Exploring intellectual capital management in SMEs: an in-depth Italian case study

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Abstract

Purpose – The purpose of this paper is to analyse intellectual capital (IC) in SMEs. In particular two research questions are posed: how SMEs acquire or develop knowledge and intangible resources; and how they manage and exploit IC.

Design/methodology/approach – An in-depth case study of an Italian SME operating in the automobile industry is carried out in order to answer the two research questions.

Findings – The case study evidences the impossibility to sharply divide all of the knowledge-related elements of a firm into the three generally accepted categories of human, organisational (structural) and relational capital. The analysis of IC as a set of stock of resources is important but really partial due to the fact that IC and knowledge continuously change. In this light, the focus on activities and processes help in understating how the firm manages IC. In the studied SME, formal and informal knowledge coexist but in different areas of the firm. Again, the relationships with external stakeholders, suppliers and clients especially, are the source for improving IC. The case study also supports the important role that dialogue and familiarity play in knowledge management. However the focus of management is not knowledge *per se*, but the solution to problems the firm must deal with, IC and knowledge being just one of the issues to be considered in order to solve problems.

Research limitations/implications – The paper is useful since it addresses the management of IC in SMEs which is a topic under-researched with respect to the economic importance of SMEs. The conclusions of the work, emerging from an individual case study analysis, cannot be generalised. However, they offer support for other studies findings and highlight some specificities of the way SMEs manage IC.

Practical implications – The paper explores the characteristics of IC management in SME in order to contribute towards the differentiation of the view of IC in relation to the "size" of the firm. Approaches originally developed for larger firms fail to consider SMEs characteristics, which indeed are not smaller large firms; therefore, it is in general impossible to think of SME management systems as simpler or smaller than those adopted by large firms. The key point is in fact that SMEs (at least the one here analysed) have management systems which are ontologically different.

Originality/value – Besides the relevant role of SMEs in economy, very few papers have been published on the way IC is developed and managed in SMEs. A gap therefore exists between the economic importance of SME and the attention IC research has given to them, which calls for more research on this area. The paper is a step forward on the way of reducing that gap, since it provides a case study on knowledge and IC management within an Italian SME. Finally, the analysis reinforces similar results of other studies adopting a dynamic perspective for the analysis of IC, which found IC management in SMEs to be more based on informal systems.

Keywords Italy, Intellectual capital management, Knowledge management, Case study, Small to medium sized enterprises

Paper type Research paper

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1. Introduction

A recent stream of literature identifies the rise of a third stage in intellectual capital (IC) research (Catasús and Chaminade, 2007; Guthrie *et al.*, 2012), which addresses the praxes of IC as they are implemented in organisations.

Despite this growing attention to what organisations do in this field, little room is nevertheless given to the praxes adopted by SMEs for the management of knowledge and IC. After analysing over 300 IC research articles, Guthrie *et al.* (2012) found that only 11 were dedicated to SMEs and none of them were based on case study methodology. A rough search performed through Scopus database revealed that from 2000 to 10 June 2014 out of 29,283 articles published on business, management and accounting journals that have "Knowledge" or "Intellectual" or "Intangible" in their title, abstract or keywords, only 325 have also "SME" and only 87 display also "case study" or "study case".

Such limited relevance of SME in IC research is however inconsistent with the large population of SMEs and the role they play in the real world economy. SMEs (defined as firms with no more than 250 employees and turnover lower than €50 million or a total balance sheet lower than €43 million) constitute the dominant form of business organisation in all countries worldwide, accounting for over 95 per cent and up to 99 per cent of the business population, depending on the country (OECD, 2005). SMEs represent about 99.8 per cent of all European firms (EU-27, year: 2012) and generate about 57.6 per cent of the European value added at factor costs and 66.5 per cent of the employment (European Commission, 2013a). A similar situation also exists within individual European countries. For instance, 99.8 per cent of Italian firms are small-medium sized, and account for 68 per cent of the value added and for 80 per cent of the employment (European Commission, 2013b).

A gap therefore exists between the economic importance of SMEs and the attention received from IC scholars, hence calling for more research on SMEs.

Besides the relevant role of SMEs in the economy, a sound reason for focusing more on IC research on SME lies at the practical level. SMEs are different from large-sized companies for a number of reasons and usually display much more variety with respect to the way they manage knowledge and IC (Durst and Edvardsson, 2012). A concentrated analysis of SMEs' practices is therefore requested to take into account such a variety.

The paper is a step along the way to reducing that gap by presenting a case study on knowledge and IC management in an Italian SME[1]. Two research questions are posed:

RQ1. How do SMEs acquire or develop knowledge and intangible resources?

RQ2. How do SMEs manage and exploit them?

The paper carries out an in-depth analysis of a SME's IC from a dynamic perspective. This means that the paper directs its attention to the activities and processes of the firm's knowledge creation and expansion, rather than on IC elements already existing in the firm. The focus therefore is on how the firm investigated develops or obtains knowledge, and how organisational structure and managerial processes, both formal and informal, support such activities (Teece *et al.*, 1997).

Such a methodological choice, i.e. to discuss IC from a dynamic perspective, is also consistent with some of the characteristics of the SMEs which have been found in large part of the literature (Durst and Edvardsson, 2012). First, from a dynamic viewpoint, knowledge emerges from socially constructed processes. Socialisation is the typical

characteristic of SMEs, and it is also at the core of the perspective adopted. Moreover, the dynamic approach points to the fact that the most important knowledge is mainly tacit rather than explicit. SMEs are seen as less formal than larger firms, and relying more upon tacit knowledge.

The dynamic perspective chosen emphasises the analysis of the interactions of the resources in value creation processes, the activities in which intangibles are embedded and modified, and finally the process of changing intangibles (Kianto, 2007). Therefore, the commonly accepted categories of intangibles, i.e. relational, structural and human, can be accepted only as a starting point for investigation, and at most as a device for structuring the paper. However, the analysis shows that a sharp separation between them is quite impossible, due to their strong relationships (Mouritsen *et al.*, 2001a, b; Kassotaki and Cohen, 2012).

The paper is structured as follows. Section 2 reviews the literature on IC and IC in SMEs. Section 3 discusses the theoretical reference model and the methodology employed, also providing reasons for this choice. Section 4 presents the SME investigated as case study. Sections 5-7 analyse how the SME studied acquires and develops its IC. Section 8 is devoted to the analysis of the management of IC in the analysed SME. Section 9 concludes also presenting the main contributions of the paper to the extant literature.

2. Literature review

2.1 On IC

IC is seen as the most relevant driver for competing in highly dynamic environments. Probably owing to the fact that IC-based issues attract interest from many economic and management disciplines with often antagonistic approaches, a long list of competing definitions exist. Differences amongst those approaches relate either to the dissimilar perspectives scholars have adopted (e.g. accounting definitions of IC strongly rely on accounting standards concepts), or to the fact that broad conceptual definitions are accompanied by lists of intangible items (Kaufmann and Schneider, 2004; Choong, 2008). Besides this, different approaches to IC have been developed: the static and the dynamic approach (Kianto, 2007).

The static approach looks at IC as a bundle of assets (and even liabilities Caddy, 2000) and resources. Such an approach is the closest to the strong-form of the resource-based view (RBV) of the firm (Schulze, 1994), which builds on the contribution by Wernerfelt (1984) and Barney (1986) amongst others. The approach is interested in the analysis and valuation of existing elements of IC and has been mainly fostered through the development of taxonomies of IC elements (Guthrie *et al.*, 1999, 2004; Sveiby, 1997; Brooking, 1997; Lynn, 1998) often without any analysis of their relationships. It considers all IC elements as individually identifiable and homogenous, the same as the analysis of disclosure on IC (Marzo, 2013). Three categories of IC (Bontis, 1998; Bjurstrom and Roberts, 2007) are usually accepted, namely relational capital, which refers to an organisation's external networks; human capital, which identifies knowledge, skills, experience and abilities of the individual employees; and organisational (or structural) capital, which encompasses the organisation's procedures, systems and other forms of (especially) codified knowledge.

The other approach, the dynamic one, has evolved from a different conception of the firm (Marzo, 2014), the one which is at the core of the weak-form of the RBV (Grant, 1996; Prahalad and Hamel, 1990; Teece *et al.*, 1997). The main difference rests on the dynamic (or evolutionary) perspective it features as a qualifying trait. Firms develop from general

inputs in a specific and path-dependent way, thanks to the organisational learning and the specific knowledge which is generated.

The comparison of the two forms of RBV translates into the dualism "quantity versus quality" (Schulze, 1994). The strong-form centres on quantity: the more is better. The weak-form calls for an emphasis on quality, i.e. the identity of resources and their relationships (Marzo, 2013, 2014).

As a consequence, the term "dynamic" refers to IC as the "systems of knowing activity rather than systems of abstract knowledge assets" (Spender, 1996a, p. 57). Focus is "not on intangible assets per se, but on the organisational capabilities to leverage, develop and change intangible assets for value creation". (Kianto, 2007, p. 344). What is important therefore is how organisations obtain, create and improve knowledge and the role played therein by organisational structure and managerial processes (Teece *et al.*, 1997).

2.2 On IC in SMEs

As mentioned above, it is widely recognised that the literature on IC in SMEs is largely underweighted when compared to the relevance SMEs play in the global economy (Guthrie *et al.*, 2012; Durst and Edvardsson, 2012) and despite the prominent role that SMEs offer in the development of territories (Del Baldo and Demartini, 2011; Demartini and Del Baldo, 2015).

Moreover, the SMEs' group displays a large variety, both inside amongst its members, and outside with respect to larger enterprises (Curran and Blackburn, 2001). The simple parameters universally used to distinguish large from small and medium sized enterprises, such as the number of employees, sale figures and asset value, are not able to fully reflect the essence of such kinds of firms (Ciambotti *et al.*, 2012). They cannot be thought of as being large enterprises on a smaller scale, as they are intrinsically different from the large-sized enterprises for a number of characteristics. Hudson *et al.* (2001) maintain that SMEs usually feature little devolution of authority, resource limitations, small number of customers, limited markets, flat and flexible structures, high innovatory potential, reactive and fire-fighting mentality and informal dynamic strategies.

Many scholars have underlined that SMEs do not manage IC and knowledge as large firms do. They are less bureaucratic, more based on socialisation and employees' closeness (Cohen and Kaimenakis, 2007) and rather idiosyncratic in the way they manage resources (Ghobadian and Gallear, 1996; Hutchinson and Quintas, 2008). Moreover, they share knowledge through non-formal activities (Hutchinson and Quintas, 2008). Finally, the role of entrepreneurial values are essential (Demartini and Del Baldo, 2015).

Considering their dimension, SMEs suffer generally from having resource constraints that limit their action (Jarillo, 1989) and ask for a careful use of available resources. Financial resources are amongst these (OECD, 2012), even if competences and human capabilities are also very important relating to the intense connectivity between actors, actions and results. SMEs management is often based on owner's supervision (Daft, 2007) with little contribution from external support. Furthermore, the owner-manager has often a central position in the organisation (Bridge *et al.*, 2003), also playing a pivotal role in firm decision making. Delegation is poorly exercised (Culkin and Smith, 2000). This leads to concentrate strategic and operational attention in the owner's hands, with little participation by the other members of the firm. Clearly such a situation is potentially dangerous: the firm can lose competitive positions when the owner leaves (Durst and Edvardsson, 2012).

Edvardsson and Durst (2013) point out that there are many differences between SMEs and large firms in relation to the management of knowledge. However a review on the practice of knowledge management in SMEs also reveals that the group of SMEs is not a monolith but displays large variety (Durst and Edvardsson, 2012). In general there is less formality of knowledge management in SMEs as testified by the absence of explicit policy relating to the management of knowledge. This is usually treated at an operational level and in terms of systems and instruments (Beijerse, 2000; Edvardsson, 2006; Hutchinson and Quintas, 2008). Moreover Nunes *et al.* (2006) affirm that managers of SMEs are not prepared to commit a heavy emphasis on the long term management of knowledge, as they are not able to identify its potential value. The lack of formal systems for managing and controlling knowledge could be caused by the fact that SMEs' employees are usually involved in daily operations with little time to be devoted to such an important task (Wong and Aspinwall, 2004). Resource constraints also hamper the development of managerial talent in SMEs (Keogh *et al.*, 2005).

Individual knowledge appears important for SMEs. Entrepreneur's human capital has to do with the foundation of the firm and with its performance (Bates, 1990; Bosma *et al.*, 2004; Shane, 2008) and may constitute what differentiates winners from losers (Dyer and Mortensen, 2005).

Tacit knowledge in SMES plays a much more important role than in large firms, but SMEs do not deal with it in any particular structured way (Matlay, 2000; McAdam and Reid, 2001; Corso *et al.*, 2003; Hutchinson and Quintas, 2008). Therefore the management of knowledge and IC could be defined as emergent, echoing the distinction between a deliberate vs emergent approach to strategic planning (Mintzberg and Waters, 1985).

Finally, SMEs are very active in their relationships with external stakeholders, which are one of the most important sources of knowledge (Schweizer, 2013). SMEs are in a better position in comparison to large firms in the acquisition of knowledge from customers and clients, also thanks to the relationships that SMEs' employees foster with their large-firm counterparts (Haksever, 1996). The proximity to customers and clients is very critical. It facilitates a more direct and faster flow of knowledge making it possible to obtain information about competitors' strategies and market trends (Wong and Aspinwall, 2004). Consequently, SMEs can develop their relational and social capital in comparison to human and structural capital far more than large firms (Daud and Yusuff, 2010).

The development of the inner social system leads SMEs to improve efficiency, facilitate coordination, exchange knowledge (Camuffo and Comacchio, 2005) and to encourage creativity (Montequin *et al.*, 2006).

3. The theoretical reference model and the methodology employed

3.1 The theoretical reference model

The reference model used for the analysis of the case study is based on two pillars.

First, a dynamic perspective has been chosen. This means that the focus is not only on IC assets but especially on the way they are mobilised through specific activities. For example some authors (Kianto *et al.*, 2013, 2014) offer a list of seven practices or activity systems that organisations use for leveraging IC stocks: Strategic knowledge management practices; organisational structural arrangements; knowledge-sharing and creation friendly culture; information and communication technology practices; learning mechanisms; human resource management practices focused on knowledge practices; and knowledge protection practices and mechanisms.

Focusing on activities more so than on assets is a way to better investigate the dynamics of the firm, since stocks are continuously modified by the activities run by the firm.

Second, a cycle of sharing and acquisition of knowledge must be considered to give substance to the analysis of activities. In fact activities are run by individuals and groups of individuals and the way they interact is of paramount importance for the dynamic analysis of IC. Literature on IC in SMEs clearly highlights the role of social relationship and closeness for the management of IC.

To this end the "knowledge conversion cycle" elaborated by Nonaka and Takeuchi (1995) has been here adopted as a good starting point for the analysis. Knowledge is converted from one type to another (tacit vs explicit) and from individuals to group. The modes of knowledge conversion include socialisation (from tacit to tacit knowledge), externalisation (from tacit to explicit knowledge), combination (from explicit to explicit knowledge) and internalisation (from explicit to tacit knowledge). The theory also explains how individual knowledge flows throughout the organisation through these four modes. Finally it offers an organisational knowledge creation process developing through five phases: first, sharing tacit knowledge, second, creating concepts, third, justifying concepts, fourth, building an archetype, and fifth, cross-levelling knowledge.

3.2 Methodology employed

The case study methodology has been chosen as the most appropriate for the analysis of the way SMEs acquire and manage their IC. Such a methodology is consistent with the goal of the paper for two reasons. First, a recent development in the analysis of IC is clearly leaning towards the analysis of actual praxes adopted by the firms. Case study methodology is suitable for investigating what firms do in detail. The performative research approach (Mouritsen, 2006), the preferred one for the third stage of IC research, evolves through the case study methodology.

Second, this methodological approach is the preferred one when the aim of the researcher is to investigate the "how" and the "why" of something happening (Yin, 1994), and this corresponds to the aim of the present paper.

The research is based on several interviews conducted by the authors with the three owners of the firm concerned, the Managing Director (MD), the directors of all the departments of the organisation and with some key employees. In sum, 15 persons were interviewed from December 2013 to May 2014.

Interview is one of the main types of qualitative data collection methods. Interviews are appropriate because they are very efficient in obtaining data in a short space of time, even though they bear the risk that interviewers could expect interviewees to use researchers' perspectives and words (Ely *et al.*, 1991).

In any case, interviews must be prepared after a careful literature review (Leedy and Ormrod, 2013).

A variety of interview methods exist, including the standardised (structured), the unstandardised (informal) and the semi-standardized (semi-structured) interview (Berg, 2001). The latter is the one employed for this research.

Following Welman and Kruger (2001), an interview guide was prepared by the authors, which consists of a list of topics and aspects of these topics that the interviewer should raise during the course of the interview.

While all the interviewees were generally asked the same questions, the interviewers adapted the formulation of the questions (Welman and Kruger, 2001) depending on the role of the respondent.

Interviewees were conducted with the aim of highlighting both the elements of IC and the way resources are combined to make IC dynamic. Therefore, particular detailed attention has been paid to the processes and to the activities, combining the old with

the new, and the tacit with the explicit knowledge, in order to capture the way IC is created, developed and transformed. Also relevant consideration has been given to the enablers of these knowledge-related processes. Each interview lasted on average 1.5 hours and was conducted in a semi-structured form by both authors together, who shared the list of topics to be discussed at length. Such topics covered, among others: the organisation's strategy, the relationships with external stakeholders, perceived critical success factors (CSF), communication and information flows, informal and formal relationships between the firm's people, and organisational decision making. Top management people (the MD and the three owners) were interviewed twice in order to go more in-depth into some of the insights offered.

Interviews were recorded and type-scripted verbatim and, to avoid potential misunderstandings, a further shorter interview was scheduled in some cases to clarify or go into more detail on some of the aspects already investigated. Once type-scripted, interviews were submitted to the interviewees, giving them the opportunity to check for potential inconsistencies or errors.

In accordance with the rules of this methodology, internal documents were also collected to support interviewees' statements.

Due to privacy reasons, however, some of the characteristics of the firm, of its figures and of the situations occurred have been changed to prevent the identification of the firm concerned.

4. The case study

The firm analysed, here renamed Italian Automobile Components (IAC), is a family-owned SME located in Northern Italy and producing components for the automobile industry. It has a sale turnover of 35 million EUR and about 150 employees.

The firm was founded about 50 years ago by the father of the three actual shareholders, who are currently the members of the Board of Directors and are also involved in the production department, the sales department and the administrative department. Moreover, some of the sons and daughters of the three shareholders occupy key positions in the organisation.

After a difficult period, due to both the global economic and financial crisis that especially hit since beginning the automobile industry, along with some of the firm's poor financial decisions, IAC has been able to grow again at a high rate. Financial figures, when compared to competitors, show that IAC generates a good profitability and an adequate level of cash flows.

IAC operates on one plant but uses about 11 outsourcers, two of them located outside of Italy, for some production phases. The ability to coordinate outsourcers and to integrate their production schedule into IAC's one is a fundamental capability to fulfil clients requirements.

IAC's clients are large companies operating in the automobile industry. The largest of them generates about 65 per cent of IAC sales through the brands with which it operates.

Orders from clients are acquired after competitive bids in which IAC and its competitors take part. The participation in the competitive bid is based on a draft project that the client gives to suppliers so these can prepare their competitive offer in terms of price and delivery times. In IAC, such issues are set by the sales department with the cooperation of other departments. Hypothetical standard costs and production times are here determined as a basis for setting prices and the other terms of the offer.

Once an order (or often an order for a group of products) has been acquired, a long term agreement is signed.

Products are manufactured according to technical characteristics specified by the client and are engineered starting from a sketch supplied by the client. The engineering department integrates the client sketch with all technical information required for the prototyping. Once the prototype is accepted by the client, the same department is responsible for the industrialisation phase, which basically consists of defining the way the production must be organised to manufacture the product.

Production programs are set according to clients' production programs. However orders are confirmed month by month. To manage the trade-off between efficiency and timeliness, the MD, the logistics department and the purchase department need to fix the inventory policies and production standards. Once production is run, the logistics department is responsible for the coordination of IAC's and outsourcers' production flows.

The deployment of IAC operations is very complex, owing to the large number of different products (over than 4,000), the criticalities being related to the coordination of outsourcers and the high variability of production programs. As to the latter point, due to the severe crisis they have experienced around 2008, many automobile producers have set very strict inventory policies. Therefore, they confirm purchase orders only once they are sure of selling their products. This translates into very variable production programs, where stop-and-go decisions are usual and the batch size is continuously under review.

5. Human capital and its relationships with organisational and relational capital

Human capital is obviously important for any firm, and therefore also for IAC management. A crucial distinction is made between the types of knowledge and competences management thinks are important for running operations and those which relate to other aspects of the business. Operational knowledge, mainly related to production techniques and processes, is learned on the job, because IAC holds all the relevant knowledge and competences. IAC sometimes hires temporary employees to deal with production peaks. The standardisation of processes allows them to reach the minimum required level of ability in about three weeks. Training is on-the-job and only a generic aptitude to technical work is necessary.

The same approach has been followed in the past for the actual base of employees. As one of them said:

> The large part of us has grown with the firm […] all we can do has been learnt day by day when new problems came on. We were not equipped with all we need to know but we never retreated against problems.

As a consequence of this approach, all of the shop floor employees appear to have a very common knowledge about the best ways to perform production processes. They share a unique knowledge that makes IAC able to compete by leveraging on flexibility and efficiency. Since training was (and still is) on-the-job, the recruiting policies were not focused on well-trained people. Moreover, the focus on costs leads to hiring younger people, since their cost is usually lower.

The number of graduated employees is therefore very low (no more than 5 per cent of the total workforce).

Things run differently for staff people. As it can be easily imagined, the growth process of the firm called for more people to be employed in administrative and other staff departments. In some of these, the same HR policy favouring the on-the-job training was followed. In other cases, however, specific training and courses were required to

develop knowledge and competences. For example, IAC devoted time and resources to train people in the management control department to advance business analysis and valuation skills. To the knowledge of the authors this happened simply because such a department was a brand new one, and therefore it was not possible to have on-the-job training because IAC did not have the required competences and knowledge.

The considerations above formulated, therefore provide some insights into the management of individual knowledge and skills. When the IAC management believes the firm is already possessing all the knowledge and competences thought of as necessary, then the training is on-the-job, otherwise they are acquired and fostered through the help of business consultants.

Another issue is considered as being fundamental in the shaping of HR policies, i.e. the cost of labour. Labour is not the largest cost category the firm bears since the cost for raw materials equals about 50 per cent of total revenues. However, labour cost is perceived as being under the control of the firm, simply because it can decide whether to hire or not to hire new people. For instance, IAC was considering the opportunity to hire a new manager for the development of foreign markets' sales. The issue of this total cost (pay, bonuses and other supporting costs) was the primary concern of the firm, also overcoming the idea of potential profits IAC could have achieved with this new manager.

Despite the theoretical possibility to think of human capital as a separable form or category of capital, it is clear that it is rooted in the system of processes and knowledge referring to the organisational capital. The prominent role of the on-the-job training is indeed grounded on the "stock" of competences that are now part of the firm as an entity. The preference IAC manifests for unskilled people is due not only to the fact that unskilled people can be hired at a lower cost; but also to the conviction that operating this way is better for developing some highly specific competences and abilities. Skills and abilities mould the way people perceive the world they deal with. The on-the-job training also acts in the direction of smoothing different individual views.

Finally, while the operational know-how is undoubtedly important for IAC, other softer capabilities are also required. As the MD said:

> It is not easy to produce what the client asks exactly the way it asks […] sometimes clients do not have a clear idea about their needs and we have to interpret or extract from their minds what they are not able to explain to us. This could appears strange, but this is the way things are going on today […] therefore we need people able not only to make products but especially able to listen to clients. We are improving our ability to stay as close as possible to our clients […] some of our competitors have their sales persons spending each day of the week with their major clients. We do not have this possibility, because we are smaller and do not have enough money for funding […] but this is needed if one wants to get more.

Here the role played by financial and other resources' constraints on the development of individual competences and the hiring of well-skilled people, is clearly recognised.

Again the relationship between human and relational capital is also touched upon. Human competences are important if they can complement clients' ones, and if they are able to fill the potential "holes" in the clients' ideas.

6. Organisational capital and its relationships with human and relational capital

IAC organisational (or structural) capital is both formal and informal. It is always made by a combination of different resources, some of them being typically procedures or

other codified knowledge (such as software), which constantly impact on the way activities are performed and reshape the previous knowledge of individuals.

The most formal and critical structural capital is essentially related to all procedures and documents associated with quality systems and controls. To serve automobile producers, a supplier must have a number of quality accreditations and qualifications. Some of them are the well-known ISO-based quality systems. Others are set by clients and mainly depend on the strong emphasis that in the automobile industry is attributed to passenger security. This means that to participate in a competitive bid, a supplier has to demonstrate its qualifications. Quality inspectors are usually sent by the clients to check for the fulfilment of those qualifications. As the MD put it:

> Our Quality Department is very important for our business. It controls the quality of incoming goods, but above all it offers help and support to our outsourcers to qualify accordingly to our clients' requirements.

This piece of structural capital is clearly very formal. It is carried out in a deliberate and systematic way, and is based on codified and officially approved (by IAC and its clients) procedures. Many documents are produced and filed to be shown upon a clients' request.

The activities of the quality department are also of interest to understand the support IAC provides to its outsourcers. In fact, the qualification of outsourcers, which is a mandatory requisite for them to be engaged in IAC processes, combines different knowledge resources and settings (those of IAC and those of the outsourcer) to apply explicit and codified methods and procedures in very specific contexts. In other words, the combination of those different resources transforms the knowledge IAC has built up to be adopted by another firm. As the quality department manager stated:

> We have a lot of experience with quality systems and such experience is very important for us to find the best way to apply our [codified] systems to the different realities we find. The largest part of our outsourcers are in fact very small and they did not have all procedures we need, neither they had the right culture to understand what to do and why […] they grew a lot thanks to our support.

The support IAC gives to its outsourcers is based upon a typical combination of structural and relational capital. The support is not simply a mere transfer of procedures and other knowledge-based issues from IAC to the outsourcer. Flows of codified knowledge are channelled through the relationships and modify the already existing body of knowledge and competences of both IAC and the outsourcer. Once IAC tries to "export" its systems to another firm, they must be someway modified to adhere to the new reality. IAC organisational capital, therefore, is continuously transformed as it is adapted into new firms.

Other formal elements of structural capital have been found. Amid these is the ERP system. Such a system integrates the decision-making process taking place in the firm. All departments are asked to enter data and other information in the system which is employed for different needs. Some business analysis interfaces have been built up to manage the large mass of available data. Some of them are used by more than one department, this way many people can share the same "picture" of what is going on.

The implementation of ERP and the analysis of information needs and flows were strongly disliked at the beginning for the structure they superimposed on the performed activities. However, once the system started running, it determined a relevant reorganisation of those activities. Such a change also stimulated some departments to re-frame their information needs in terms of updating to be made to the ERP. For instance, the weekly production programme was previously set by the plant

manager by using a home-made spreadsheet and on the basis of his own experience and feelings. He took into account the client's programme, the available production capacity for the week, the optimal size of the production batches, and finally the opportunity to collect different orders to reduce set-up times. Now such expertise has been made elicited from him to be codified and integrated into the ERP. This way the number of persons taking care of production programs has increased, and the critical variables influencing it are more clearly understood by IAC people. This stimulated some process innovations focused on saving set-up time to smooth some of the problems connected to the production planning. The codification of that knowledge started at the individual level (human capital) but, after knowledge was made explicit, it soon became a form of structural capital (Nonaka and Takeuchi, 1995).

A new CAD software recently purchased by IAC is another pillar of its structural capital. This has two main features which make it very useful. First of all it is possible to import the client's sketch of the product directly as an editable file. Before this software was bought IAC technicians were to re-engineer the product starting from scratch. However, the best feature of the software is the possibility it offers to find out projects and designs similar to the one under consideration, thus reducing the time for prototyping and industrialisation. Such a new software modified the activities taking place in the engineering department, and it also impacted on the knowledge and competences put to work.

Finally, a World Class Manufacturing (WCM) project was under implementation during the months the interviews took place. Whilst the first approach to WCM was ambiguous and sceptical (as Section 7 accounts for), it now represents a codified approach for improving efficiency and reducing time and scrap.

Again, a relationship between the three categories of IC can be identified. First, a number of elements that now are a part of IAC formal organisational capital were received from suppliers. Second, once those elements were rooted in the IAC processes, they enabled people to participate in a way different from before, hence modifying at the same time these processes and the human capital involved.

In addition to the processes above described, which are leading IAC towards more formalised and commonly agreed practices, some other areas still exist where decision making is based on tacit knowledge as well as heuristics and rules-of-thumb, which are difficult to share with the rest of the organisation. One of these is pricing.

Prices are not the main determinant of IAC competitiveness. Nevertheless, they strongly influence client decision making relating to supplier selection. In IAC, prices are set starting from standard costs, to which some unspecified elements are added. When the sales department manager was asked about this issue, he answered:

> We have different formulas for calculating prices […] we add to standard costs some percentages which are defined according to our experience and our feelings of their effect on demanded quantities […] the final price is set taking into account a number of different things that cannot be easily formalised.

As a consequence of such "ad hoc" policy, margins from each client strongly differ without any apparent relationship to the product costs. In other words, products with similar costs tend to have different prices.

As the controller noted:

> We never took care of that problem [the pricing decisions] because we were not equipped to do that […] Now I feel that that way of setting prices could be problematic […] even if it is quite difficult to perform an analysis due to the fact that prices seem the result of a magic trick.

Whilst the existence of these formal elements is of paramount usefulness, informal communication and relationships among the IAC members still seem to represent the largest part of the structural capital. As the MD pointed out:

> We have a very low employees' turnover. Many of them are with us since 10 years […] I know all of them in person and if I have to say something it suffices to talk to them […] without any formalism.

Slow staff turnover, therefore, can positively contribute to IC management (Durst and Wilhelm, 2011). Informal meetings and e-mails represent a daily way for coordination and updating about what is happening.

Since IAC is a family-owned firm, where owners and their sons and daughters actively take part in the business, informal relationships are the rule also for decision making. One of the owners declared:

> As a legal entity we must follow some formal rules when the Board of Directors must convene, but since we are members of the same family such formalism is just to comply with law […] we made our decisions without being slaves of it.

The stability of workforce is a double-sided issue. On the one side, it makes interpersonal relationships smoother. Employees know each other and they have worked together for many years. Informal communication systems have been developed during the time and workers tend to support each other in a very easy and efficient way.

Finally, a system of cultural values putting the "person" at the centre of the business has been established by the management of the firm, and the level of employment has been safeguarded also during the years of crisis, and in the words of the MD:

> We never fired any worker of ours […] we think that as a firm we are responsible for our employees and their families […] we try not to transfer our losses to our employees' families.

Such a "familiar tone" activates and in turn is the result of the very informal culture adopted by the management.

However, the other side of the coin must also be reported. In fact, sometimes the strong "common view" that characterises IAC people does not facilitate innovation. As the MD revealed:

> We need sometimes to artificially generate a sense of urgency to shake our minds and to lead them towards innovative solutions to the problems we deal with.

Another way to promote innovation, and then to propagate organisational capital, is to foster the relationships with other stakeholders, suppliers, clients and competitors. Section 7 discusses this point.

7. Relational capital and its relationships with human and organisational capital

Suppliers, competitors and clients play a fundamental role in IAC. Many, if not all of the relationships IAC engages in with other firms have a clear impact on both human and organisational capital, as already pointed out.

For instance, a large part of knowledge resources for the operational control which are now strongly integrated in both organisational systems and individual competences have been developed with the help of the ERP supplier. According to the MD:

> At the beginning the implementation of the ERP was totally new for us, since we used home-made software based on spreadsheets. However, when the ERP was implemented we

> learnt a lot of different things […] we received a lots of procedures as a legacy from all the firms that participated in the development of the ERP.

Also competitors play a fundamental role, and in some cases collaboration and competition coexist. Knowledge shared mainly refers to the technical aspects of operational processes and to cost saving. Using the MD words:

> Our competitors are also our partners. This is not to say that we work together, but that sometimes (and with some of them very often) we disclose some of the solutions we find for some specific problems […] and when it is possible we consolidate our purchase programs to obtain some discount for larger quantities.

Notwithstanding all the above, clients play the most crucial part in pushing the firm to develop new solutions or to undertake more formal controls, especially for the operational side.

As IAC supplies large firms, the role of these in shaping some of the management systems and practices adopted in IAC has to be recognised as based on contracting power. This is to say that some of the management tools IAC adopted are inherited by its client, sometimes even imposed, in the sense that, if IAC does not implement what has been required by its clients, they could choose to ask another supplier for a competitive bid. SMEs are predominantly forced to use external knowledge creation sources (Egbu *et al.*, 2005).

Such a forced development of formalised management tools is not always immediately identified as a fruitful source for managing the firm, even though it is clear that it is a necessary condition in order to continue the relationships with clients. This was the case for WCM practice. As one of the department directors observed when one of its most important clients asked IAC to adopt such practices, the first reaction was to identify them as simply:

> […] bureaucracy, formal stuff […] without any immediate impact on operational performance, except for the fact of making a client satisfied.

At the beginning such an approach strongly influenced the way those practices were implemented.

As a floor manager remembered:

> They [The clients] asked to have all documentation on the technical aspects of the production process and we reported on them and gave all information he asked. However, we did not find useful the data for running production; we used other kinds of information […] we managed production by simply looking at it day by day.

However the strong commitment of the client, his recurrent visits to IAC plant to verify the stage of implementation of WCM, and some training the client delivered to some of the floor managers, helped partially change the evaluation of the WCM system. As the plant manager said:

> Now we are actively using it even if it sometimes appears to be disproportionate with respect to the kind of problems we have to deal with.

Finally, the role of clients is decisive for strategy formulation and implementation. The firm has mainly grown through an increasing volume of sales from an individual large client, which manages a number of different brands in the automobile industry. Once IAC has been able to fulfil the required standards, the client has continuously enlarged the number of products commissioned to IAC. This way, the firm has become strongly dependent on

this client, which at the beginning of 2014 generated 65 per cent of the overall turnover of IAC. Such a situation became a problem for both the client and the firm.

Clearly, IAC had become too dependent on that client, and in turn, the client perceived the risk of problems in the case of IAC inability to supply all the commissioned products. Therefore, at the beginning of 2014 the client induced the firm to rethink its strategy, linking the renewed long term agreement to an IAC strategy oriented towards diversifying its revenues between more clients. The major client again suggested IAC develop through acquiring other firms with diversified revenues. Such a situation had a strong impact on the IAC management, since the client threatened to reduce ordered quantities in case the required diversification would have not been pursued and eventually reached.

At the beginning, the client's request was understood to be simply the effect of a newly hired purchase department manager. As commented by one of the owners:

> They [The client] have changed people; now they have a new manager and she wants to demonstrate she has new ideas about what to do […] But probably nothing will change.

However, after the client asked for a detailed business plan, the IAC management was obliged to carefully reconsider the firm's strategy. Later on the same owner reported:

> We do not think continuously to our strategy […] what we concentrate on is operations. Once we decided to leave the household appliance industry and to enter the automobile industry […] since then we simply developed our business scaling up the size of our operations. Now, we are asked to force ourselves to do a job we never did.

The necessity to produce a business plan required IAC management to give some thought about their CSF. Again, the help provided by a business consulting firm was fundamental to guide the identification of CSF. What appears of interest to the aim of this paper is that the management of IAC did not agree on the most important CSF of the firm. One of the owners pointed out:

> We are able to serve our clients at the best price […] we take into consideration the importance of customer satisfaction, and we are able to satisfy our clients providing them with a good quality at the best price.

However, the MD had a quite different view on the CSF of IAC:

> Our best competition lever is that we are flexible, in the sense we can provide our clients with the products they want in a very short time […] and manufacturing very small batches of products. We are able to manage some thousands of different products, to offer them a very high level of quality and, above all, we are able to modify our production programs to meet client requirements in terms of time and quantity.

Such a different perception of CSF impinged also on the firm decision making, since some of the most recent investment projects were not clearly directed to strengthen a specific factor. As one of the owners recognised:

> Unfortunately, we were not used to evaluate our investment projects against their contribution to the competitive success of the firm. Some of them, in fact, have been decided on the basis of current aspects of our production process, without having a strategic perspective.

8. The management of IC

The set of knowledge and competences a firm holds is an important driver for competition and the generation of value. However, the analysis of all of those elements

would shed a brighter light if the process and activities which have generated them are highlighted, and if the way those elements are mobilised in coordination with various types of resources is investigated. The pace of competition, indeed, asks for a continuous updating of knowledge and competences. The way this happens is at the core of the management of IC (Marzo, 2014).

As for the case study here examined, insights into the management of IC can be articulated around nine points.

Formal and informal IC

Both formal and informal IC exists in IAC. Formal IC mainly refers to the production processes and operations in general. This should not sound peculiar. The largest part of those processes are highly standardised, and the clients' requirements are presented in great detail. Moreover, some production rules are strongly influenced by international regulation about passenger security. This permits to formally manage a highly codified knowledge. From this point of view, one could wonder whether such a codified standardisation could be a cause for the firm to be under a relevant competitive pressure, considering that such knowledge could be thought of as easily replicable. The MD offered the authors an inner analysis of this point:

> What is difficult is not production per se […] neither it is difficult to satisfy any client of ours […] what is really difficult in our industry is to satisfy all our clients at the same time […] to realise the products our clients ask for, at the price they agree and at the time we promised to do all that. What makes IAC able to compete with much larger competitors is its ability to join flexibility and efficiency. Which of course is at the same time our problem: our clients know it very well and they usually pass on to us all what competitors cannot do. In other words our ability is our conviction. This cannot be replicated by our competitors.

It is clear that what is important is the ability of the firm to manage in a tacit way the codified and explicit knowledge embedded in manuals and procedures (Spender, 1996b). If one thinks of codified knowledge as the static element of IC, then its mobilisation through tacit knowledge is what confers dynamism to IC. The knowledge conversion cycle developed by Nonaka and Takeuchi (1995) seems actually to take place.

To reach such equilibrium between codified and tacit knowledge, the MD is required to manage the flows of communication and information between the internal departments of IAC and between them and its clients. As he observed:

> You can't ask someone to manage such complexity if she or he is not able to have a full picture of how things work. When you deal with a client, you must know what you can or cannot do […] and you can be effective only if you know all about your strengths and your weaknesses.

With the growth of the firm in terms of revenues, employees and number of clients, however, a more participative system for the management of knowledge resources was introduced to IAC. More informal meetings have been convened, also without notice, so to share information on some specific problems or clients. A weekly meeting has been established by the MD with all departmental managers to identify univocal responses.

Selection, generation and integration of IC elements

When acquired by the firm, the IC resources are not expressive of their future value or their contribution to firm performance. For instance, human capital is developed through learning-by-doing and on-the-job training. Firm's employees grew through working together in and for the firm, and they share a common knowledge developed through the performing of processes and activities.

Managing knowledge is a very difficult task. Whilst relationships with external stakeholders are fostered by the firm, managers must control and preserve knowledge diffusion outside the firm, with the aim to prevent the strengthening of competitors. However, at the same time, knowledge must be circulated inside the firm and across its different organisational units.

Another issue is to be highlighted. As Teece (2007) notes, a firm's success no longer depends on the scale and scope advantages, but on the creation of capabilities that succeed in sensing, seizing, managing threats and transforming current capabilities.

In IAC, a clash could occur between the consolidated view of what the firm actually is and what it needs to be in its near future in order to survive and develop. All the three owners of the firm observed they have been too static in the past. The request of IAC's major client to have a detailed business plan to show the implementation of the suggested diversification strategy was in part unexpected, but actually the MD was already working to impose a change to the firm. In this regard he noted:

> We are like a monolith and to substantially change something is quite difficult because you have to move the entire monolith […] I try to force some change by instilling some focused sense of urgency […] for example, I already perceived something was changing with [the major client] and I asked for the support of a business consultant to be prepared for it […] At the same time, I pushed all managers to find new opportunities in new businesses where our competences can be exploited […] We worked a lot to achieve all quality standards required by our clients and we are very flexible […] so I think it is possible to deploy what we can do in other businesses.

Control and value exploitation of intangible resources

The difference between codified (or explicit) and tacit knowledge is also important in order to identify their degree of importance. As aforementioned, codified knowledge mainly refers to operations and quality control systems, whilst tacit knowledge refers to both the transformation of codified knowledge to adapt to different contexts (such as in the case of the support IAC offers to its outsourcers for the implementation of quality systems), and to the soft knowledge utilised for strategizing. As said, the role of tacit knowledge is the most important lever for IAC competitiveness.

Probably consistent with the importance of tacit knowledge is the absence of a formal strategy or managerial activity for the management of knowledge and other IC elements. However, the lack of such formal mechanisms should not be judged as a lack of substantial management (Jarzabkowski and Spee, 2009).

It is interesting to report on a specific case regarding the way in which IAC mobilised its IC stock to generate value. Such a case is in some way at the cross-road between the problem of reporting and value of IC and its use for value generation.

The case occurred during a long and intense negotiation related to a partnership with another SME. The two firms were discussing a modification in relationships that they had, both being shareholders of a third firm. During the negotiation, a put option was agreed upon in favour of IAC. The exercise price was set by taking into account the value at that time of the owned firm, as well as the value of the knowledge and competences IAC brought into the co-owned firm, thanks to the production and management support that was offered.

Despite the value of the shared knowledge being determined without referring to a specific valuation methodology, it is important to reflect on this as a case in which the value of knowledge and competences has been formally recognised as "employed" to create value. From this point of view, the management of the relationship with the

partner pushed IAC to conceptualise and then "reify" the value of its own competences. Yet, the role of external relationships strongly modified the way IAC was perceived by its members, since the put option clearly made it "visible" and quantified the value of the development of the competences IAC was able to promote during its life.

Flow-based management

A dynamic approach to IC focuses on flows rather than stocks, highlighting the inner social context for developing and managing IC. First, individual competences are acquired and developed in a tacit way through human closeness and interactions in daily activities. Second, a large part of structural capital comes from the performing of new activities which are called for by the introduction or the implementation of innovative systems, such as the ERP or the WCM. Finally, the relationships with external stakeholders are the sources for a further IC development, subsequently calling for new tasks and processes to be performed.

The approach used by IAC to manage its IC is therefore mainly based on closeness and tacitness, which in turn are the basis for the development of specific cognitive and linguistic codes. For example, many interviewees referred to the way a business process is run and managed in a manner that appeared obscure to the interviewers. After numerous times attempting to explain the issue to the interviewers, one of interviewees blurted out:

> You should spend some weeks here to understand what I'm trying to say […] It is difficult to explain through words what happens because you are not a member of the group.

Clearly the pivotal role of tacit knowledge makes it difficult to fully understand organisational knowledge. To better appreciate it, one should share the interpretative and semantic codes that are generated; however this is impossible if one is not a member of the firm (Marzo, 2014).

The three intangible "capitals" and their relationships

The development of IC as a management and research topic was largely grounded on its appealing categorisation into human, structural and relational. Even though other types of capital or sub-categorisation were later added to the original model, it still remains a solid reference for IC literature. However, the possibility to sharply distinguish between these categories cannot be taken for granted. Knowledge and other intangible elements are not confined into rigid boundaries, and they cannot be moved across time and space retaining their original characteristics. They are in fact continuously modified and exist as a bundle of relationships more than as specific and identifiable elements (Marzo, 2013).

Moreover, if one had to forcefully analyse and classify IC into the above three categories, a static picture of a firm's IC could only be acquired, which is very different from the IC lying at the core of management processes. As Weick (1979) reports from Steinbeck (1941), the only way to count the spines of the Mexican Sierra "[…] is to sit in a laboratory, open an evil-smelling jar, remove a stiff colorless fish from the formalin solution, count the spines, and write the truth […] There you have recorded a reality which cannot be assailed – probably the least important reality concerning either the fish or yourself. It is good to know what you are doing. The man with his pickled fish has set down one truth and recorded in his experience many lies. The fish is not that color, that texture, that dead, nor does he smell that way" (Weick, 1979, p. 29). In other words, counting the spines in that way means losing sight of all what was of interest before one decided to act that way.

Such an integrated approach seems very promising in the analysis of how firms mobilise IC for their value creation process. In this vein also appears the proposal elaborated by the World IC initiative (WICI, 2013) about "connectivity" for the integrated report: "An integrated report should show, as a comprehensive value creation story, the combination, inter-relatedness and dependencies between the components that are material to the organisation's ability to create value over time" (WICI, 2013, p. 4).

Knowledge diffusion

The Nonaka and Takeuchi (1995) knowledge conversion cycle was the starting point for the analysis. Some refinements to the model can be suggested.

First, the model focuses on knowledge as initially created by individuals and flowing to other individuals and groups. Some of the knowledge observed in IAC flows from group knowledge to individuals. It is the case when new workforce is hired.

Second, the scope of the model should be widened to consider also individuals and group external to the firm. As we stated above the role of supplier, clients, competitors and business consultants is essential for the acquisition of new knowledge.

Awareness of the importance of IC

The management of IAC is aware of the importance of knowledge and IC elements for the success of the firm. However, the degree of awareness has to be further explored, since it appears first, what IAC management is involved in, is the finding of solutions for specific problems. This means that IAC management is not interested primarily in knowledge *per se*, but a part of a larger set of issues regarding the solution of specific problems.

Second, the awareness of the stock of IC and knowledge is not formally reported, nor is it an object of specific meetings or analyses. The formal recognition of IC assets and knowledge could improve the effectiveness of the firm management, and the way for such recognition is relevant (Demartini and Paoloni, 2013a, b).

Forced to know

As aforementioned, a large part of the new knowledge developed by IAC has been the result of the relationships with its clients. We have also highlighted that some key innovations have been forced by clients, whilst being thought of as a burden and only marginally useful by IAC people.

The key point is that the firm is something obliged to innovate its managerial systems and to develop new knowledge. Such "obliged" effort is not really appreciated, even it appears to improve business processes and performance.

From this perspective, the leading role of clients with high bargaining power has to be reframed for recognising not only their role as a source of innovation, but also the way they act for stimulating such innovation.

IC management and firm performance

An interesting question is how the management of IC impacts on the strategic and financial performance of the firm. It could be argued that the strategic position the firm has is the result of the specific knowledge it has developed. The competitors of IAC are distributed along three tiers, according both their size and the kind of product and service they offer to clients. Large companies are more focused on standard products and high production volume and large batches. They earn a low EBIT on sales (ROS) but obtain good performances (measured by the return on assets, ROI) thanks to the large volumes they sell.

Competitors smaller than IAC survive with marginal ROI: they earn low ROS linked to low volumes. These competitors are typically marginal firms, with small returns and cash flows. They are usually identified as potential targets for acquisition.

In the intermediate tier are firms like IAC, which strongly root their strengths on flexibility and prompt response. Amongst these, IAC has gained over time top level performances: ROI is about the same than first tier competitors, even if the determinants are different: IAC earns a higher ROS but a lower asset turnover than first tier competitors.

9. Conclusions

This paper focuses on the generation, development and management of IC in SMEs. The stimulus for the research came from the consideration that, despite the relevant role SMEs play in all of today's economies, very little attention is given to them by IC scholars.

The work here presented an in-depth case study of an Italian family-owned SME, located in the Northern Italy, and producing components sold to companies operating in the automobile industry. Whereas the findings of the research comes from a specific case study whose generalisability cannot be taken for granted, it does offer some interesting insights into the ways SMEs acquire, produce and transform IC.

The main contributions of the paper to the IC literature are the following.

First, the case study evidences the impossibility to sharply divide all of the knowledge-related elements of a firm into the three generally accepted categories of human, organisational (structural) and relational capital. While such a categorisation is always conceptually possible by imposing a specific lens on the observed cases, it appears seldom respectful of the actual way they are mobilised and changed through their interrelationships.

Second, the analysis of IC as a set of stock of resources is important, but it is really partial due to the fact that IC and knowledge continuously change. The dynamics of the firm can be better analysed by combining the analysis of stocks to the analysis of flows. Such an approach, which some authors (Kianto *et al.*, 2013) identify as the merge of IC and knowledge management focuses, appears to be very relevant.

Third, formal and informal knowledge coexist but in different areas of the firm. A sort of possible specialisation of the two kinds of knowledge can be inferred. Formal IC was built up around the procedures for quality control and ERP implemented by the firm. Informal IC is rooted on tacit knowledge and employees' closeness, and it strongly mobilises IAC resources. However, knowledge tacitness related to some aspects of decision making, such as pricing, could potentially threaten the firm.

Formal knowledge and consequently formal controls are limited to the area of operations, and their implementation has been sometimes forced by the largest client, where support has been offered.

Knowledge and knowledge governance mechanisms in the areas of strategy, HR management, and marketing are tacit and informal, this being a major difference in respect to large firms. Such mechanisms are mainly based on the closeness of people working inside the firm.

Such coexistence of the two kinds of knowledge also influences the importance of the people working for the firm. At workshop level, the availability of formal and codified knowledge makes it possible to easily integrate new workers into the processes of the firm, without suffering from inefficiency or delay. The important role that tacit and informal knowledge play at top management level clearly mimics the way power is distributed within the company.

As a result of the coexistence of the two forms of knowledge, a clear reporting appears problematic especially for external purposes (Marzo, 2014): To appreciate the firm's IC it is important to be part of the company.

Fourth, the dynamic perspective here employed, aimed at examining the way in which IC is acquired, produced and transformed, therefore focusing on the activities and processes involved in the generation and management of IC rather than on its individual elements. A fundamental issue is that when focusing on knowledge, the legal boundaries of the firm lose importance. Knowledge flows outside and inside the firm. Suppliers, competitors and clients all play a fundamental role. For example, a major part of the knowledge resources for operational control have been developed with the help of the ERP supplier.

Also, competitors carry out an important function, and in some cases collaboration and competition coexist. Knowledge shared mainly refers to technical aspects of operational processes and cost saving.

Clients play also a crucial role in pushing the firm to adopt more formal controls in the operations side. Moreover, the largest clients play an active role in shaping the strategy of the firm. Actually, the firm has been forced by its largest client to define a new strategy and to build up a business plan with the aim of demonstrating IAC's ability to meet some minimum level of performance in the future as well as to show the firm's ability to diversify the groups of clients, and consequently, its revenue sources.

The analysis of the case study suggests to consider both the role of clients and the way clients act for stimulating the development of new knowledge. In fact clients with high bargaining power force the firm to develop new systems and new knowledge.

Fifth, our findings support other similar studies relating to the important role that dialogue and familiarity have in knowledge management. The "traditional" way assumed for the management of knowledge and IC fails to consider the peculiarities of SMEs. Clearly SMEs are not smaller large firms, and hence it is generally impossible to interpret SME management systems as being simpler or smaller than those adopted by large firms. The key point is that SMEs – or at least the one analysed here – have management systems which are ontologically different and that deserve specific analysis and interpretive theoretical frameworks.

Finally, the focus of management is not knowledge *per se*, but the solution to specific problems that the firm must deal with. Knowledge (and knowledge management) is only one of the issues to be considered in order to solve problems. The sequence in which problems arrive, drives the attention of firm management to find the particular solution and the type of knowledge required relating to the specific case. In SME therefore the management of IC is indirect, sequential and jeopardised.

While the aforementioned remarks arise from the SME case here studied, we cannot necessarily confine some of them only to SMEs. For example the vital role of activity for mobilising IC and knowledge assets is also important for large companies. Again, the "knowledge conversion cycle" (Nonaka and Takeuchi, 1995) was not specifically defined for SMEs. What appears to be the main contrast in the two different categories of firms is really the way things are done. As previously studied and highlighted there are some characterising traits of SMEs residing in 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. However, it does seem consistent with the mood and the context of SMEs.

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As usual all remaining errors and obscurities are authors' own responsibility.

Note

1. The terms intellectual capital, knowledge-related items, intangible resources are here employed as synonymous.

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