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Is it time to jump off the Intellectual Capital bandwagon for SMEs?

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ABSTRACT

In today's knowledge-based society, intangibles are providing crucial resources for the firm's survival and growth. In particular, intellectual capital (IC) should be properly managed to increase economic value. However, the conceptualization of this construct is mainly grounded on the features of large firms even if the relevance of SMEs in the economy at international level is growing. To answer to the call for more IC research in SMEs, this study adopts a structured literature review to understand how the concept of IC is conceived in SMEs, by analysing IC components that mainly impact SMEs' performance. Results show that a core and diversified set of IC dimensions is supporting different areas of performance. IC in SMEs is conceived of as a wider concept compared to existing frameworks. Results show that intangibles play a fundamental role in SMEs, and, therefore, their proper measurement and management becomes of vital importance for SMEs. Results from this study enrich the literature on the conceptualization of IC by focusing on a specific typology of firm, which deserves specific research effort, it extends the knowledge of IC in practice, by focusing on the items of IC with a relevant role in affecting SMEs performance and it provides support to the role of IC management in SMEs.

Nell'odierna società basata sulla conoscenza, i beni immateriali forniscono risorse cruciali per la sopravvivenza e la crescita dell'impresa. In particolare, il capitale intellettuale (IC) dovrebbe essere adeguatamente gestito per aumentare il valore economico. Tuttavia, la concettualizzazione di questo costrutto si basa principalmente sulle caratteristiche delle grandi imprese anche se la rilevanza delle PMI nell'economia a livello internazionale è in crescita. Per rispondere all'appello per una maggiore ricerca sul IC nelle PMI, questo studio adotta una revisione strutturata della letteratura per capire come il concetto di IC sia concepito nelle PMI, analizzando i componenti IC che influiscono principalmente sulle prestazioni delle PMI. I risultati mostrano che un insieme fondamentale e diversificato di dimensioni IC supporta diverse aree di prestazioni. L'IC nelle PMI è concepito come un concetto più ampio rispetto ai quadri esistenti. I risultati mostrano che i beni immateriali svolgono un ruolo fondamentale nelle PMI e che, pertanto, la loro corretta misurazione e gestione diventa di vitale importanza per le PMI. I risultati di questo studio

arricchiscono la letteratura sulla concettualizzazione dell'IC concentrandosi su una specifica tipologia di impresa, che merita uno sforzo di ricerca specifico, estende la conoscenza dell'IC nella pratica, concentrandosi sugli elementi dell'IC con un ruolo rilevante nell'influenzare le PMI performance e fornisce supporto al ruolo della gestione del CI nelle PMI.

Keywords: Intangible assets, Intellectual capital, SMEs, Structured Literature Review, Performance

1 – Introduction

Previous studies (Carrillo, Mohamed, Stankosky & Mohamed, 2009; Oliveira, Lima Rodrigues & Craig, 2010) argued that "intellectual capital (IC) marks the transition to innovative, competitive and sustainable development" (Alvino, Di Vaio, Hassan & Palladino, 2020, p. 76). Indeed, the concept of IC includes intangible assets that are vital for the long-term value creation process of the firm, that is needed for sustainability (Crouch, 2006; Zu & Fink, 2003; Xu & Wang, 2018; Jardon & Martinez-Cobas, 2019; Gond & Brès, 2020).

In today's knowledge-based society, the value of intangible resources is greater than tangible assets and, thus, fundamental for the firm's survival and growth (Nonaka & Takeuchi, 1995; Russell, 2017) since they are providing more and more crucial resources for the economic value for companies (Fincham & Roslender, 2003). At this purpose, a number of schemes aimed at measuring organizational performance have been developed (Deckop, 2019). In this context, a key factor that should be properly managed in this context is the intellectual capital (IC), which represents the portion of knowledge on which managers can leverage to create value (Edvinsson & Sullivan, 1996; Kato, Okamuro & Honjo, 2015; Agostini & Nosella, 2017; Razafindrambinina & Anggreni, 2017; Wang, McAuslane, Liberti, Leufkens & Hövels , 2018).

Despite the literature related to IC has extensively analysed its adoption in large firms (e.g. Chang & Birkett, 2004; Subramaniam & Youndt, 2005; Whiting & Woodcock, 2011), the conceptualization of this construct in different realities, such as small-medium enterprises (SMEs), is still fragmented (e.g. Abeysekera, 2019; Perrigot, López-Fernández & Eroglu, 2013). However, SMEs are considered the driving force of the economy at international level (European Commission, 2017; Kim *et al.*, 2019; Mertins and Will, 2007), and, according to extant literature, IC in SMEs can be described as "the very informal relationships and closeness among the firm members, the way decision-making is run and a sort of naivety relating to the management of knowledge. Such a naivety is however only apparent, as it originates only from observing SMEs through the lens of large companies' practices" (Marzo and Scarpino, 2016, p. 16).

The relevance of IC in SMEs have been highlighted by previous research according to which IC could have an effect on different aspects of SMEs performance, such as, for example, innovation, knowledge management, and core competencies (Demartini and Beretta, 2019; McDowell *et al.*, 2018; Demartini and Beretta, 2022), and, therefore, IC represents a resource that, if properly managed, could provide tangible benefits. Indeed, as argued by Demartini and Beretta, "IC management affects a broad range of financial performance metrics in SME" and, therefore "entrepreneurs could benefit from this study by exploiting knowledge on how SMEs can acquire, develop, and use their IC" (Demartini and Beretta 2019, pp. 30–31). Prior studies have pointed out that the SME context is under-researched (Massaro, Handley, Bagnoli & Dumay, 2016) and that more research is needed since SMEs are not "little big firms" (Coyte, Ricceri & Guthrie, 2012, p. 803).

In particular, with specific regards to IC, there are many approaches to conceptualize IC, the majority of them has a strong focus on metrics, even if calls for non-metrics approaches exist (Deckop, 2019; Habersam & Piber, 2003). Indeed, researchers have started to highlight that the classical tripartition is static, while there is a strong need to take into consideration the dynamic dimension of IC, since this dimension is crucial for the sake of value creation (Danish Ministry of Science, Technology and Innovation, 2003). Because of these trends, literature on practices for the measurement and management of IC are growing and they are also more and more diversified (Guthrie, Ricceri, & Dumay, 2012; Habersam & Piber, 2003). Thus, further research is advocated for the measurement of different constructs (Demartini & Beretta 2019). Indeed, despite the peculiarities of SMEs, IC is still measured in the same way as it is done for large firms. According to previous studies, all the firms need to develop an operationalization of the concept of IC, such as a creation of a context specific syntax (Bontis, 2001). However, the majority of empirical studies are focused on a limited range of profit sector service companies, and the creation of a common shared definition of IC seems to be rather difficult (Habersam & Piber, 2003).

In addition, even extant literature reviews on IC do not take into consideration differences between small and large firms (Cuozzo, Dumay, Palmaccio & Lombardi, 2017; Petty & Guthrie, 2000; Alvino, Di Vaio, Hassan & Palladino, 2020). As argued by Bontis, "many IC models have similar constructs and measures that are merely labelled differently. [...] This re-labelling of similar conceptualizations can be construed as both positive and negative for the field of IC measurement" (Bontis, 2001, p. 57). Therefore, it is necessary to build on previous studies to identify a common set of components that can be adopted by SMEs to enhance their performance. This is particularly relevant since "the conceptualization of IC is very useful, as it tries to evaluate corporate performance at an early stage" (Habersam & Piber, 2003, p. 755). However, previous research reported an open debate on the meaning of IC, which is taken for granted in the SME context, but where the terminology of IC is not familiar to this type of firm (Chaminade & Roberts, 2003). Thus, understanding how entrepreneurs conceive IC in practice will add new knowledge to the operationalization of IC in SMEs by contributing to the literature on IC as a discursive practice (Yu, Garcia-Lorenzo & Kourti, 2017). More specifically, previous studies claim that intangibles could be considered jointly rather than separately (Milgrom & Roberts, 1995), because of their heterogeneity and combinatorial nature (Athey & Roberts, 2001; Milgrom & Roberts, 1995; Roberts, 2004).

Given the call for more research to identify how IC is adopted in SMEs in practice (Coyte, Ricceri & Guthrie, 2012) and to clarify the items of IC with an effect on SMEs performance (Guthrie, Ricceri, & Dumay, 2012; Massaro, Dumay & Bagnoli, 2015; Yu, Garcia-Lorenzo & Kourti, 2017), the aim of this study is to understand how IC is adopted in SMEs in practice and to understand how IC is conceived in SMEs, by aggregating IC components that mainly impact SMEs' performance. In particular, by analysing how the IC literature is developing within the SMEs context, this study aims at providing further insights on the focus of SMEs on IC components with an impact on performance and it aims at advancing some knowledge related to the future of IC research within the SMEs context.

In particular, it aims at providing some evidence to answer the question of the study of Chaminade and Robert "what is in it for me?" (Chaminade & Roberts, 2003, p. 746) from the SMEs perspective. More specifically, results of this study could support future avenues by

providing evidence of IC items that could be included or excluded in future research in order to avoid the problem of concept misspecification (Bisbe, Batista-Foguet & Chenhall, 2007).

To this end, a Structured Literature Review (SLR), which, according to Dixon-Woods, is aimed at mapping and assessing the existing knowledge to define the needs for future development (Dixon-Woods, 2009) is performed in order to answer the following research questions: RQ1. How is the IC literature within the SMEs context developing? RQ2. What is the focus of the IC literature within the SMEs context? RQ3. What is the future of IC research within the SMEs context?

The remainder of this paper is structured as follows: the following section presents the methodology adopted; in section three insights and critique are provided, such as conclusions, future research paths and questions.

2 – Methodology

Consistently with previous studies (Bisogno, Dumay, Manes Rossi & Tartaglia Polcini, 2018; Castilla-Polo and Ruiz-Rodríguez, 2017; Cuozzo, Dumay, Palmaccio & Lombardi, 2017; Dumay, Bernardi, Guthrie, & Demartini, 2019; Massaro, Handley, Bagnoli & Dumay, 2016), this study adopts a SLR to have a better understanding of the conceptualization of IC in SMEs.

To overcome the limitations of traditional reviews, such as the potential lack of inclusiveness and sample selection bias (Cook & Leviton, 1980; Light & Smith, 1971; Petticrew & Roberts, 2008), literature review techniques are constantly evolving. Therefore, a growing number of approaches can be used to perform a literature review, from rapid review to more rigid methodologies (Bisogno, Dumay, Manes Rossi & Tartaglia Polcini, 2018; Massaro, Handley, Bagnoli & Dumay, 2016). In particular, SLRs have been adopted in extant studies in order to provide insights, critiques, and to formulate agendas for future research (Bisogno, Dumay, Manes Rossi & Tartaglia Polcini, 2018; Castilla-Polo and Ruiz-Rodríguez, 2017; Cuozzo, Dumay, Palmaccio & Lombardi, 2017) since it is a transparent, structured and systematic methodology that identifies explicit steps to summarize and interpret available knowledge (Massaro, Dumay & Guthrie, 2016). Each step is described below.

- *Step 1 PROTOCOL.* The first step of a SLR is to define the literature review protocol, that has "the aim of documenting the procedure followed, which is widely connected with the aim of increasing research reliability in many kinds of qualitative research" (Massaro, Dumay & Guthrie, 2016, pp. 773–774). Studies from academic journals, in English, related to IC in SMEs, published from 1996 to 2017 were searched on the databases Emerald Insight, Springer, WoS, Scopus and Econlit for the Business and management discipline with the following keywords "Intellectual Capital", "IC", "SME(s)", "Small-Medium enterprises", "Small Medium enterprises", and "Performance".

- *Step 2 QUESTION(S).* According to Massaro *et al.*, "Researchers use SLRs to map and assess the existing intellectual territory to identify future research needs" (Massaro, Dumay & Guthrie, 2016, p. 774). Therefore, the aim of this study is to answer the following research questions: RQ1. How is the IC literature within the SMEs context developing? RQ2. What is the focus of the IC literature within the SMEs context? RQ3. What is the future of IC research within the SMEs context? In particular, as suggested by previous studies (Silverman, 2013), this research investigates the current basis of IC literature with a focus on SMEs by providing an in-depth

analysis of a defined body of literature.

- *Step 3 SEARCH.* "SLRs require researchers to carefully select relevant materials" (Massaro, Dumay & Guthrie, 2016, p. 777). In order to establish a boundary of the most relevant articles in the field, which propose a conceptualization of the IC and, as a control, its relevance for SMEs performance, results from the search using the above mentioned keywords were considered for the analysis, of which duplicated articles, articles with errors in the records or with title and/or abstract out of scope were dropped from the database. In addition, since we are interested in exploiting the dimensions of IC which have an effect on SMEs performance, papers that did not find support for the relationship between IC components and performance were excluded. While the initial research retrieved 615 articles, the final database was composed of 73 articles.

- *Step 4 IMPACT.* As argued by Massaro and colleagues, "not all articles have the same scholarly impact. Therefore, understanding which articles are cited more often is a proxy for the article's quality" (Massaro, Dumay & Guthrie, 2016, p. 781). In keeping with previous studies (Cuozzo, Dumay, Palmaccio & Lombardi, 2017; Demartini and Beretta 2019; Dumay 2014a), citations have been used as a proxy of articles' quality. However, the problem related to the determination of the impact of the articles according to the number of citations is that older articles have had more time to accumulate citations (Dumay and Dai, 2017). This bias has been overcome by introducing the Citations Per Year (CPY) as a countermeasure (Dumay, 2014b).

- *Step 5 FRAMEWORK.* "As for any empirical study, researchers must decide "what is to be observed as well as how observations are to be recorded and thereafter considered data" (Krippendorff, 2013, p. 98)" (Massaro, Dumay & Guthrie, pp. 782–783). The classification of the analysed articles in the IC category followed a four stages process. First, items for measuring IC have been manually extracted for each paper. Second, each item has been assigned to an IC category. More specifically, consistently with previous studies, the classical tripartition of IC (human capital, HC; structural capital, SC; and relational capital, RC) is adopted as aggregation method (Stewart, 1998; Bozzolan, Favotto & Ricceri, 2003; Habersam & Piber, 2003; Abhayawansa & Guthrie, 2016b; Benevene, Kong, Barbieri, Lucchesi & Cortini, 2017; Dumay & Guthrie, 2017). Third, independently for each IC component, an analysis of the most recurrent items has been performed by using NVivo. Finally, to identify the mostly widespread concepts, the first 25% of the most recurrent items have been retained in the results. More specifically, items of IC components that are proposed in the classification system of Abhayawansa and Guthrie (2016b) have been categorized as items already commonly recognized in the literature. The adoption of these items is justified by their use in the literature and in applied practices (Abhayawansa & Guthrie, 2016a; Benevene, Kong, Barbieri, Lucchesi & Cortini, 2017; Bozzolan, Favotto & Ricceri, 2003; Dumay and Guthrie, 2017). On the contrary, items that are not listed in the classification system of Abhayawansa and Guthrie (2016b) have been categorized as additional items.

- *Step 6 RELIABILITY.* As suggested by Massaro and colleagues, "several forms of control and triangulation" (Massaro, Dumay & Guthrie, 2016, p. 784) need to be provided to support the SLR. In order to ensure the reliability of the literature review, the appropriateness of the inclusion and exclusion criteria, such as the classification system, have been widely discussed by the authors (Massaro, Handley, Bagnoli & Dumay, 2016). The classification of the first ten

articles was done independently by two researchers in order to validate the classification system. During this process, all the decisions taken were agreed upon by the two researchers. In order to guarantee the reliability of the results, the Krippendorff's alpha has been calculated (Hayes & Krippendorff, 2007; Krippendorff, 2013b; not tabulated). The analysis demonstrates that the Krippendorff's alpha is aligned to generally accepted threshold for reliability of results (Krippendorff, 2013b).

- *Step 7 VALIDITY*. "Validity tests are commonly used to check the accuracy of findings" (Massaro, Dumay & Guthrie, 2016, p. 785). First, in order to ensure internal validity, the adopted classification system has been tested by considering only a small subset of articles. Moreover, as suggested by previous studies ((Massaro, Dumay & Guthrie, 2016), the start and end points of the study were clearly defined. Moreover, time series analysis have been performed by studying the number of articles published over time and their relative impact through citations (Yin, 2009). Second, external validity analyses the generalizability of the results (McBurney & White, 2009). With reference to this study, generalization could be conceived of as the possible application of the findings to the types of evidence that have been excluded through the selection process (such as books, working papers, and conference proceedings). In order to ensure that, the authors committed to select only relevant articles by carefully reading titles, abstracts, and full papers. Finally, multiple data sources of evidence have been consulted to ensure construct validity, and the quality of articles have been defined by considering total citations of the articles in the sample.

- *Step 8 CODE*. "Since SLRs use a coding framework to analyse articles, it is important when analysing data that researchers define the technology to be used for the coding procedure" (Massaro, Dumay & Guthrie, p. 787). Articles have been initially manually coded by the authors to exploit relevant information and to adapt the classification system where needed (Dumay & Cai, 2015). Subsequently articles have been coded using NVivo to identify most recurrent items to identify validity of the results.

- *Step 9 INSIGHTS AND CRITIQUE* and *Step 10 FUTURE RESEARCH PATHS AND QUESTIONS* have been completed following the coding procedure and are discussed below in full detail.

3 – Insights and critique

By considering the classification system described in the previous Section, the 73 articles were analyzed according to the identified dimensions (APPENDIX). In the following subsections the different dimensions are discussed according to the RQ they are aimed at answering.

3.1 – *How is the IC literature within the SMEs context developing?*

First, the quality of the articles included in the sample has been captured by the number of citations and the CPY (Dumay, 2014b; Dumay & Dai, 2017).

From the above-mentioned analysis, results show that eight articles are common to both rankings, whereas by focusing on CPY two more recent articles are included in the ranking (Table 1 and Table 2).

This implies that more recent articles on IC for the SMEs are gaining attention, and it provides evidence of the interest that scholars have in this field.

Table 1 – Top 10 articles by citations

Title	Authors	Year	Journal	Citations
Intellectual capital and new product development performance: The mediating role of organizational learning capability	Hsu, YH & Fang, W	2009	Technological Forecasting And Social Change	652
The positive effect of green intellectual capital on competitive advantages of firms	Chen, YS	2008	Journal Of Business Ethics	481
Intellectual capital and corporate performance in knowledge-intensive SMEs	Cohen, S & Kaimenakis	2007	The Learning Organization	383
Investigating the value and efficiency of intellectual capital	Kujansivu, P & Lonnqvist, A	2007	Journal of Intellectual Capital	247
Intellectual capital as competitive advantage in emerging clusters in Latin America	Jardon, CM & Martos, MS	2012	Journal of Intellectual Capital	223
Intellectual capital in small and medium enterprises in Pakistan	Khalique, M *et al.*	2015	Journal of Intellectual Capital	208
The influence of intellectual capital on new product development performance - The manufacturing companies of Taiwan as an example	Chen, YS *et al.*	2006	Total Quality Management & Business Excellence	193
Importance and contribution of intangible assets: SME managers' perceptions	Steenkamp, N & Kashyap, V	2010	Journal of Intellectual Capital	180
Intangible assets and performance: Analysis on manufacturing SMEs	St-Pierre, J & Audet, J	2011	Journal of Intellectual Capital	175
The influence of intellectual capital on organizational performance-"Knowledge management as moderator	Ling, YH	2013	Asia Pacific Journal of Management	166

Table 2 – Top 10 articles by CPY

Title	Authors	Year	Journal	CPY
Intellectual capital and new product development performance: The mediating role of organizational learning capability	Hsu, YH & Fang, W	2009	Technological Forecasting And Social Change	59,27
Intellectual capital in small and medium enterprises in Pakistan	Khalique, M *et al.*	2015	Journal of Intellectual Capital	41,60
The positive effect of green intellectual capital on competitive advantages of firms	Chen, YS	2008	Journal Of Business Ethics	40,08
Intellectual capital and corporate performance in knowledge-intensive SMEs	Cohen, S & Kaimenakis	2007	The Learning Organization	29,46
Intellectual capital as competitive advantage in emerging clusters in Latin America	Jardon, CM & Martos, MS	2012	Journal of Intellectual Capital	27,88
Does intellectual capital allow improving innovation performance? A quantitative analysis in the SME context	Agostini, L *et al.*	2017	Journal of Intellectual Capital	27,00
The influence of intellectual capital on organizational performance."Knowledge management as moderator	Ling, YH	2013	Asia Pacific Journal of Management	23,71

Intellectual capital and business performance: An exploratory study of the impact of cloud-based accounting and finance infrastructure	Cleary, P & Quinn, M	2016	Journal of Intellectual Capital	19,50
Intangible assets and performance: Analysis on manufacturing SMEs	St-Pierre, J & Audet, J	2011	Journal of Intellectual Capital	19,44
Investigating the value and efficiency of intellectual capital	Kujansivu, P & Lonnqvist, A	2007	Journal of Intellectual Capital	19,00

In addition, the research field appears wide and fragmented since there are many authors in the ranking and, thus, there is no evidence of a single or a group of authors that are dominating the research (Massaro, Dumay & Bagnoli, 2015).

Concerning the distribution of studies over the reviewed period, Figure 1 shows a peak in 2015, with 12 new papers published. Overall, we can observe a gradually increasing trend during the analyzed period in studies discussing how IC can support SMEs.

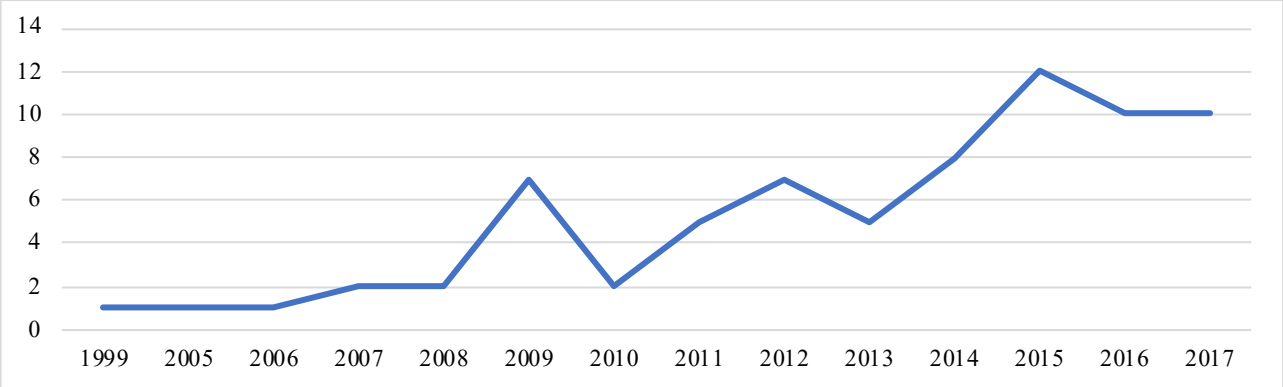

Fig. 1 – Publication trends

Finally, concerning the area of analysis, Figure 2 shows that Europe and Asia are, thus far, the mostly investigated continents for this field of study.

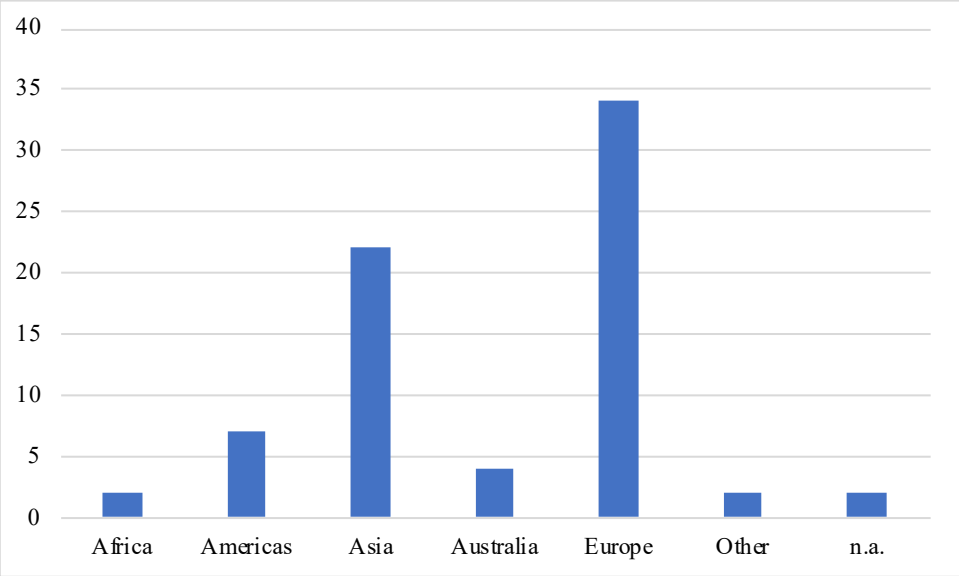

Fig. 2 –Publications by Location - Area

On the contrary, only few studies are focusing on the remaining continents or are adopting a multicontinental approach.

3.2 – *What is the focus of the IC literature within the SMEs context?*

The conceptualization of IC and its effects on performance have been analyzed for all the articles included in the sample.

Table 3 shows the summary of the analysis of some exemplar articles.

Table 3 – Summary of the analysis of exemplar articles

Article	Conceptualization	Effect on performance
(Cegarra-Navarro, J. G.., 2005)	IC (improvement of the quality, good reputation and prestige, satisfaction of the clients)	**Positive**: "Furthermore, results support a positive relationship between the organizational learning (i.e. transfer, transformation, and harvesting of the knowledge provided by strategic alliances) and its intellectual capital. Specifically, the current results indicate that the ability of companies to harvest knowledge is found in a fundamental capacity to achieve sustainable competitive advantages. This suggests that companies may be in the intellectual capital creation under investing in mechanisms to develop harvesting phase." (p. 18)
(Akhtar, C.S. *et al*., 2015)	IC as function of Knowledge, skills, competency, innovativeness, intellectual agility	**Controversial**: "The results indicate that intellectual capital is one of the most important factors in attaining sustainability by SMEs. The results of the study are in line with the previous studies that indicate Intellectual capital to be one of the most valuable intangible resource for organizational growth in today's knowledge based economy (Karchegani, *et al.* 2012) and to attain competitive advantage (Aas & Pedersen, 2011; Kramer, *et al.* 2011) through innovativeness of the employees (Spahic & Huruz, 2012; Wang & Wang, 2012) for increased performance as well as to attain sustainability (Karchegani, *et al.* 2013; Rosenbusch, et al., 2011). [...] Research highlights that skills, knowledge and competencies of employees are of utmost importance for SMEs if they want to acquire new technologies and knowledge for their survival (Hashim, 2012; Saleh, *et al.* 2008). [...] The employees are found to be knowledgeable and innovative in nature, however, their competency levels have been found to be at low, which is translated into insignificant result for competence, agility and skills. Researchers are of the view that organizational sustainability stems from the organization's capability to create sustainable value and its intellectual capital including trust, loyalty, honesty and satisfactory stakeholder relations (Bounfour & Edvinsson, 2005; Ciasulli & Troisi, 2013; Edvinsson, 1997). [...] Furthermore, the knowledge, values, skills and experiences of employees have significant impacts on social and environmental sustainability of SMEs and this intellectual capital can be used to attain competitive advantage for promoting innovations regarding social and environmental practices and keeping themselves ahead of competitors (Loucks, *et al.* 2010)." (pp. 91-92)
(Costa, R.V. *et al*., 2014)	HC (Capabilities, values and attitudes; top managers' competencies; commitment to the product innovation process) SC (Corporate culture towards innovation; top management role;	**Direct and indirect:** "The results indicate that only structural capital directly impacts product innovation performance [...] However, human capital and relational capital do exhibit an indirect effect, via structural capital. In other words, human capital and relational capital only affect product innovation if they are potentiated by the existence of structural capital." (p. 331)

	product innovation management and strategy) RC (vertical relationships; horizontal and institutional relationships)	
(Agostini, L. & Nosella A., 2017)	HC (employees' skills for innvation that are skill, expertise, knowledge; ratio of managers to total employees intended as the firm's administrative intensity or managerial hierarchy); OC (internal social capital that are interactions among employees and their quality; absorptive capacity; formal innovation plan); RC (brand orientation; open innovation with business and scientific partners; marketing capability; technological reputation)	**Positive, direct and indirect**: "HC, OC and RC have a positive influence on RIP. HC contributes in enhancing RC and OC, which, in turn, increases RIP."(p. 799)
(Mertins, K. *et al*., 2009)	HC (professional competence, social competence, employee motivation, leadership ability), SC (internal cooperation and knowledge transfer, management instruments, IT and explicit knowledge, product innovation, process optimization and innovation, corporate culture), RC (customer relationships, supplier relationships, public relationships, investor relationships, relationships to cooperation partners)	**Importance**: "Comparing the two sectors the differing importance of two Human Capital factors is remarkable. Whereas Professional Competence (comprising formal qualification as well as experiences gained in practice) plays the major role for Industry, it is Employee Motivation which has been perceived as the most important IC factor for Services. Another Human Capital factor – Leadership Ability – has been perceived by Services as considerably more important regarding business success than by SMEs belonging to Industry.Major differences between the sectors occurred regarding Structural Capital factors, too. Whereas IT and Explicit Knowledge (summarising all electronic information and data bases) has a much higher impact on the strategic business success in Industry, the difference for Internal Co-operation and Knowledge Transfer (including all structures for face-to-face knowledge sharing, e.g. in project teams, communities of practice etc.) is still visible, but less significant. On the contrary, Management Instruments (e.g. management by objectives, reporting structures, controlling systems etc.) are perceived as having a much higher impact on business success in Services than in Industry. Whereas there seems to be no difference in Product Innovation based on the combined index shown here, more service companies have named the factor, but its relative influence on business success is higher in Industry (those differences are balanced out in the combined index)." (pp. 120-121)

In addition, the items affecting SMEs performance have been categorized according to the classical tripartition, as proposed by Stewart, where items of IC are classified in HC, RC or SC (Stewart, 2010). The resulting classification is proposed in Table 4. Results demonstrate that HC has an effect on corporate performance in 35% of the analyzed articles, RC in 29% of the analyzed articles, and SC in 36% of the analyzed articles. Table 4 reports both the items that are commonly adopted in the literature and the additional ones, and their recurrence in the analyzed articles. The effect of each item of IC on SMEs performance is discussed below.

Table 4 – Classification of items of IC

	HC			RC			SC		
Commonly recognized items	**Item**	**N.**	**%**	**Item**	**N.**	**%**	**Item**	**N.**	**%**
	Employees / Staff / Personnel	138	*38%*	Customer	77	*26%*	Systems	41	*11%*
	Skills	26	*7%*	Relationships / Relations	68	*23%*	Process	32	*8%*
	Ability	22	*6%*	Suppliers	29	*10%*	Technology	27	*7%*
	Training	20	*6%*	Market	21	*7%*	Culture	25	*7%*
	Competence	17	*5%*	Partners	17	*6%*	Information	21	*6%*
	Team	17	*5%*	Cooperation / Collaboration	15	*5%*	Structures	21	*6%*
	Managers	14	*4%*	Satisfaction	13	*4%*	Management	20	*5%*
				External	11	*4%*	Procedures	18	*5%*
				Distribution	10	*3%*	Patents	17	*4%*
Total	**71%**			**88%**			**59%**		
Additional items	Knowledge	37	*10%*	Internal	*7*	*2%*	Knowledge	31	8%
	Experience	17	*5%*	*(Other)*	*109*	*36%*	Innovation	27	7%
	Innovation	12	*3%*				Competition	21	6%
	(Other)	*113*	*31%*				Employees	17	4%
							Product	17	4%
							Communication	12	3%
							Support	11	3%
							(Other)	*120*	*31%*
Total	**49%**			**38%**			**66%**		

First, concerning HC, results of this study confirmed the relevance of some of the items of HC identified in the literature (Abhayawansa & Guthrie, 2016b): ability, competence, employees, managers, skills, team and training. In addition, further items have been found to have an impact on corporate performance (Table 5).

Table 5 - Results for HC items

Human Capital	
Commonly recognized HC items	
Ability	• Ability: the possibility to collaborate with people in a constructive manner to enable fruitful cooperation (Mertins *et al.*, 2009; Crema & Nosella, 2014; Jardon & Dasilva, 2017). • The majority of the papers support the relevance of the employees' ability to enhance business performance (Jardón & Martos, 2012; Van Liempd *et al.*, 2014; Khadir-Poggi & Keating, 2015; Leitner, 2015; Cleary & Quinn, 2016). • Competitiveness of the firm could be enhanced (González-Loureiro & Figueroa Dorrego, 2012). • Higher levels of ability are associated with a more innovative firm (Rohana *et al.*, 2009; Leitner, 2011, 2015).
Competence	• Competence: the share of employees with high levels of qualification (Mertins *et al.*, 2009).

	• It can be converted into value for the company, since it improves business performance (Massaro *et al.*, 2015; Crema & Verbano, 2016; Ferreira & Franco, 2017a, 2017b). • It is positively related also to innovation (Chen *et al.*, 2006; Rohana *et al.*, 2009; Alzuod & Isa, 2017) and competitive performance (Chen, 2008; Ferreira & Franco, 2017a). • It could also contribute in enhancing knowledge management (Ngah and Ibrahim, 2011).
Employees	• Importance of employees in shaping HC (e.g. Cohen *et al.*, 2014; Crema & Nosella, 2014; Korsakienė *et al.* 2017; Mertins *et al.* 2009; Moe *et al.* 2014). • Relevance of employees for business performance (Cohen & Kaimenakis, 2007; Ileanu *et al.*, 2009; Jardón & Martos, 2009; Steenkamp & Kashyap, 2010; Ling, 2013; Daou *et al.*, 2013; Henry, 2013; Khalique & bin Md Isa, 2014; Mubaraq & Haji, 2014; Sekhar *et al.*, 2015; Khadir-Poggi & Keating, 2015; Cleary & Quinn, 2016; Crema & Verbano, 2016; Ferreira & Franco, 2017b, 2017a). • Employees are considered among the most important sources of creativity and innovation (Chen *et al.*, 2006; Hsu and Fang, 2009; Gomezelj *et al.*, 2016; Agostini & Nosella, 2017; Agostini *et al.*, 2017; Alzuod & Isa, 2017). • Employees are intangible assets that can be converted into competitive advantage (Chen, 2008; Ferreira & Franco, 2017a; Ngah & Ibrahim, 2011).
Managers	• Skills and knowledge of managers are relevant for SMEs performance (Jardon & Dasilva, 2017; Korsakienė *et al*., 2017). • Impact on business performance (Jardón & Martos, 2009, 2012; Mubaraq & Haji, 2014). • Top managers' competencies may also influence innovation performance (Chen *et al.*, 2006; Costa *et al.*, 2014; Agostini & Nosella, 2017; Table 3), and SMEs competitive advantage (Chen, 2008; Jardon, 2015).
Skills	• Skills of people within the organization are particularly relevant for SMEs (Chen *et al*., 2012; Daou *et al.*, 2013; Cohen *et al.*, 2014; Korsakienė *et al*., 2017). • SMEs should encourage their people to develop skills to sustain business performance (Cohen & Kaimenakis, 2007; Crema & Verbano, 2016; Henry, 2013; Ileanu *et al*., 2009; Jain *et al*., 2017; Khadir-Poggi & Keating, 2015; Khalique & bin Md Isa, 2014; Khalique & Pablos, 2015; Van Liempd *et al*., 2014; Muhammad & Bontis, 2015). • Skills can also influence SMEs sustainability (Akhtar, Ismail, Ndaliman, Hussain, & Haider, 2015; Aseanty, 2016; Table 3), innovation performance (Agostini *et al*., 2017; Agostini & Nosella, 2017; Alzuod & Isa, 2017; Gomezelj Omerzel & Smolčić Jurdana, 2016; Hsu & Fang, 2009; Muhammad & Bontis, 2015), and competitive advantage (Gajowiak, 2016). • High levels of skills could also improve SMEs knowledge management (Ngah & Ibrahim, 2011).
Team	• Working in a team could enhance the capability of individuals to provide solutions *et al*., 2014). • It could improve business performance (Cleary & Quinn, 2016; Khadir-Poggi & Keating, 2015; Khalique & bin Md Isa, 2014; Ling, 2013). • Knowledge management and sharing could benefit from this item, too (Ngah & Ibrahim, 2011). • Teams have the capability to also influence innovation performance (Chen *et al*., 2006), and enhance competitive advantage (Chen, 2008).
Training	• Investments in training could impact SMEs performance (Crema & Nosella, 2014; Jardon & Dasilva, 2017; Korsakienė *et al*., 2017; Moe *et al*., 2014; Supeno *et al*., 2015). • Business performance could be enhanced (Ferreira & Franco, 2017a, 2017b; Henry, 2013; Jardón & Martos, 2012; Van Liempd *et al*, 2014; Migliarese & Corvello, 2014; Molodchik & Jardon, 2017; Mubaraq & Haji, 2014; Steenkamp & Kashyap, 2010). • It significantly contributes to the knowledge sharing, that is particularly relevant for SMEs since it could enhance performance (Marzo & Scarpino, 2016; Ngah & Ibrahim, 2011). • Also innovation performance (Hsu & Fang, 2009) and competitive advantage (Ferreira & Franco, 2017a; González-Loureiro v Figueroa Dorrego, 2012; Jardon, 2015) could benefit from investments in training.
Additional HC items	
Innovation	• The innovative capacity of people in the organization can facilitate the adaptation to changes

	and it can promote improvements of processes, products or markets (Agostini *et al*, 2017; Henry, 2013; Jardon and Dasilva, 2017; Jardón and Martos, 2009, 2012; Korsakienė *et al*., 2017; Van Liempd et al., 2014). • The commitment to the product innovation process is as much important as other competencies, such as academic education and other personal characteristics (Costa, Fernández, & Dorrego, 2014). • The creativeness and attitude towards innovation are important elements in HC (González-Loureiro & Figueroa Dorrego, 2012). • Enabling a supportive innovation-driven culture is relevant for enhancing corporate performance (Khadir-Poggi & Keating, 2015). • Organizational performance depends more and more on factors related to the human sphere (Massa & Testa, 2009). • The employee participation in innovation processes should be properly managed to enhance organizational performance (Ferreira & Franco, 2017a, 2017b).
Knowledge	• Benefits to the corporate performance provided by the knowledge of the people in organization (Agostini & Nosella, 2017; Agostini *et al*, 2017; Aisjah, 2017; Akhtar *et al*., 2015; Alzuod & Isa, 2017; Aseanty, 2016; M. Y. Chen *et al*., 2012; Daou *et al*, 2013; Durst & Wilhelm, 2013; Gajowiak, 2016; Ileanu *et al*, 2009; Inn, Dumay, & Kokubu, 2015; Khalique & Pablos, 2015; Marzo & Scarpino, 2016; Moe *et al*., 2014; Mubaraq & Haji, 2014; St-Pierre & Audet, 2011; Ullah, Aziz, & Yousaf, 2016; Van Liempd *et al*., 2014; Table 3). • The internal relationships among employees and the quality of these relationships in terms of knowledge exchange habits, propensity to interact and work in groups could help firms in pursuing an improvement in their performance (Agostini *et al*., 2017). • The generation of new knowledge within the organization could be beneficial for SMEs (Cleary & Quinn, 2016; Crema & Verbano, 2016; Gomezelj Omerzel & Smolčić Jurdana, 2016; Khalique & bin Md Isa, 2014). • The continual knowledge development represents a key feature to allow SMEs to continue to compete (Coyte *et al*., 2012). • Building an incremental knowledge base can be fostered when employees are oriented towards knowledge acquisition and/or are encouraged to bring new knowledge and ideas to the business (Khadir-Poggi & Keating, 2015; Jain *et al*., 2017) • Knowledge sharing represents an important item in shaping the HC of a SME (González-Loureiro and Figueroa Dorrego, 2012; Mubaraq & Haji, 2014). • Relevance of sharing knowledge and experiences among colleagues not only from the same area (Alzuod & Isa, 2017), but also from different fields and roles (Cleary & Quinn, 2016; Coyte *et al*., 2012; Crema & Verbano, 2016; Gomezelj Omerzel & Smolčić Jurdana, 2016). • Knowledge management is crucial to the organisation's success (Henry, 2013). • Versatility of knowledge can influence firm performance (Crema & Verbano, 2016).
Experience	• Experience of the employees is an important item of HC (Bonardo *et al*., 2010; Coyte *et al*., 2012; Crema & Nosella, 2014; Gajowiak, 2016; Jain *et al*., 2017; Khadir-Poggi & Keating, 2015; Korsakienė *et al*., 2017; Van Liempd *et al*., 2014; Marzo & Scarpino, 2016; Massa & Testa, 2009; Moe *et al*., 2014; Sekhar *et al*., 2015; Steenkamp & Kashyap, 2010). • The ability to transmit experiences is particularly appreciated by managers of SMEs (Jardón & Martos, 2012; Korsakienė *et al*., 2017). • Value added could be brought also by the ability of employees to exchange experiences with colleagues from the same or from different departments (Alzuod & Isa, 2017; Khalique & bin Md Isa, 2014).

Second, with regards to RC, empirical findings from this review reinforced the relevance for SMEs of some of the items of RC identified in the wider IC literature (Abhayawansa and Guthrie, 2016b): customer, suppliers, market, partners, cooperation, satisfaction, external RC, and distribution.

RC is not determined by a SME's relationships with its customers only, but other "value-creating" relationships are pivotal in fostering its performance (Inn, Dumay and Kokubu, 2015, p. 220; Beugelsdijk *et al*., 2006). Moreover, further items have been found to have an impact on SMEs performance, which will be separately discussed in Table 6.

Table 6 - Results for RC items

Relational Capital	
Commonly recognized RC items	
Customer relationships	• RC in SMEs is mainly explained by a firm's customer relationships (Daou *et al*., 2013). • Customer relationships exploitation is driven by different facets of the relationship that a SME has with its customers, namely customer satisfaction (Cohen & Kaimenakis, 2007; González-Loureiro & Figueroa Dorrego, 2012; Ngugi, 2014; St-Pierre & Audet, 2011; Steenkamp & Kashyap, 2010 (iterature on customer satisfaction will be discussed later on in this section.)), meeting customer's needs (Cleary & Quinn, 2016; Jardón & Martos, 2009), customer type (Jardon & Dasilva, 2017; Jardón & Martos, 2012), duration of the relationship (Hsu & Fang, 2009), loyalty (Henry, 2013; Sekhar *et al*., 2015; Steenkamp and Kashyap, 2010; Ullah *et al*., 2016), appropriateness (Cohen & Kaimenakis, 2007; Sekhar *et al*., 2015), customer portfolio (Jain *et al*., 2017), and retention (Mubaraq & Haji, 2014). • They foster the growth of SMEs (Ngugi, 2014), and knowledge sharing (Chen *et al*., 2012). • Continuous relationships with customers are also expected to positively affect SMEs innovation performance (Alzuod & Isa, 2017) and represent a "knowledge resource for the sales process" (Coyte, Ricceri & Guthrie, 2012, p. 796). • They contribute also to the development of SMEs' HC (Cohen & Kaimenakis, 2007). Through CSR activities SMEs are able to strengthen the customer relationship and, in turn, to gain a better reputation (Cegarra-Navarro, 2005; Jain *et al*., 2017; Table 3).
Supplier	• SMEs' relationships with their suppliers can help increase the profitability of both parties (Sekhar *et al*., 2015), also due to the knowledge resources a SME can access from its suppliers (Hsu & Fang, 2009; Khadir-Poggi & Keating, 2015; Marzo & Scarpino, 2016), and more generally intangible assets (Steenkamp & Kashyap, 2010), which can improve a SME's products and processes (Chen *et al*., 2012; Jain *et al*., 2017; Jardon, 2015) and its technological entrepreneurship development (Kozłowski & Matejun, 2012). • Acquiring and using information about suppliers is of utmost importance (Cleary & Quinn, 2016; Cohen *et al*., 2014; Ferreira and Franco, 2017b; Jardón & Martos, 2009). • Supplier relationships are found to be more strategic in the manufacturing than in the service sector (Y.-S. Chen *et al*., 2006; Ferreira & Franco, 2017b; Mertins *et al*., 2009; Table 3). • Being a green supplier also contributes to the competitive advantage of SMEs (Chen, 2008).
Market	• Market orientation (Alzuod & Isa, 2017; Cohen & Kaimenakis, 2007; Rohana *et al*., 2009), marketing capability (Agostini & Nosella, 2017; Jardon, 2015; Sekhar *et al*., 2015), marketing intensity (Sekhar *et al*., 2015), market share (Khalique & bin Md Isa, 2014; Mubaraq & Haji, 2014; Ngah & Ibrahim, 2011; Ngugi, 2014), and the capability to predict future market trends have been found to contribute to a SME's market relationships (Cleary & Quinn, 2016; Jardon & Dasilva, 2017; Ngah & Ibrahim, 2011). • Marketing capability is positively affected by customer loyalty and, in turn, it improves small businesses' market intensity (Sekhar *et al*., 2015). • Higher market shares boost business growth (Ngugi, 2014).
Partners	• SMEs' attitude towards building and reinforcing the relationship with their partners is aimed at sharing interests and expectations (Chen, 2008; Durst & Wilhelm, 2013; Jardon, 2015; Jardon & Dasilva, 2017; Jardón & Martos, 2012), knowledge (Chen *et al*., 2012; Ling, 2013), and developing (open, (Agostini & Nosella, 2017)) innovation (Crema & Verbano, 2016), and new product development (Chen *et al*., 2006). • A network of strategic partners is proven to be more relevant in the service than in the private sector (Mertins *et al*., 2009; Table 3).
Cooperation	• Cooperation: the attitude to establish a mutual relationship between the small firm and "upstream suppliers [...], downstream customers [...], and the strategic partners" (Chen *et al*., 2006, pp. 1132–1133), as well as "professional associations, bodies, and societies" (Mertins *et al*. 2009:118; Jardon & Dasilva 2017), or other companies (Jardón & Martos, 2009) to enhance value-creation (Jardón & Martos, 2012). • Cooperation drives innovation (Jardon, 2015), where cooperation with foreign partners

	results in higher innovation compared to domestic ones (Molodchik & Jardon, 2017). • Cooperation grounded on 'green' relationships fosters competitive advantage of small firms (Chen, 2008).
Customer satisfaction	• Customer satisfaction "includes customer expectations, perceived quality and perceived value" (Sekhar *et al*., 2015, p. 278). • It is regarded as an essential feature of a SME's IC (Steenkamp and Kashyap, 2010), even in periods of downturn (Henry, 2013), and sometimes it is accounted for as a separate component, i.e. customer capital (Cohen & Kaimenakis, 2007; Khalique & Pablos, 2015; Sekhar *et al*., 2015; Ullah *et al*., 2016). • It fosters competitive advantage (Chen *et al*., 2006; Mubaraq & Haji, 2014). • Some authors, such as van Liempt *et al*. (2014), take a wider view and include stakeholders to assess their satisfaction with a SME's activity, or focus the customer satisfaction on green features of SMEs products (Chen, 2008).
External RC	• Relying on external relationships is crucial for SMEs adopting either a defender or a prospector strategic approach (St-Pierre & Audet, 2011), according to Miles and Snow's typology (Miles *et al*., 1978). • A SME can assimilate relevant information from external relations (Ferreira & Franco, 2017a, 2017b), adapt to external environmental changes (Ferreira & Franco, 2017b) and ultimately a firm's innovation and organizational performance is supposed to benefit from these relationships (Crema & Verbano, 2016). • External relationships can include other than customers, to reach capital suppliers and community capital (Aisjah, 2017).
Distribution	• Distribution agreements are considered less relevant compared to previous-discussed items of RC (Jardón & Martos, 2012; Korsakienė *et al*., 2017; Steenkamp & Kashyap, 2010). • Both the distribution network and the type of channels selected for the distribution of a SME's products affect its competitive advantage (Jardon & Dasilva, 2017), especially in the boutique (Khalique & bin Md Isa, 2014) and banking sector (Mubaraq & Haji, 2014).
Additional RC items	
Internal RC	• Also internal relationships affect RC (Henry, 2013), since they can contribute to exploiting knowledge coming from both clients and suppliers (Khadir-Poggi & Keating, 2015), such as to forecast the demand of international customers (Ling, 2013). • The maintenance of internal relations with individuals, teams and groups is pivotal for SMEs' success (Ferreira & Franco, 2017a, 2017b).

Finally, the third pillar of IC is the SC. Results from this study confirmed that items such as systems, process, technology, culture, information, structures, management, procedures, and patents are relevant not only for large but also for small firms. Additional items of SC, with respect to those that are commonly recognized in the literature, have an effect on SMEs performance (Table 7).

Table 7 - Results for SC items

Structural Capital	
Commonly recognized SC items	
Systems	• Systems contributing to SC in small businesses vary significantly in nature (Ferreira & Franco, 2017b). • Information systems are considered strategic resources for the development of SC in SMEs (Muhammad & Bontis, 2015; Sekhar *et al*., 2015; Ullah *et al*., 2016), since they allow "easy information access" (Ngugi 2012:15; Alzuod & Isa 2017; Ferreira & Franco 2017b; Hsu and & 2009), flexibility (Alzuod & Isa, 2017), knowledge management (Jardon, 2015), organizational learning (Chen *et al*., 2006; Coyte *et al*., 2012; Gomezelj Omerzel & Smolčić Jurdana, 2016), and support to innovative initiatives (Ferreira & Franco, 2017a; Khalique

	& bin Md Isa, 2014). • They are among the formal determinants of SC (Coyte *et al*., 2012; Khalique & Pablos, 2015; Marzo & Scarpino, 2016). • Combined with management systems (Coyte *et al*., 2012), and accounting or finance systems (Cleary & Quinn, 2016), information systems help small firms to make informed decisions (Steenkamp & Kashyap, 2010), and contribute to the competitive advantage (Jardón & Martos, 2009). • Bespoke systems, such as quality management systems (Leitner, 2011, 2015), are implemented to fit a SME needs (Henry, 2013). • Advanced production systems are more relevant to SMEs adopting a defender, rather than a prospector, strategic approach (St-Pierre & Audet, 2011). • Information systems are equally important for both analyser and defensive SMEs (Cohen *et al*., 2014). • Systems of culture or processes also contribute to the development of SC in SMEs (Jain *et al*., 2017). • Green SMEs need to monitor whether their systems are suitable to effectively protect the environment in order to achieve competitive advantage (Chen, 2008).
Process	• Operation processes are pivotal for the development of small businesses' SC (Chen *et al*., 2006; González-Loureiro & Figueroa Dorrego, 2012; Massa & Testa, 2009; Sekhar *et al*., 2015) and contribute to its competitive advantage (Chen, 2008; Mubaraq & Haji, 2014). • Process optimization can support continuous improvement and innovation (Cohen & Kaimenakis, 2007; Daou *et al*., 2013; Ferreira & Franco, 2017a; Gomezelj Omerzel & Smolčić Jurdana, 2016; Mertins *et al*., 2009), especially in creative industries (Chen *et al*., 2012). • Innovation is also fostered by knowledge-based processes carried out by SMEs (Khadir-Poggi & Keating, 2015). • Mixed effects are reported with regard to the effect of technological processes on SC (Jardón & Martos, 2009, 2012; Steenkamp & Kashyap, 2010). • Service, marketing, supply, product development and strategy development processes are also contributing to a small firm's SC, which ultimately positively affects its internationalization performance (Korsakienė *et al*., 2017). • Sharing knowledge on processes is regarded as a strategic practice where SMEs can acquire knowledge from both suppliers and partners (Migliarese & Corvello, 2014). • The level of process formalization crucially depends on the firm size (Van Liempd *et al*., 2014). More formal processes, such as process documentation, can support the dispute resolution in case of complaints coming from both the inside and the outside of the SME (Henry, 2013). • The relevance of processes is witnessed by some studies conceiving it as a separate dimension of IC, namely process capital (Crema & Nosella, 2014; Rohana *et al*., 2009).
Technology	• Technology is a distinctive feature of SC also for SMEs (González-Loureiro & Figueroa Dorrego, 2012; Jardon & Dasilva, 2017; Van Liempd *et al*., 2014; Steenkamp & Kashyap, 2010; Ullah *et al*., 2016), in both technology-intensive (Crema & Verbano, 2016) and non-technological sectors (Jardón & Martos, 2012; St-Pierre & Audet, 2011). • New technologies provide a SME with a competitive advantage (Jardón & Martos, 2009; Korsakienė *et al*., 2017). • It is perceived as a resource to reduce the gap between small and large firms (Daou *et al*., 2013). • Technological capital is important in determining a SME performance (Aisjah, 2017; Khalique & Pablos, 2015; Supeno *et al*., 2015), its product quality (Rohana *et al*., 2009), and its level of innovation (Jardon, 2015; Khadir-Poggi & Keating, 2015; Khalique & bin Md Isa, 2014). • A technology-based knowledge strategy can be detrimental to a firm's global agility (Ling, 2013).
Culture	• Corporate culture and cultural values play a fundamental role in the management of a

	SME's SC (Alzuod & Isa, 2017; Ferreira & Franco, 2017a, 2017b; Khalique & bin Md Isa, 2014; Van Liempd *et al*., 2014; Marzo & Scarpino, 2016; Sekhar *et al*., 2015), since they promote a small firm's competitiveness (Gomezelj Omerzel & Smolčić Jurdana, 2016; Jardón & Martos, 2009, 2012; Mubaraq & Haji, 2014), knowledge sharing (González-Loureiro & Figueroa Dorrego, 2012; Henry, 2013; Jardón & Martos, 2009; Khadir-Poggi & Keating, 2015), and internationalization (Korsakienė *et al*., 2017). • Corporate culture is classified among the "soft" intellectual assets, that is those for which is more difficult to attribute a direct monetary value (Cohen & Kaimenakis, 2007, p. 249), since it represents a small firm's philosophy (Crema & Nosella, 2014). • Positive effects of culture on SMEs are more likely to be found among manufacturing SMEs than those operating in the service industry (Mertins *et al*., 2009). • Mixed results have been found with regards to the impact of corporate culture towards innovation on a firm's product innovation (Costa *et al*., 2014; Carlos M Jardon, 2015; Table 3) or its success (Steenkamp & Kashyap, 2010).
Information	• Information (technology) systems are considered cornerstone to SMEs (Sekhar *et al*., 2015) since they are supposed to support a variety of objectives: communication, coordination and information dissemination (Coyte, Ricceri & Guthrie, 2012; Crema & Verbano, 2016; Jain *et al*., 2017; Ngugi, 2014), at both local and global level (Ling, 2013). • Information systems are responsible for a small business' survival (Ferreira & Franco, 2017a). • Investments in information technology helps a SME to maximize its knowledge value (Hsu & Fang, 2009; Mubaraq & Haji, 2014), and to sustain its competitive advantage (Cohen *et al*., 2014; Ferreira & Franco, 2017b; Jardón & Martos, 2009), by translating employees' into organizational knowledge (Alzuod & Isa, 2017; Gomezelj Omerzel & Smolčić Jurdana, 2016; Khalique & bin Md Isa, 2014; Khalique & Pablos, 2015). • Information integration indeed, together with strategy, is one of the factors fostering new product development in SMEs (Chen *et al*., 2006; Jardon, 2015).
Structures	• Organizational structure (Chen *et al*., 2012; González-Loureiro & Figueroa Dorrego, 2012; Sekhar *et al*., 2015), and infrastructures (Khalique & bin Md Isa, 2014; Khalique & Pablos, 2015; Muhammad & Bontis, 2015; Ullah *et al*., 2016) contribute to both effective knowledge management (Crema & Verbano, 2016; Gomezelj Omerzel & Smolčić Jurdana, 2016; Khalique & bin Md Isa, 2014), innovation performance (Rohana *et al*., 2009) and a SME's growth (González-Loureiro & Figueroa Dorrego, 2012). • Structure formalization depends upon a SME's size (Khadir-Poggi & Keating, 2015; Van Liempd *et al*., 2014), whether it acts locally and in a highly dynamic environment (Daou *et al*., 2013). • Structures are not playing a crucial role in SMEs internationalization strategies (Korsakienė *et al*., 2017).
Management	• Management: decision-making, leadership, quality, innovation, and knowledge. Knowledge management pertains to the domain of "hard" intellectual capital assets, since it is directly attributable to an absolute monetary value (Cohen & Kaimenakis, 2007), although it can be pursued through informal management systems also (Coyte *et al*., 2012). • Quality management is one of SMEs' most implemented management practices (Leitner, 2011, 2015). • Innovation initiatives are more likely to be successful if SMEs' top management is involved in the product innovation (Costa *et al*., 2014; Table 3). • Management systems contribute to a SME's SC and are considered as relevant intangible assets (Steenkamp & Kashyap, 2010) since they support the leadership effort and decision-making processes (Henry, 2013; Mertins *et al*., 2009), foster competitiveness (Chen, 2008; Chen *et al*., 2006), internationalization (Ling, 2013), as well as enable the small businesses to excel at meeting customer's expectations (Coyte *et al*., 2012; Khalique & bin Md Isa, 2014). • Managerial experience is argued to play a crucial role in supporting a SME's SC (Ileanu *et al*., 2015).

Procedures	• SMEs' procedures are formal (or informal, see (Coyte *et al*., 2012) systems aimed at managing flexibility (Alzuod & Isa, 2017; Ferreira & Franco, 2017a, 2017b; Massaro, Dumay & Bagnoli, 2015), controlling quality (Jain *et al*., 2017; Marzo & Scarpino, 2016; Ullah *et al*., 2016), embedding knowledge (Coyte *et al*., 2012; Khalique & bin Md Isa, 2014; Khalique & Pablos, 2015), supporting innovation (Khalique & bin Md Isa, 2014; Ngah & Ibrahim, 2011) and in turn SMEs growth (Van Liempd *et al*., 2014; Ngugi, 2014). • Traditional procedures are typical of analyzer strategic types of SMEs (Massa & Testa, 2009).
Patents	• Patents are relevant for SMEs as well as for larger companies, since they foster competitiveness (Chen *et al*., 2006; Jain *et al*., 2017). • They can be used as a tool to store organizational knowledge (Gomezelj Omerzel & Smolčić Jurdana, 2016; Khalique & bin Md Isa, 2014). • They are more typical of a prospector, rather than other strategic typologies (Massa & Testa, 2009; St-Pierre & Audet, 2011). • Investments in patents maintenance are considered a proxy for SC and are predictive of a SME performance (Chen *et al*., 2006; Crema & Verbano, 2016; Hsu & Fang, 2009). • Financial institutions are more likely to positively assess SMEs' merit credit when they show a good performance in terms of patents (Van Liempd *et al*., 2014; Mubaraq & Haji, 2014). • They are also predictive of a higher likelihood for a SME to be acquired (Bonardo *et al*., 2010). • Limiting factors can inhibit the patenting activity of small firms due to lack of either resources, knowledge or trust in the patenting system (Daou *et al*., 2013).
Additional SC items	
Knowledge	• Having a limited amount of physical assets SMEs exploit knowledge as part of their strategy (Kujansivu & Lönnqvist, 2007; Massaro *et al*., 2015). • Knowledge plays a fundamental role in the development of both HC and SC (Henry, 2013; Ling, 2013), especially for technology-based small businesses (Ferreira & Franco, 2017a, 2017b). • IT knowledge contributes to the creation of SC (Khalique & bin Md Isa, 2014; Khalique & Pablos, 2015; Ullah *et al*., 2016) since it enables small firms to acquire, transfer and retain knowledge (Chen *et al*., 2006; Cleary & Quinn, 2016; Cohen *et al*., 2014; Cohen & Kaimenakis, 2007; Crema & Verbano, 2016; Gomezelj Omerzel & Smolčić Jurdana, 2016; Massaro *et al*., 2015; Mertins *et al*., 2009) for decision-making, planning and controlling purposes (Chen, 2008; Cleary & Quinn, 2016). • Knowledge management in SMEs can also occur through informal mechanisms (Coyte *et al*., 2012). • Market knowledge is instead expected to foster the competitive advantage of emerging clusters (Jardón & Martos, 2012), whereas niche knowledge is crucial for asset management SMEs (Khadir-Poggi & Keating, 2015).
Innovation	• Most of SMEs competitive advantage is driven by innovation management (Yu-Shan Chen, 2008; Cohen *et al*., 2014; Costa *et al*., 2014; Korsakienė *et al*., 2017; Table 3) regardless of the industry they are operating in (Jardón & Martos, 2009). • Small firms are expected to show an innovation culture (Costa *et al*., 2014; González-Loureiro & Figueroa Dorrego, 2012; Khadir-Poggi & Keating, 2015; Mubaraq & Haji, 2014; Sekhar *et al*., 2015; Table 3) which impacts a SME's capability to innovate, through its HC, and its processes supporting innovation initiatives, via its SC (Crema & Verbano, 2016; Ferreira & Franco, 2017a, 2017b; Khalique & bin Md Isa, 2014; Van Liempd *et al*., 2014; Ngah & Ibrahim, 2011). • Innovation management can come through formal plans (Agostini *et al*., 2017; Agostini & Nosella, 2017; Ngugi, 2014) and be related to both product (Crema & Nosella, 2014), process (Mertins *et al*., 2009), and technological innovation (Khalique & bin Md Isa, 2014).
Competition	• Information systems (Ling, 2013), the internal communication, organizational culture, teamwork, knowledge sharing, technology (Jardón & Martos, 2009; Khalique & bin Md

	Isa, 2014), R&D, patents, copyrights and intellectual property management, and new product development (Chen *et al*., 2006) are all distinctive resources which are supposed to drive sustainable competitive advantage, also in environmental friendly SMEs (Chen, 2008).
Employees	• Hiring the best employees (Chen, 2008; Khalique & bin Md Isa, 2014) and the quality of interactions among them capture some features of the internal social capital, which represents a dimension of SC (Agostini & Nosella, 2017). • This applies in particular to employees working in R&D departments who are considered as a proxy for the capability of SMEs to innovate (Chen *et al*., 2006; Hsu & Fang, 2009). • Employees' productivity can be enhanced by either "hard" SC factors, such as databases, organizational structures, and patents (Ileanu *et al*., 2009) or "soft" ones, such as collaboration, information sharing, and adaptation (Crema & Verbano, 2016; Ngah & Ibrahim, 2011).
Product	• Product-related strategies are vital for small firms (Costa *et al*., 2014; Carlos M Jardon, 2015; Mertins *et al*., 2009; Table 3), where product reputation explains most of their corporate reputation (Steenkamp & Kashyap, 2010), with specific regard to their environmental impact (Chen, 2008; Jardon & Dasilva, 2017). • Beyond new product development (Chen *et al*., 2006; Jardón & Martos, 2012), improvements to existing products result in a competitive advantage of a small business (Jardón & Martos, 2009; Migliarese & Corvello, 2014). • Product technologies are crucial for small businesses (Korsakienė *et al*., 2017; Rohana *et al*., 2009), which can pursue different appropriability regimes related to their technologies and products (Agostini *et al*., 2017).
Communication	• Formal and informal communication supports SC in small firms (Henry, 2013; Jain *et al*., 2017; Khadir-Poggi & Keating, 2015; Marzo & Scarpino, 2016) beyond HC and RC (Henry, 2013). • Communication systems and infrastructures promote *ad hoc* communication enabling knowledge sharing (Chen *et al*., 2006; Khadir-Poggi & Keating, 2015) and fluid communication between the levels of decision-making (Ferreira & Franco, 2017a, 2017b). • Internal communication networks are present in SMEs adopting either a defender or a prospector strategy (Jardon & Dasilva, 2017; St-Pierre & Audet, 2011), since it is perceived as a source of competitive advantage (Jardon, 2015; Jardón & Martos, 2009, 2012), whereas external communication networks are not consistently used by small firms (St-Pierre & Audet, 2011).
Support	• SC is also conceived of as a system of enabling processes and procedures (Ferreira & Franco, 2017a, 2017b; Marzo & Scarpino, 2016). • Support ranges from different sources, such as corporate culture (Alzuod & Isa, 2017) or technology (Cohen *et al*., 2014), and impacts a variety of outputs, such as competence development (Crema & Verbano, 2016), outsourcing (Marzo & Scarpino, 2016), and innovation (Ferreira & Franco, 2017a, 2017b; Khalique & bin Md Isa, 2014; Ngugi, 2014) or innovativeness (Ngah & Ibrahim, 2011).

3.3 – *What is the future of IC research within the SMEs context?*

Empirical findings from this study uncovered new questions which can be investigated in the future:

a) Are there significant synergies which could be accounted for when managing IC and its dimensions in SMEs? Since intangibles should be considered jointly, the analysis of their joint, combinatorial effect on small firms performance could provide fruitful information to entrepreneurs and managers (Athey & Roberts, 2001; Milgrom & Roberts, 1995; Roberts, 2004);

b) The role of IC in supporting SMEs sustainability is still underdeveloped. However, nowadays the sustainable impact of SMEs is becoming more and more crucial (Johnson &

Schaltegger, 2016). Hence, research questions around the role of IC measurement and management to support born-sustainable vs. non-born sustainable small business are worth of investigation. More specifically, the analysis of either existing or new IC dimensions to support SMEs sustainability could bring about insightful knowledge to the SME field;

c) Are IC dimensions explicitly accounted for in a small firm's business model? Which IC dimensions are SMEs including in their business model? Since strategic agility and business model are becoming more and more interconnected, the role of IC management is considered as pivotal (Arbussa, Bikfalvi & Marquès, 2017; Cosenz & Bivona, 2020);

e) IC traditional tripartition seems to be less appropriate to explain the role of IC dimensions in SMEs, since it entails a 'silo' approach between the three different capitals each of which accounts for different IC dimensions. Hence, researchers might ask how are different IC dimensions affecting different IC capitals and their interconnections can foster SMEs performance? Similarly, the effect of the overlapping related to different IC capitals could be explored to explain different patterns in the development of IC and its underlying components;

f) Are size differences important within the SME field? Which are the IC dimensions which could differently affect micro, small and medium firms performance?;

g) Finally, are there differences in the IC dimensions which are contributing more to the explanation of a SME performance based on their life cycle stage?

4 – Discussion and conclusions

This paper sought to review the literature on IC with particular reference to SMEs. By adopting an SLR approach, results from this study comprehensively investigate the patterns in IC research focusing on SMEs. To the best of our knowledge, this study is the first of its kind to review the literature of IC in SMEs, by identifying those items which are particularly relevant for SMEs performance.

IC plays a fundamental role in the context of SMEs, since these firms have less availability of tangible resources but can rely more on intangible resources compared to larger firms (Kujansivu & Lönnqvist, 2007; Massaro, Dumay & Bagnoli, 2015; Wenke, Zapkau & Schwens, 2020). Starting from this premise, this study has a triple aim:

– *first*, to analyse how the IC literature is developing within the SMEs context;

– *second*, to provide further insights on the focus of SMEs on IC components with an impact on performance;

– *third*, to advance some knowledge related to the future of IC research within the SMEs context. To do so, a SLR was undertaken (Fayezi, Zutshi & O'Loughlin, 2017; Massaro, Dumay & Guthrie, 2016; Nolan & Garavan, 2016) on the studies available in the field of IC in the SME context, which offered a better understanding of existing knowledge.

This type of literature review is considered rigorous (Nolan & Garavan, 2016; Snyder, 2019) and effective in exploiting the links between past and more recent literature, identifying the gaps in the current research, and offering new research opportunities (Massaro, Dumay & Guthrie, 2016).

Results show that IC in SMEs is conceived of as a wider concept compared to existing frameworks (Abhayawansa & Guthrie, 2016a). One of the possible reasons for this result could be that SMEs are becoming more and more reliant on intangible than tangible capital, compared

to larger firms.

Due to their scarcity of resources and tangible assets, their innovative potential, and their strong reliance on human capital, SMEs are more and more focusing their attention towards a proper management of IC (Inn, Dumay & Kokubu, 2015; Jardón & Martos, 2012; Massaro, Dumay & Bagnoli, 2015; Mertins, Alwert & Will, 2006; Mertins & Will, 2007).

IC and its dimensions are indeed capable of supporting a SME in achieving a set of multi-dimensional performance (Figure 3). From the analysis of the reviewed literature, it appears that a core and diversified set of IC dimensions is supporting some of the most important performance for a SME, namely knowledge management, innovativeness, competitiveness, sustainability, and business performance. These dimensions include aspects which pertain to the domain of HC (employees, training, team, competence, experience), RC (customer, market, partners, suppliers), as well as SC (communication, culture, systems, process, information, management, procedure, support).

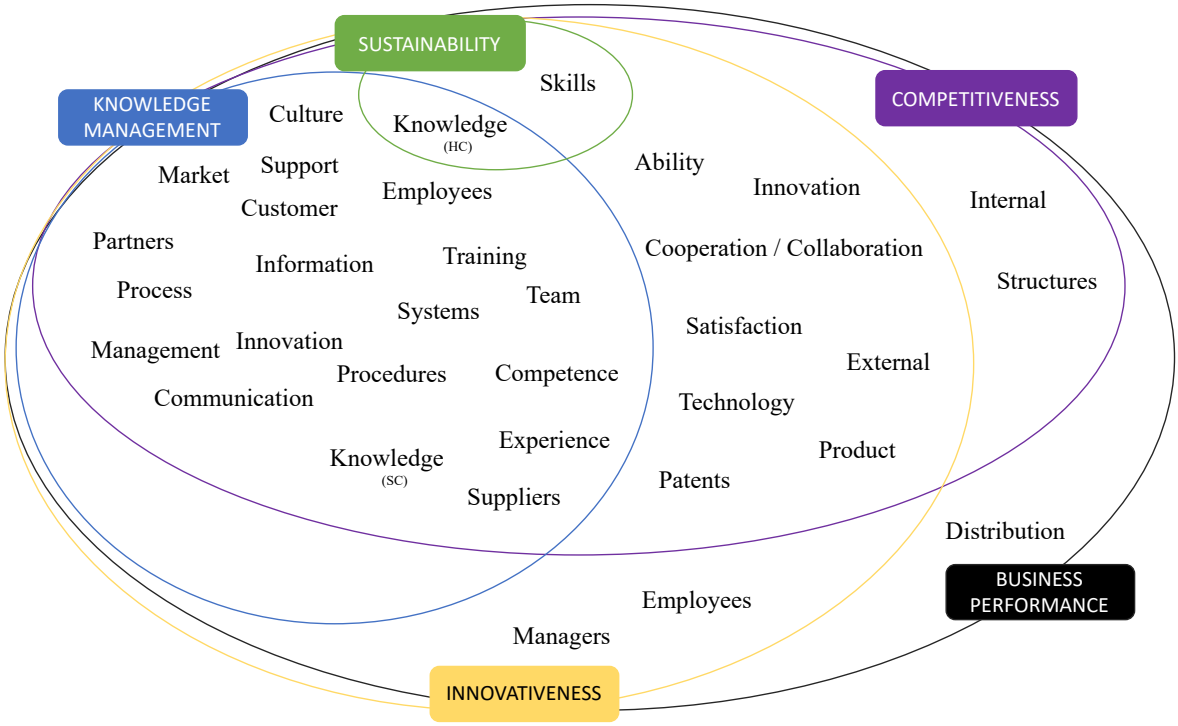

Fig. 3 – Effects of IC dimensions on SMEs performance

Some dimensions of IC, such as knowledge and innovation, are contributing to more than one capital of IC. Such findings might mirror the fact that boundaries between IC capitals are less defined in SMEs with dimensions contaminating different areas of IC.

Moreover, skills represent one dimension of IC at the intersection of different SME performance, namely sustainability, innovativeness, competitiveness and business performance. This result is in line with that stream of the literature that contends that SMEs need evolving skills to meet changing demand and context (Heilmann, Forsten-Astikainen & Kultalahti, 2020).

An additional set of IC dimensions (ability, cooperation/collaboration, satisfaction, external relationships, innovation, product, technology, patents) contributes to the achievement of superior performance in terms of innovativeness, business performance and competitiveness.

Small businesses experience these performance as highly correlated (Cooke & Wills, 1999; Shashi, Centobelli, Cerchione & Singh, 2019).

Hence, leveraging the prior IC dimensions can result in superior performance. Furthermore, some dimensions of IC are more performance-specific. Dimensions related to HC, such as 'managers' and 'employees', indeed support a SME innovativeness and hence its improved business performance (Inn, Dumay & Kokubu, 2015; Mertins & Will, 2007), whereas 'internal relationships' and 'structures' sustain a small firm's competitiveness and, through it, its business performance (Khalique, Bontis, Shaari, Yaacob & Ngah, 2018). Finally, 'distribution' is an IC dimension contributing to the general business performance of a SME. This result is consistent with prior knowledge arguing that the supply chain is pivotal for a small firm's success (Eng, 2016).

Contributions, limitations and future research avenues that can be derived from this study are discussed below.

4.1 – *Contributions*

Results from this study enrich the literature on the conceptualization of IC (Dumay and Garanina, 2013) by focusing on a specific typology of firm, which deserves specific research effort (e.g. Abeysekera 2019; Chaminade & Roberts 2003; Perrigot, López-Fernández & Eroglu, 2013). Indeed, since IC seems to be confined to large firms (Massaro, Dumay & Garlatti, 2015), this study enables SMEs to get a deeper understanding of the role of IC in their specific context.

Furthermore, the present study extends the knowledge of IC in practice (Guthrie, Ricceri, & Dumay, 2012), by focusing on the items of IC with a relevant role in affecting SMEs performance. The evidence reveals that the research on IC in SMEs is moving towards the third stage of research (Guthrie, Ricceri, & Dumay, 2012), where studies on IC are converging on existing knowledge and exploiting it in practice.

Finally, it provides support to the role of IC management in SMEs (Inn, Dumay & Kokubu, 2015; Jardón & Martos, 2012; Massaro, Dumay & Garlatti, 2015; Mertins, Alwert & Will, 2006; Mertins & Will, 2007).

In particular, entrepreneurs are expected to benefit from this study by exploiting the knowledge on how SMEs can secure, develop and use their IC through the identification of the most relevant components of IC that can be acquired and managed to achieve superior performance.

4.2 – *Limitations and future research avenues*

This study is not without its limitations. First, the review is based only on those articles compliant with a selected set of criteria. This approach can exclude other studies and limit the boundaries of the analysis. However, it is also a proper basis for identifying future streams of research (Easterby-Smith, Thorpe & Jackson, 2012; Rae & Wang, 2015).

Second, the analysis is also affected by the limitation due to publication bias. In fact, only published studies have been considered for the analysis. Therefore, the inclusion of working papers could help to identify more recent research trends.

Third, only most recurrent IC items have been retained in the analysis. However, further research could be conducted in order to have a holistic view of all IC items identified in extant literature.

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APPENDIX

List of articles included in the sample

Authors	Year	Journal	Citations	CPY	Location
Agostini, L & Nosella A	2017	Journal of Intellectual Capital	45	15,00	Italy
Agostini, L *et al*.	2017	Journal of Intellectual Capital	81	27,00	Italy
Aisjah, S	2017	Australian Academy of Accounting and Finance Review	1	0,33	Indonesia
Akhtar, CS *et al*.	2015	Journal of Management Research	25	5,00	Malaysia
Alwert, K *et al*.	2009	Journal of Intellectual Capital	93	8,45	Germany
Alzuod, MAK *et al*.	2017	International Review of Management and Marketing	9	3,00	Jordan
Aseanty, D	2016	OIDA International Journal of Sustainable Development	2	0,50	Indonesia
Bonardo, D *et al*.	2010	Journal of Technology Transfer	126	12,60	Europe
Cegarra-Navarro, J. G.	2005	Journal of Strategic Marketing	80	5,33	Spain
Chen, YS	2008	Journal Of Business Ethics	481	40,08	Taiwan
Chen, YS *et al*.	2006	Total Quality Management & Business Excellence	193	13,79	Taiwan
Cleary, P & Quinn, M	2016	Journal of Intellectual Capital	78	19,50	Ireland
Cohen, S & Kaimenakis	2007	The Learning Organization	383	29,46	Greece
Cohen, S *et al*.	2014	Journal of Intellectual Capital	52	8,67	Greece
Costa, RV *et al.*	2014	Knowledge Management Research & Practice	64	10,67	Portugal
Coyte, R *et al.*	2012	Journal of knowledge management	108	13,50	Australia
Crema, M & Nosella, A	2014	Engineering Management Journal	32	5,33	Italy
Crema, M &Verbano, C	2016	Creativity And Innovation Management	30	7,50	Italy
Daou, A *et al.*	2013	Journal of Applied Business Research	31	4,43	Mexico
Daud, S *et al.*	2011	African Journal Of Business Management	72	8,00	Malaysia
Durst, S & Willhelm, S	2013	Measuring Business Excellence	27	3,86	Germany
F-Jardón, CM & Martos, MS	2009	Journal of Intellectual Capital	112	10,18	Argentina
Ferreira, A & Franco, M	2017	European Management Review	28	9,33	Portugal
Ferreira, A & Franco, M	2017	International Journal of Business and Globalisation	6	2,00	Portugal
Gajowiak, M	2016	Advancing Research In Entrepreneurship In The Global Context	3	0,75	Greater Poland
Gomezelj Omerzel, D *et al.*	2016	Economic Research-Ekonomska Istraživanja	30	7,50	Slovenia and Croatia
González-Loureiro, M & Dorrego, PF	2012	Intangible Capital	75	9,38	Spain

Henry, L and Dumay, J	2013	Journal of Intellectual Capital	90	12,86	UK
Hsu, YH & Fang, W	2009	Technological Forecasting And Social Change	652	59,27	Taiwan
Ileanu, BV *et al.*	2009	Romanian Journal of Regional Science	12	1,09	Romania
Ileanu, BV *et al.*	2015	Journal of Applied Quantitative Methods	2	0,40	Romania
Jain, P *et al.*	2017	Social Responsibility Journal	44	14,67	India
Jardon, CM	2015	Knowledge Management Research & Practice	21	4,20	Spain
Jardon, CM and Dasilva, A	2017	Management Of Environmental Quality	20	6,67	Argentina
Jardon, CM & Martos, MS	2012	Journal of Intellectual Capital	223	27,88	Latin America
Khadir-Poggi, Y et al.	2015	International Journal Of Knowledge And Learning	7	1,40	Ireland
Khalique, M & Pablos, PO	2015	International Journal of Learning and Intellectual Capital	26	5,20	Malaysia
Khalique, M *et al.*	2014	IUP Journal of Management Research	21	3,50	Malaysia
Khalique, M *et al.*	2015	Journal of Intellectual Capital	208	41,60	Pakistan
Korsakienė, R *et al.*	2017	Entrepreneurship And Sustainability Issues	11	3,67	Lithuania
Kujansivu, P & Lonnqvist, A	2007	Journal Of Intellectual Capital	247	19,00	Finland
Leitner, KH	2011	International Journal Of Technology Management	110	12,22	Austria
Leitner, KH	2015	International Journal Of Innovation Management	31	6,20	Austria
Ling, YH	2013	Asia Pacific Journal of Management	166	23,71	Taiwan
Link, AN & Ruhm, CJ	2011	Small Business Economics	60	6,67	US
Marzo, G *et al.*	2016	Journal of Intellectual Capital	72	18,00	Italy
Massa, S &Testa S	2009	Knowledge Management Research & Practice	25	2,27	Italy
Massaro, M *et al.*	2015	Journal of Intellectual Capital	0	0,00	n.a.
Matejun, M	2012	Research in Logistics & Production	1	0,13	Poland
McLarty, R	1999	International Journal of Business Performance Management	5	0,24	East Anglia
Mertins, K *et al.*	2009	Electronic Journal of Knowledge Management	43	3,91	Germany
Migliarese, P &Corvello, V	2014	International Journal of Intelligent Enterprise	2	0,33	n.a.
Moe, NB *et al.*	2014	Empirical Software Engineering	81	13,50	Scandinavia
Molodchik, M & Jardon, CM	2017	Journal of Intellectual Capital	17	5,67	Russia
Mondal, A	2016	International Journal of Research in Finance and Marketing	3	0,75	India
Mubaraq, S & Haji, AA	2014	Journal of Banking Regulation	19	3,17	Nigeria
Ngah, R & Ibrahim, AR	2009	International Journal of Management Innovation Systems	156	14,18	Malaysia
Ngah, R & Ibrahim, AR	2011	Communications of the IBIMA	41	4,56	Malaysia
Ngugi, K.	2012	Journal of Business Management and Corporate Affairs	4	0,50	Kenya
Roos, G & O'Connor, A	2015	Journal of Intellectual Capital	25	5,00	Australia
Salazar-Elena, JC *et al.*	2016	Sustainability	5	1,25	Spain
Sanchez-Gutierrez, J *et al.*	2016	Measuring Business Excellence	25	6,25	Mexico
Sekhar, C *et al.*	2015	Procedia-Social and Behavioral Sciences	39	7,80	India

St-Pierre, J &Audet, J	2011	Journal of Intellectual Capital	175	19,44	Canada and France
Steenkamp, N & Kashyap, V	2010	Journal of Intellectual Capital	180	18,00	New Zealand
Supeno, H *et al.*	2015	International Business and Management	9	1,80	East Java
Tee Jeok Inn, J *et al.*	2015	VINE Journal of Information and Knowledge Management Systems	16	3,20	Hong Kong and Japan
Ullah, B	2016	Global Journal of Management And Business Research	13	3,25	Pakistan
van Liempd, D *et al.*	2014	Danish Journal of Management and Business	1	0,17	Denmark
Vazquez-Avila, G *et al.*	2012	Competition Forum	11	1,38	Mexico
Wang, WK *et al.*	2013	Quality & Quantity	37	5,29	East Asia
Yi-Ching Chen, *et al.*.	2012	Personnel Review	64	8,00	Taiwan
Yu, A &Humphreys, P	2008	Journal of Decision Systems	10	0,83	France, Germany, Poland, Slovenia, Spain