependencies and close relationships represent key elements for delivery performance. When it comes to buyer-supplier relationship, sharing values and having strong



SC leads to better results (Carey et al., 2011). Our findings corroborate this view and highlight the need for companies to build CSC to develop strong relationship among their employees, as opposed to ESC which promotes an individualistic culture. Our H3 received support, showing the significant impact that CSC has on flexibility performance. Although in the literature we found mixed results with both CSC (Krause et al., 2007) and ESC (Kang et al., 2007) having a positive impact on flexibility, our results, taking the operational viewpoint suggest that CSC can be a useful vehicle for exploiting current capabilities, where the ESC has no significant impact. The lack of impact of ESC on flexibility, may be explained by this type of SC being more suitable for innovation or exploration of new markets outside of the firm boundaries. In H4, we posited that CSC has a greater impact on cost than ESC. Our results support this hypothesis and share the similar view with Krause et al. (2007) and Kang and Snell (2009). Having a collective culture will foster communication across departments and may facilitate cost reduction (Sawhney and Piper, 2002). This is in line with Su and Chen (2013)'s argument that companies with individualistic cultures do not benefit from conceptual learning directly or knowledge sharing, therefore the cost savings might be indirect or not significant.

## **6. Discussion and conclusion**

### ***6.1 Theoretical contributions***

This study investigated the impact of ESC and CSC on operational performance by empirically testing the SC framework proposed by Kang et al. (2007) from an operational viewpoint as measured by quality, delivery, flexibility and cost. Previous research suggests that CSC utilises knowledge to exploit resources while ESC may be more disposed to innovation (Turner et al., 2015, Kang and Snell, 2009). Despite this, there are limited, if any, quantitative studies showing the impact of these SC dimensions on individual measures of operational performance. This analysis responds to calls to broaden and develop the field of operations by looking to other management fields (Roth et al., 2016, Kang and Snell, 2009) and gain further insight into the dimensions of intellectual capital while including respondents from both the services and manufacturing sectors (Onofrei et al., 2020, Onofrei et al., 2019). As hypothesised, CSC had a significant impact on each of the dimensions of operational performance whereas ESC was non-significant. This result corroborates with prior studies that posited and showed that CSC and its characteristics facilitate the exploitation of working knowledge. This, in turn,

provides workers the capacity to utilise current resources and abilities potentially improving competitive advantage. (Turner and Lee-Kelley, 2013, Kang and Snell, 2009).

This study contributes to the literature in three ways. Firstly, this study extends the use of the KBV from an operations perspective by specifically addressing the exchange of knowledge through internal relationships within an organisation. Roth and Menor (2003) predicted that the operations management field will steer towards a KBV to enhance theory and managerial implications. Arguably, this prediction may be deemed accurate. Many researchers in the operations management discipline have since used this theoretical perspective, acknowledging that knowledge provides the foundation for organisational learning and advancement (Onofrei et al., 2019, Secchi and Camuffo, 2016, Hsu and Sabherwal, 2012, Menor et al., 2007). Secondly, this study provides a novel theoretical contribution to the SC literature by further delving into the concept and empirically testing the ESC and CSC dimensions on operations. Kang et al. (2007) introduced the notion of ESC and CSC in relation to human resource archetypes for developing exploratory and exploitative knowledge. Since then, to our knowledge, studies on the concepts have been limited. Kang and Snell's (2009) conceptual paper expanded on ESC and CSC along with the other intellectual capital dimensions. Turner and Lee-Kelley (2013) and Turner et al. (2015) qualitatively investigated the concepts in relation to organisational ambidexterity, and Swart and Kinnie (2013) used multiple cases to investigate the management of knowledge assets. This study aimed to take an operational view point to investigate how ESC and CSC can impact operational performance. While SC has been studied extensively in the operations management discipline, the ESC and CSC dimensions have not. Moreover, SC as a concept in the operations field generally envelops trust, collaboration and shared values. These traits are typically associated with CSC. As a result, there is little knowledge on ESC in the field. Thus, this study looked to other fields to draw upon the literature to develop theory and hypotheses relevant to operations. In line with previous operations studies (Krause et al., 2007, Menor et al., 2001), this study reveals that the CSC dimension had a significant positive impact on the four measures of operational performance (quality, delivery, flexibility and cost). This suggests that shared values and language are beneficial to relationships and may lead to more knowledge sharing that, in turn, may reduce operational supply risk in addition to operational performance (Chowdhury et al., 2019).

Thirdly, this study adds to the operations literature by decomposing operational performance into four individual constructs to be tested. Other studies (e.g. Onofrei et al., 2019) consider

operational performance as a single construct whereas this study assesses whether the CSC or ESC dimension proves better for quality, delivery, flexibility or cost. As stated, our results show that CSC had a positive impact on each of the dimensions whereas ESC did not. This implies that companies in this study with a more individualistic focused environment did not perform as well as those with a collective nature. Therefore, the creation of CSC may effectively improve quality, flexibility, delivery and cost performance (Huo et al., 2016, Zhang et al., 2016, Chavez et al., 2013, Medcof and Song, 2013). Having this shared language, trust and willingness to exchange knowledge allows for the exploitation of tangible and intangible resources for the betterment of performance.

## ***6.2 Practical implications***

From a practical view, managers may benefit from these research outcomes by understanding the differences between ESC and CSC and their role in the development of cost, quality, delivery and flexibility performance. Having an idea of which dimension proves best for a particular outcome might mean that managers can identify whether or not their SC needs attention and can, in turn, develop a mechanism to improve these attributes (Turner and Lee-Kelley, 2013). Kang et al. (2007) propose a number of components to help manage an entrepreneurial and/or cooperative environment. Incorporating flexibility into the work structure is the first measure suggested for ESC. This might involve having a short-term working group that spans over a number of departments in an organisation to allow for the transfer of skills. Other features, such as individual performance incentives or the development of specialised skills in a number of knowledge or working areas tend also to foster ESC. Considering CSC, a symbiotic structure is more likely, that is, work is collective rather than individual. Furthermore, team building to engender trust among employees is important to cooperation. It, therefore, would be advisable that practitioners invest in the development of relationships among working groups to establish psychological safety so knowledge may be shared without the fear of apprehension or rejection (Lee et al., 2011). As Ireland is a small market on the outskirts of Europe, indigenous companies must look globally to expand. However, along with the opportunities associated with an open economy (e.g. larger market) comes increased competition from international companies (Ekins, 1998). Ireland is ranked as one of the most expensive countries in Europe (Central Statistics Office, 2021) making it less feasible for indigenous companies to compete internationally on cost. Thus, Irish firms must

look to their intangible assets to compete. Managers may benefit from the outcome of this research by understanding the differences between ESC and CSC and their role in the development of operational performance in terms of cost, quality, delivery and flexibility performance. Moreover, as Ireland develops as a knowledge economy, policymakers who support business development should encourage firms to recognise how the sharing and utilising of knowledge can impact performance.

**6.3 Limitations and further research** This study endeavoured to provide a greater insight into the relationship between SC and operational performance by assessing the ability of ESC and CSC to predict operational performance. Our results imply that, in order to enhance operational performance, it would be beneficial for organisations' management to foster CSC by developing and nurturing cooperative relationships and institutionalised trust (Swart and Kinnie, 2013). Although this study made a number of contributions to literature and practice, some limitations must be noted. Firstly, as surveys were used to collect data, the study is cross-sectional in nature, showing only a 'snapshot' of each of the surveyed organisations at a particular moment in time (Hair et al., 2007). This time horizon makes it difficult to imply a causal relationship. A longitudinal study may be beneficial and this may make causal relationships more explicit (Saunders et al., 2015). Secondly, this study only assesses impact on operational performance. The inclusion of other performance measures, such as innovation or financial performance, may make the study more robust and provides an opportunity for future study. Finally, this study was conducted on the island of Ireland only. Because of this, the findings are only reflective of the experiences of Irish workplaces in relation to SC and operational performance and, therefore, care should be taken in generalising these findings (Roden and Lawson, 2014).

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