Perceived benefits and costs of intellectual capital in small family firms

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Abstract

Purpose – Despite the flourishing literature on intellectual capital (IC), few studies explored its features in the perspective of family firms, and even fewer focussed on small family firms (SFFs). The purpose of this paper is to analyze how managers and senior employees in SFFs perceive the benefits and costs of intellectual capital assets (ICAs) and provides many insights for future researches.
Design/methodology/approach – Taking the lead from the constructivist epistemology, this instrumental study describes the implementation of a framework for the assessment of ICAs into four SFFs in order to develop general theoretical principles.
Findings – Among the findings, it stands out that most SFFs in the sample especially rely on their internal processes and on their human resources' knowledge and competences. Furthermore, the authors found much internal disagreement with respect to the expected costs of investing on ICAs, especially within firms operating in more turbulent markets.
Research limitations/implications – Being referred to a multiple case study, the results may not be generalized to other organizations. Nevertheless, they are useful to build theory, either by verification of falsification, and to encourage their future testing in empirical papers.
Practical implications – The implementation of the framework allows identifying internal disagreement with respect to the ICAs' costs and benefits and exploring their causes. Furthermore, it suggests which should be the ICAs deserving primary attention in order to have the best impact on value creation.
Originality/value – The paper investigates IC in SFFs, thus contributing to fill a remarkable gap in IC literature.

Keywords Family business, Intellectual capital, Intellectual assets, Value creation, Multiple case study, Small family firms
Paper type Case study

1. Introduction

The pivotal role of family firms (FFs) in economy is considered an undisputable fact (Barroso Martínez *et al.*, 2013). Although the scale of the family business phenomenon is definition dependent and may vary according to it (Westhead *et al.*, 2002), most authors propose that the majority of companies worldwide are FFs (Gomez-Mejia *et al.*, 2011; Hatak *et al.*, 2016; Nordqvist and Melin, 2010; Voordeckers *et al.*, 2007; Wright and Kellermanns, 2011). Nevertheless, the importance of studying FFs does not stem uniquely from their remarkable number, but rather from their specific characteristics. Indeed, at least two forms of social capital coexist in FFs: the family's and the firm's (Arregle *et al.*, 2007). Furthermore, FFs are characterized by transgenerational intentions (Chua *et al.*, 1999), lower agency costs with respect to non-FFs (Chrisman *et al.*, 2004), but higher risk of opportunistic behavior such as nepotism (Beehr *et al.*, 1997) and private benefits from the family (Anderson and Reeb, 2003).

Although FFs share relevant characteristics, they should not be considered a homogeneous set (Stewart and Hitt, 2012; Wright and Kellermanns, 2011). Several studies describe how FFs behave differently across different sectors (Carr and

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Bateman, 2010; Smith, 2007), size (Herrero, 2011; Wright and Kellermanns, 2011), familial character and values (Arregle *et al.*, 2007; Jaskiewicz *et al.*, 2005), and many other conditions (Stewart and Hitt, 2012). The varied features of FFs mainly ensue from their reduced dimensions, their self-reliance, and the complete autonomy of their family members in taking decisions: consequently, each FF is unique and is characterized by the peculiar management of its assets.

Therefore, when studying FFs, much attention should be paid to how a FF is defined and to which specific sub-set of FFs is being analyzed. In this paper we adopt Litz's (1995) widespread definition of family business: "a business firm may be considered a family business to the extent that its ownership and management are concentrated within a family unit and to the extent its members strive to achieve and/or maintain intra-organizational family-based relatedness" (p. 103). Among FFs, small ones (i.e. less than 50 employees and 10M€ of annual turnover) are by far the vast majority. Therefore, this paper specifically focusses on small family firms (SFFs).

The literature emphasize that, among the various assets of SFFs, intellectual capital (IC) is of great importance in the value creation process. In fact, IC is identified as a significant source of a long-lasting sustainable competitive advantage in SFFs (Ceja-Barba, 2014; Danes *et al.*, 2009; Piperopoulos, 2010; Zellweger *et al.*, 2010). Most importantly, SFFs, more than the non-family small and medium enterprises (SMEs), reach and keep their competitive advantage by means of specific combinations of tangible and peculiar intangible assets (Moores, 2009). IC can be considered as a composite of family values such as loyalty, self-esteem, know-how, corporation stock, cohesiveness, reputation, culture that arise from FFs' owners. Such family values seem to give a valuable dominating position, not easily obtainable by non-FFs (Aronoff, 2001; Sonnier, 2007). Indeed, the IC retained by SFFs refers to family values and bonds such as communion and confidence, which represent the "spine" of a firm, and are intended as intangible assets. Habbershon and Williams (1999) highlight that human capital and social capital are among the elements that define the uniqueness of SFF. In such firms, where the social system of the family and the business system of the company coexist, enhancing the value of intangible assets is extremely important.

Despite the strategic role of IC in the value creation process of FFs, few studies explored the peculiarities of IC in FFs, and even fewer in SFFs. Sirmon and Hitt (2003) submit that human capital is the most important resource of a FF, whereas Arregle *et al.* (2007) study the characteristics of social capital in FFs. Claver-Cortés *et al.* (2013) propose a comparative study of intangible assets between family and non-FFs, based on a sample of 13 large FFs. Bresciani *et al.* (2013) compare family and non-FFs in several industries, finding that the formers are more innovative than the latters and that they outperform them also in terms of human capital and social capital. A recent article identify ten intangibles associated with the human capital of 25 large, international FFs (Claver-Cortés *et al.*, 2015).

As stated in literature, on the one hand IC can be considered as a complex system of mutually influencing intellectual capital assets (ICAs) that should not be considered individually; on the other hand, large family and non-FFs may be quite similar in their management of IC due to their scope and their competitive characteristics, whereas SFFs have quite different managerial patterns with respect to small non-FFs (Miller *et al.*, 2008). An exploration of IC management in SFFs need to take the lead from their managers' and employees' perceptions. In fact, due to ICAs intangible and context-specific nature, only those who are involved into the value creation process can

assess the particular contribution of each ICA (Daniels, 2003; Grimaldi *et al.*, 2013). Firms are typically characterized by a limited amount of resources, and although all ICAs are likely to bring tangible or intangible benefits to them, firms can primarily invest on a limited amount of ICAs. Therefore, firms are challenged to assess the expected benefits of an investment on certain ICAs and the corresponding costs, in order to make the most effective allocation of their resources. Such expected benefits and costs can hardly be quantified into monetary values or estimated through the analysis of historical accounting data. Thus, benefits and costs need to be assessed through qualitative judgments. So far, very few studies explored this issue in small non-FFs (Greco *et al.*, 2013; Rossi *et al.*, 2016) and, to the best of our knowledge, no study explored how SFFs' human resources perceive the costs and opportunities embedded in a system of mutually influencing ICAs.

The emergence of these gaps suggests the need of analyzing the peculiarities of IC in SFFs, considering the ICAs in their wholeness, and studying the managers' and employees' perceptions about them. Therefore, the following research question motivated the present paper: "How ICAs expected costs and benefits are perceived by managers and senior employees in SFFs?" In order to answer to our research question we implemented a framework for the management of ICAs into four SFFs.

The paper is structured as follows. Section 2 reviews the IC literature related to FFs, while Section 3 describes the methods of the study, including a description of the framework implemented and of the sample. Subsequently, Section 4 analyses the results of the implementation, presents the findings of the study and suggests a set of seven tentative propositions. Finally, Section 5 draws the conclusions, identifying several areas for future research.

2. Theoretical background

2.1 IC in SFFs

Family resources and capabilities of a FF constitute "familiness." Familiness refers to the interaction of three typical sub-systems of a FF: a family unit (family history and traditions), a business entity (strategies, structures and organizational context exploited to generate wealth) and an individual family member unit (competences and responsibilities) (Habbershon and Williams, 1999). Such characteristics of FFs can have a remarkable effect on each of the three IC components: human, relational and structural capital.

Human capital in SFFs includes all the knowledge, competences and capabilities of each member of the family (Carney, 2005; Danes *et al.*, 2009; Salvato and Melin, 2008; Sirmon and Hitt, 2003). Such resources are often handed down by other components of the family (Le Breton-Miller and Miller, 2006; Sharma and Manikutty, 2005) fostering the development of a tacit and highly specific knowledge, otherwise not easily transferable (Sirmon and Hitt, 2003). The development of competences in SFFs mostly depends on the tacit exchange of knowledge. SFFs, like SMEs, devote short time to find and identify new competences and to maintain already available competences. Furthermore, SFFs do not detail competences, leaving people involved in the firm without explicit guiding principles during the application phase (Javidan, 1998; Klein *et al.*, 1998; Walsh and Linton, 2001).

SFFs, like all small firms, often need to enhance their relational capital by collaborating with external subjects (such as customers, institutions, investors, partners and suppliers) in order to obtain the competences or technologies that they do not own internally. SFFs can obtain a higher profitability by fulfilling long-term

relationships with customers (Binz *et al.*, 2013; Zellweger *et al.*, 2012) and obtain financial sustainability by taking care of customer fidelity (Chen and Popovich, 2003; Parker *et al.*, 2014). SFFs can cultivate their relationships with institutions in order to benefit from direct or indirect support measures (McDonald, 1999; Strike, 2012). Often universities are privileged partners of SFFs, as they can foster innovation or deliver specific education/training in a stimulating environment that is in the forefront of innovation studies (van Gils and Zwart, 2004). Other worthwhile relationships are those that SFFs establish with investors, i.e. financial institutions or banks, and with shareholders (Danes *et al.*, 2009). In fact, SFFs, likewise all the SMEs, have restricted resources compared with larger enterprises, and the impossibility to access to external financing can represent a serious obstacle to their growth or even to their survival (Berger and Udell, 1995; Dyer and Singh, 1998; Strike, 2012). For this reason, the role of investors, internal or external to the family, takes on a vital importance. Finally, SFFs seek help from external partners to access various and more substantial resources; to acquire external knowledge; to learn capabilities that they do not have from their partners; to enter international contexts; and to take new opportunities (Habbershon *et al.*, 2003; Hoffmann and Schlosser, 2001). SFFs often establish asymmetric partnerships, where roles are not evenly balanced (Classen *et al.*, 2012). In fact, lack of power, limited dimensions, and less information control than greater firms push SFFs to underestimate their relationships with their suppliers (McDonald, 1999). Furthermore, the limited resources prevent SFFs from playing freely in organizing multiple supply relationships (Mudambi and Helper, 1998).

The structural capital of SFFs comprises the shared values and convictions that provide people the basic knowledge to recognize the business system and to manage it (Riley and Brown, 2001). One of the main elements of the structural capital is represented by processes, which include techniques, procedures and programs improving the supply of goods and services (Chrisman *et al.*, 2003, 2015). SFFs can obtain their competitive advantage over larger enterprises by optimizing and enhancing their processes (Ceja-Barba, 2014; Chaston *et al.*, 2001; Pearson *et al.*, 2014; Verhees and Meulenberg, 2004; Williams and Schubert, 2011). Indeed, due to their small size, SFFs are more dynamic and can deal with small amount of goods, quickly adjusting and improving their processes (Arregle *et al.*, 2007; Zellweger and Astrachan, 2008). Furthermore, process improvements can increase productivity and optimize the flows within the firm (Falcone *et al.*, 2013). A further element of SFFs' structural capital is represented by their innovation capability, which is described by their intellectual property and by the role of technology in the organizational processes (Classen *et al.*, 2012; Hatak *et al.*, 2016; Kitching and Blackburn, 1998). Corporate culture is the last element of SFFs' structural capital: a basic organizational model designed and developed within the family in order to enhance adaptation and internal integration. Corporate culture also refers to the value derived from coupling activity and diligence of the family (Corbetta and Salvato, 2004). The cultural richness of SFFs allows obtaining a holistic and shared comprehension of values and allows including them into the firm's capital (Distelberg and Sorenson, 2009; Lambrecht, 2005; Vallejo, 2008). Garcia-Alvarez *et al.* (2002) consider the role of a SFF founder as an essential component of the organizational culture and internal relationship concepts.

Noticeably, the positive effect of an ICA on firms' performance or innovativeness can be improved by its interactions with other ICAs (Subramaniam and Youndt, 2005), therefore strong interdependencies are likely to exist among most ICAs.

2.2 Cost and benefit perceptions

The IC components discussed in Section 2.1 can be crucial sources of competitive advantage for any firm (Arregle *et al.*, 2007; Sirmon and Hitt, 2003), including SFFs (Greco *et al.*, 2014; Laforet, 2012). Nevertheless, due to their limited resources, firms need to focus their investments and efforts on few ICAs. Thus, in order to make careful decisions, SFFs should analyze the expected contribution of each ICA to the value creation process and understand their influence on economic performance (Claver-Cortés *et al.*, 2015; Gómez-Mejía *et al.*, 2007; Hoffman *et al.*, 2006; Miller and Le Breton-Miller, 2006; Sharma, 2008). The dimension and the necessary flexibility of SFFs demand an extremely focussed involvement of key informants, such as managers and employees, in the decision process. All the fundamental questions and their relative decisions about ICAs, such as the contribution of each ICA to the value creation process, ICA's expected or real benefits, and the analysis of investments planning on ICAs, should be examined by managers and employees personally (Carrasco-Hernández and Jiménez-Jiménez, 2013; Durst and Edvardsson, 2012; Malone, 1989; Reed *et al.*, 2006). As well, SFFs' management should examine the IC investments planning carefully in order to estimate the costs caused by their organizational implications (Branswijck and Everaert, 2012; Claver-Cortés *et al.*, 2015; Juliya, 2015). Therefore, all these factors have to be balanced in order to select those ICAs which give reasons for further investments, and are likely to achieve the highest benefits (Kim and Kumar, 2009; Olsen *et al.*, 2007; Reed *et al.*, 2006).

Most researchers agree that the existing accounting models and tools, which are based on restrictive rules and principles, do not optimally assess ICAs (Skinner, 2008; Steenkamp and Kashyap, 2010). In order to analyze the specific direct and indirect effect of each ICA on the value creation process in terms of its benefits and costs, the perceptions of managers are crucial by virtue of their familiarity to peruse data received from multiple sources, establish the relevance of information, develop alternatives, and characterize strengths and weaknesses of evaluations (Boujelbene and Affes, 2013; Chang *et al.*, 2014; Marr, 2008; Rossi *et al.*, 2016). Indeed, SFFs' managers cannot outsource the function of solving organizational and strategic demands, and they have to play a leading role in the decision process. This occurs for a number of reasons: intangibles assets are absolutely context specific; thus only those who are involved into the value creation process directly (such as managers and senior employees) know the particular contribution of each ICA, the related economic and organizational investment, as well as the consequences of the interrelations of the many ICAs in the value creation process (Rossi *et al.*, 2016). Perceptions of decision makers are regularly used to interpret and evaluate any kind of information at every level of performance attributions and decision processes, and the effect of their perceptions have been examined by scientists accurately (Bazerman *et al.*, 1997; Mezias and Starbuck, 2003; Winter, 2003). Bontis and Fitz-enz (2002) published one of the first attempts to consider managers' perception about benefits and costs of IC while assessing the effectiveness of an organization's human capital capabilities. Similarly, MacDougall and Hurst (2005) propose a rational evaluation of tangible benefits, costs, perceived risks and experienced losses of an IC investment. Perceptions about ICAs' benefits and costs have been analyzed in literature by few authors in SMEs and FFs. In particular, Steenkamp and Kashyap (2010) recognize the importance of analyzing SME managers' perceptions to understand the contributions of intangible assets to their businesses; while more recently, Dyczkowski *et al.* (2014) define a multi-criteria evaluation tool for SME managers based on a scorecard framework and Gomezelj and

Antončič (2015) propose a model based on managers' perception to assess the importance of knowledge for SME performance. Furthermore, Crema and Verbano (2014) show how IC, as perceived by SMEs' managers, is positively related with innovation performance.

Particular problems might arise when dissenting perceptions among the various managers emerge in value assessment process in SFFs, as well as in case of contrasting perceptions between top and middle management of larger organizations. Then, potentially divergent individual estimations need to be analyzed deeply in order to support decisions in the best way possible. Furthermore, when only the perceptions of managers are taken into consideration, some response bias may emerge, and is therefore recommendable to involve other key informants in the research, such as employees (Daou *et al.*, 2014).

3. Methods

Building or testing theory on the role of IC in FFs is exceedingly difficult if we consider how many FFs exist, and how they are different one from another in their managerial style, size, sector, cultural and geopolitical background. Case studies research offers significant opportunities to contribute to the family business literature by advancing the theoretical understanding of FFs (De Massis and Kotlar, 2014). Consequently, several authors analyzing FFs resorted to the multiple case study approach (Chiucchi, 2013; Giuliani, 2013; Peng, 2011; Schotter and Bontis, 2009). With specific regard to the role of IC in FFs, Claver-Cortés *et al.* (2013, 2015) studied 25 large, international ICs.

Although the results of multiple case studies may not be safely generalized to a population, they are useful to provide description of a phenomenon, to test theory or to generate theory (Eisenhardt, 1989). In fact, multiple case studies enable comparisons that clarify whether a finding is simply idiosyncratic to a single case or consistently replicated in several cases (Eisenhardt and Graebner, 2007). Taking the lead from the constructivist epistemology, this instrumental study describes specific cases in order to develop general principles (Stake, 2006). Wherever useful for the purposes of the study, we will describe relevant aspects at the firm level and at the individual level, in order to confirm or disconfirm the literature.

3.1 The intellectual capital framework (ICF)

This paper analyzes the IC of SFFs by means of a decision support framework earlier defined in literature (Cricelli *et al.*, 2013). Such ICF, which is an adaptation of a more generic framework for the management of tangibles and intangibles (Greco *et al.*, 2013), is meant to support firms that want to invest on their ICAs taking into account their expected impact on the value creation process and their expected investments.

The ICF assesses the alternatives (i.e. the ICAs) through two widespread multi-criteria decision systems: the analytic hierarchy process (AHP) and the analytic network process (ANP) (Saaty, 1980, 2004). The AHP allows pairwise comparisons between alternatives based on hierarchic structures with no feedback (the choice of an alternative does not imply externalities on others), whereas the ANP is much more flexible and detailed in the analysis of interdependencies (the choice of an alternative may have indirect effect on others). The ANP "synthesizes the outcome of dependence and feedback within and between clusters of elements" (Saaty, 2004, p. 1). Such synthesis is based on pairwise comparisons about which of two elements dominates the other with respect to a criterion, and which of two elements influences a third element more according to a criterion.

The pairwise comparisons regarding the impact of the ICAs on VC are structured coherently with an ANP model that includes a cluster (comprising the eight ICAs shown in Table I) influencing another cluster (comprising three categories of value creation beneficiaries: employees, customers and shareholders). We resorted to the eight ICAs identified in the original article that defined the ICF (Cricelli *et al.*, 2013) and that were used in its subsequent implementations (Greco *et al.*, 2013; Rossi *et al.*, 2016).The different ICAs within the former cluster can mutually influence one another. The analysis of such interdependences among ICAs, whose existence has been discussed in literature (Collis, 1994; Sveiby, 2001), is considered among the most relevant strengths of the ICF. The pairwise comparisons resulting from the ANP model are turned into a questionnaire that is submitted to a sample of the focal firm's key informants (such as top managers, senior employees, or other important stakeholders having an in-depth and extensive knowledge of the focal firm's ICAs). The questionnaire includes three types of questions:

(1) How many times is the beneficiary i more important than the beneficiary j (for all beneficiaries: employees, customers and shareholders)?

(2) How many times is ICA_h more important than ICA_k with respect to the development of ICA_z, which may have an effect on VC (for all for all $z = 1.8$, if both ICA_h and ICA_k are supposed to have a direct effect on ICA_z)?[1]

(3) How many times is ICA_h more important than ICA_k to create value for the beneficiary i (for all beneficiaries and all ICAs)?

The pairwise comparisons regarding the expected investment needed to enhance VC through ICAs are structured coherently with a very simple AHP model in which pairwise comparisons verify to what extent investing on a certain ICA is more or less costly than investing on another.

Respondents express their judgments through the Saaty's (1980) scale, saying whether two elements are equally important, or one is moderately more important, strongly more important, very strongly more important, or extremely more important than the other is. Verbal judgments are translated into numerical values (1, 3, 5, 7, 9, respectively, while even numbers from 2 to 8 are considered intermediate values).

Each questionnaire needs between one and two hours to be filled in, and is usually submitted under the supervision of an interviewer, in order to avoid missing entries and incorrect comprehension of the questions. The role of the interviewer is however neutral, as he/she mainly aims to verify that all answers are provided, that the interviewee is not starting to answer mechanically and that the consistency in the judgments is acceptable[2].

Type	ICA code	ICA name
Human capital	H_1	Knowledge and Competence
Relational capital	R_1	Rel. with Customers
Relational capital	R_2	Rel. with Institutions
Relational capital	R_3	Rel. with Investors
Relational capital	R_4	Rel. with Partners and Suppliers
Structural capital	S_1	Corporate culture and Internal Relationships
Structural capital	S_2	Intellectual property and Technology
Structural capital	S_3	Process

Table I. Intellectual capital assets considered in the ICF model

The answers of each interviewee are synthesized by means of ANP and AHP in order to return eight relative weights of impact (benefits associated to an ICA) and investment (costs associated to an ICA). The sum of relative weights of impact, as well as the sum of relative weights of investment, is equal to 1. Different interviewees may have different perceptions with respect to impact and investments associated to different ICAs. In this perspective, on the one hand the ICF allows studying how the interviewees' opinions vary according to their role, on the other hand it allows synthesizing different opinions and ultimately conducting Benefit/Costs (B/Cs) analyses for each ICA.

3.2 Sample

This paper presents the implementation of the ICF, during the year 2014, in four manufacturing SFFs, whose characteristics are described in Table II. We focussed on manufacturing firms as differences between FFs and non-FFs are industry specific, and the manufacturing industry is considered the one characterized by the highest level of difference between the two classes (Smith, 2007). As the manufacturing sector has plenty of sub-sectors (according to the NACE classification 2.0, the manufacturing section is characterized by 24 divisions, 95 groups and 230 classes), we identified four firms operating in different NACE groups and classes but that can be pooled in couples according to cultural affinity of the respective activities. Our non-random sample includes two manufacturing firms whose activities are related to the construction sector (C1, C2) and two firms developing mechanical products (M1, M2). More specifically, C1 produces manufactured concrete, C2 is specialized in cutting, shaping and finishing stones (mainly marble, granite, travertine and rocks), M1 develops innovative boilers and stoves, and M2 manufactures plastic and metal products. None of the firms in our sample can be considered "high-tech," although the level of innovativeness of M1 and M2 can be considered higher than that of C1 and C2.

All the SFFs in the sample are located in the province of Frosinone (Lazio), which particularly suffered the Italian recession, reaching very high unemployment and social distress rates. The close geographic positioning is quite important, suggesting that the sampled firms have their roots in the same cultural and social background, which is likely to influence the organizational IC in all its forms.

Firm	Sector	NACE group	Turnover range	Employees range	Interviewees	
					Managers (owners)	Employees
C1	Construction	Manufacture of ready-mixed concrete	2M€-5M€	11-20	4(1)	0
C2	Construction	Cutting, shaping and finishing of stone	500k€-2M€	1-10	3(2)	1
M1	Mechanical manufacturing	Manufacture of domestic appliances	5M€-10M€	31-40	4(2)	0
M2	Mechanical manufacturing	Manufacture of machinery for mining, quarrying and construction	500k€-2M€	21-30	3(1)	3

Table II.
Sample of the study

4. Results and discussion

The distribution of the ICAs' perceived impact on value creation is described in Figure 1. The boxplots describe the perceived impact of the eight ICAs on value creation according to the opinions of the firms' managers and senior employees. Each firm is analyzed separately in order to identify common patterns and apparent differences, resulting in four sets of eight boxplots each. The four sets of boxplots share several similarities in their patterns that will be discussed hereafter.

"Process" (S_3) appears to be the leading ICA for C1 and M1, whereas "Knowledge and Competence" (H_1) takes the lead in C2 and M2. However, in C1, C2 and M2 the perceived impact of the two ICAs on value creation is similar and comparatively higher with respect to other ICAs. Differently, Process is the undisputed leader ICA in M1, although there is little agreement among the interviewees about its relative effect on value creation (the boxplot is unusually long). We found no apparent difference between managers' and employees' aggregate perceptions in C2 and M2 (the only two firms in which employees were interviewed). Similarly, there is fair agreement between owning managers and not-owning managers about most ICAs' impact on value creation. Nevertheless, we observed that owning managers in the four SFFs tend to underestimate the "Rel. with Customers" (R_1) with respect to not-owning managers. The observation of these results confirms the researches that emphasized the importance of "Process" for SFFs (Chrisman *et al.*, 2003, 2015), as well as of "Knowledge and Competence," especially in consideration of the tacit aspects of knowledge (Sirmon and Hitt, 2003). Therefore, we propose:

P1. Managers and senior employees in SFFs are aware of the dramatic and dominant effect on value creation of attentively planned and properly implemented processes.

P2. Managers and senior employees in SFFs recognize the dramatic importance of human resources' knowledge and competences as enablers of value creation.

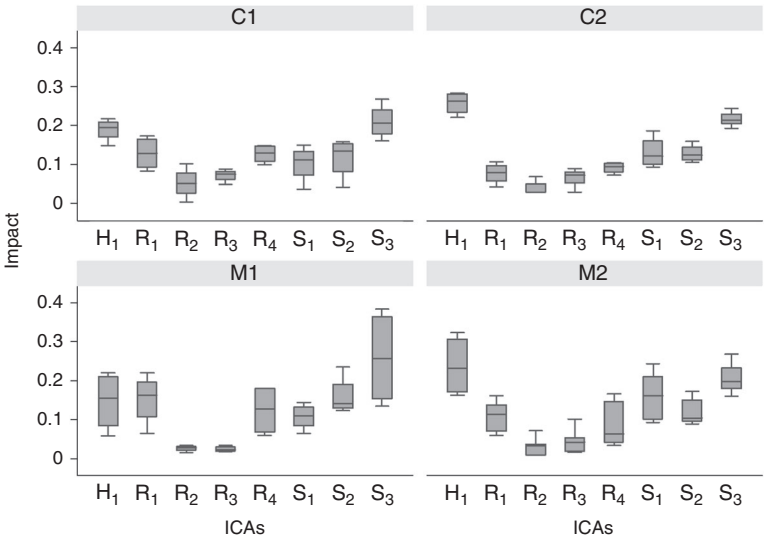

Figure 1. Distributions of the perceived impact of the eight ICAs on value creation in the four SFFs

As the interviews were performed individually, there is no apparent risk of family imposed "groupthink," which can be caused by a potentially strong family leadership that may influence the interviewees who are not members of the family, making them hesitant to speak out and question ideas (Ensley and Pearson, 2005). Nevertheless, we may not exclude a naive groupthink phenomenon (Janis, 1971), caused by the physiological formation of small, cohesive groups in SFFs whose members share similar points of view, suppressing deviant thoughts. A synoptic analysis of the results in Figure 2 suggests that the interviewees substantially agreed on the rankings of most ICAs. Nevertheless, with respect to several ICAs, the perceived relative impact varied significantly. As introduced before, the most remarkable case is "Process" (S_3) in M1, in which the interviews resulted in a span of weights going from 0.38 of the Director of Logistics (M1.MAN3) and 0.34 of the owner and CEO (M1.MAN1), both of whom considered Process among the most important ICAs; to the 0.13 of the Marketing Director and 0.17 of the Vice-President (Table III). M1 experiences the highest levels of standard deviation in the perceived impact on value creation of most of the eight ICAs (S_2, S_3, H_1, R_1 and R_4). This lack of agreement is a sign of strategic uncertainty, especially if we consider that all the interviewees in M1 are managers. Indeed, the lack of strategic planning is an acknowledged weakness point of FFs (Carlock and Ward, 2001; Wang *et al.*, 2007). The arguments lead to the following proposition:

P3. SFFs may experience strong internal disagreement with respect to the perceived relative impact of ICAs on value creation, and this may cause confusion in the strategic planning and inefficiencies in the implementation of the strategies.

The results described in Table III show that C1 and C2 have the highest levels of internal coherency. In fact, C1 and C2 experience low standard deviations in the perceived impact of most of the eight ICAs and a fair agreement on what is likely to have the highest impact on value creation. In M2, the internal coherency is quite lower, closer to that observed for M1, although the agreement on the importance of "Process" (S_3) and "Knowledge and Competence" (H_1) is much higher. According to additional

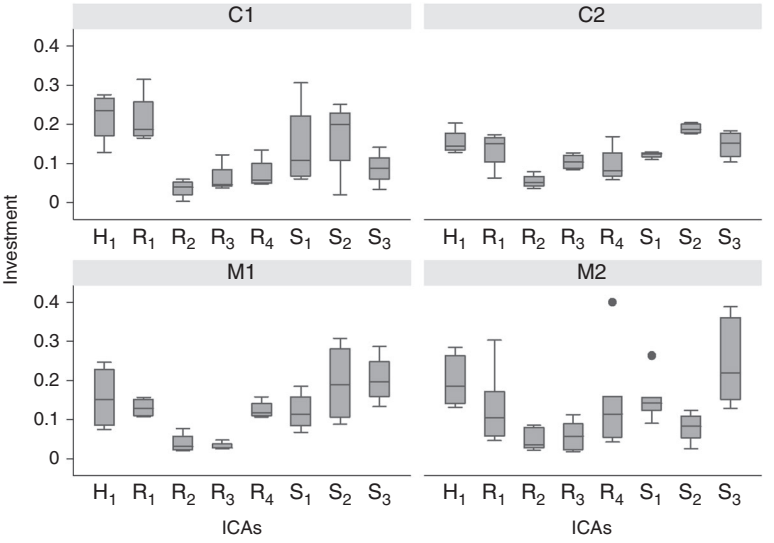

Figure 2.
Distributions of the perceived relative investments needed by the eight ICAs in the four SFFs

Firm.interviewee	H_1	R_1	R_2	R_3	R_4	S_1	S_2	S_3
C1.MAN1	0.19	0.08	0.05	0.09	0.10	0.12	0.16	*0.21*
C1.MAN2[a]	0.15	0.10	0.10	0.07	0.15	0.11	0.12	*0.20*
C1.MAN3	0.22	0.16	0.00	0.05	0.12	0.15	0.04	*0.27*
C1.MAN4	*0.20*	0.17	0.05	0.07	0.15	0.04	0.15	0.16
C2.EMP1	*0.28*	0.09	0.03	0.07	0.07	0.11	0.13	0.24
C2.MAN1[a]	*0.24*	0.04	0.07	0.09	0.10	0.13	0.11	0.21
C2.MAN2[a]	*0.28*	0.07	0.03	0.03	0.09	0.19	0.12	0.19
C2.MAN3	*0.22*	0.11	0.03	0.07	0.10	0.09	0.16	0.21
M1.MAN1[a]	0.11	0.06	0.03	0.03	0.06	0.12	0.23	*0.34*
M1.MAN2	*0.22*	0.15	0.02	0.02	0.18	0.15	0.14	0.13
M1.MAN3	0.06	0.22	0.02	0.03	0.08	0.06	0.15	*0.38*
M1.MAN4[a]	*0.20*	0.18	0.03	0.02	0.18	0.10	0.12	0.17
M2.EMP1	0.16	0.14	0.03	0.04	0.17	0.10	0.10	*0.27*
M2.EMP2	*0.28*	0.06	0.01	0.02	0.03	0.21	0.15	0.23
M2.EMP3	*0.31*	0.07	0.04	0.05	0.07	0.17	0.11	0.18
M2.MAN1[a]	*0.17*	0.12	0.04	0.10	0.15	0.09	*0.17*	0.16
M2.MAN2	*0.32*	0.16	0.01	0.02	0.04	0.15	0.09	0.21
M2.MAN3	0.18	0.11	0.07	0.05	0.05	*0.24*	0.10	0.19

Notes: Sum of weights in figure may differ from 1 due to approximations; highest weight per interviewee is in italic. [a]Owning managers

Table III. Perceived relative impact of the ICAs on value creation according to the interviewees

descriptive analysis, the degree of internal agreement does not seem systematically affected by the dualism employee – manager nor by the dualism owning manager – not-owning manager. Some disagreements among such categories happen, but the affected ICAs change from firm to firm, and so does the polarization of the different interviewee categories. For example, the owners of C1 and M2 underrated "Knowledge and Competence" (H_1) with respect to the other managers, whereas the owners of C2 overrated the same ICA with respect to the other managers, and those of M1 were substantially in line with not-owning managers. The analysis of the boxplots in Figure 1 suggests that SFFs operating in comparatively more innovative, turbulent markets (i.e. M1 and M2) are more likely to suffer of lack of internal agreement on the perceived strategic impact of ICAs than other SFFs. This is quite reasonable, as firms operating in stable markets have clearer ideas on which factors can affect their value creation process, whereas firms operating in turbulent markets have much more uncertainties on the cause-effect relationships between investment and return. Therefore, we postulate the following:

P4. SFFs operating in stable markets, with average level of innovativeness, are likely to experience more internal agreement on the impact of ICAs on value creation than SFFs operating in turbulent markets, with higher degree of innovativeness.

The analysis of the perceived investments needed by the ICAs in order to contribute to the value creation process returned a more confusing picture, which hardly allows finding common patterns among the four SFFs (Figure 2). "Knowledge and Competence" (H_1) is perhaps the only asset perceived as comparatively "expensive" by all the SFFs in the sample, although it is not considered the single one needing the highest level of investments according to most of them. Indeed, on average, managers and senior employees of C2 consider more costly "Corporate culture and Internal

Relationships" (S_1), whereas those of M1 and M2 are more concerned with "Process" (S_3) (although in the case of M2 much internal disagreement exists). M2 employees are determinant for "Process" (S_3) being considered the most costly ICA, as M2 managers have a perception of lower cost with respect to "Rel. with Customers" (R_1). In fact, employees are often strongly affected by changes in processes, and may therefore perceive some intangible costs that are not fully recognized by managers, or may be biased in their answers by some physiological change aversion. Furthermore, in C1, C2 and M1 the owning managers overrate the expected investment on "Knowledge and Competence" (H_1) with respect to other managers. Overall, the differences between the M1/M2 and C1/C2 are reasonable, especially if we consider that firms characterized by higher innovativeness degree and more complicated technologies may need to implement major changes to their hardware while changing their processes. As a consequence, we postulate that:

P5. In order to obtain an impact on value creation, innovative SFFs recognize the need of higher investments on process improvements than on other ICAs.

Most firms included in our sample experienced high level of internal disagreement that, according to further descriptive analyses not included here for the sake of brevity, does not seem to be primarily related to the dualism between managers' and employees' perceptions. Indeed, the internal disagreement is quite strong also among managers and is only slightly increased by employees in the case of M2. Owning managers often disagree with other managers, but no systematic pattern can be identified in their polarization. The variability in the perceptions appears here to go beyond the differences existing among firms' industries. In fact, a higher variability in the perceptions regarding investments with respect to impact was also observed in an earlier implementation of the framework in a university spin-off providing consultancy for industrial plants optimization (Greco *et al.*, 2013). Such result may also suggest that the high variability is not related to the peculiarities of FFs.

Extreme positions are likely to depend on the interviewee's role. For example, C1. MAN4, the production manager of C1, seems convinced that improving the firm's processes (S_3) would cost comparatively much less than any other ICA (Table IV), possibly because he has in mind cost-effective solutions that other managers did not realize. Another reasonable explanation for the variability at the individual level may lay in the influence activity theory (Milgrom and Roberts, 1988), according to which subjects try to influence the final decision maker (i.e. the family entrepreneur) to their benefit (i.e. to allocate resources to improve an ICA useful for their office or role). This interpretation, although reasonable is here somewhat weakened by the results obtained for the impacts weights (in which, according to C1.MAN4, "Process" is only the third ICA that needed investments) and by the questionnaire structure, whose pairwise comparisons may reduce this kind of biases (Greco *et al.*, 2013). Consequently, we postulate the following:

P6. SFFs experience much higher internal disagreement when estimating the investments needed for their ICAs than the internal disagreement experienced when estimating the ICAs expected impact on value creation.

Table V describes the B/C coefficients, which are calculated as ratios between average values of impact and investment weights identified by the interviewees at an individual level. B/C ratios greater than 1 imply that the corresponding ICAs should be targeted with investments. The results suggest a different strategy to each of the SFFs in our

Firm.interviewee	H_1	R_1	R_2	R_3	R_4	S_1	S_2	S_3
C1.MAN1	0.21	0.18	0.05	0.12	0.05	0.06	**0.25**	0.09
C1.MAN2[a]	**0.26**	0.16	0.06	0.04	0.06	0.14	0.19	0.09
C1.MAN3	0.13	**0.31**	0.00	0.04	0.05	**0.31**	0.02	0.14
C1.MAN4	**0.27**	0.20	0.03	0.05	0.13	0.08	0.20	0.03
C2.EMP1	**0.20**	0.14	0.08	0.08	0.09	0.13	0.18	0.10
C2.MAN1[a]	0.14	0.16	0.04	0.11	0.06	0.11	**0.20**	0.18
C2.MAN2[a]	0.15	0.06	0.05	0.09	0.17	0.12	**0.18**	0.17
C2.MAN3	0.13	0.17	0.05	0.13	0.08	0.12	**0.20**	0.13
M1.MAN1[a]	**0.25**	0.11	0.02	0.02	0.11	0.18	0.12	0.18
M1.MAN2	0.08	0.11	0.02	0.03	0.12	0.10	0.25	**0.29**
M1.MAN3	**0.21**	0.16	0.08	0.05	0.16	0.13	0.09	0.13
M1.MAN4[a]	0.09	0.15	0.04	0.03	0.11	0.07	0.31	**0.21**
M2.EMP1	0.26	0.06	0.03	0.02	0.04	0.14	0.06	**0.39**
M2.EMP2	0.14	0.05	0.02	0.02	**0.40**	0.26	0.11	0.36
M2.EMP3	**0.28**	0.11	0.04	0.09	0.08	0.16	0.05	0.19
M2.MAN1[a]	0.13	**0.17**	0.08	0.11	0.16	0.09	0.11	0.15
M2.MAN2	0.17	**0.30**	0.03	0.04	0.05	0.12	0.02	0.25
M2.MAN3	**0.20**	0.10	0.09	0.07	0.15	0.14	0.12	0.13

Notes: Sum of weights in figure may differ from 1 due to approximations; highest weight per interviewee is in bold. [a]Owning managers

Table IV.
Perceived relative cost of the ICAs according to the interviewees

Firm	H_1	R_1	R_2	R_3	R_4	S_1	S_2	S_3
C1	0.868	0.604	*1.493*	*1.148*	*1.728*	0.708	0.706	***2.410***
C2	***1.665***	0.576	0.738	0.636	0.938	*1.076*	0.678	*1.469*
M1	0.942	*1.169*	0.660	0.760	0.990	0.894	0.829	***1.271***
M2	*1.202*	0.835	0.689	0.778	0.587	*1.059*	***1.504***	0.843

Notes: B/C ratios higher than 1 are italic; the highest ratio for each SFF is in bold italic

Table V.
Benefit/Cost analysis of the four firms (ratios of average perceived benefits on average perceived costs)

sample to enhance its IC and improve its capability to create value. Most SFFs would take advantage from process improvements (S_3), whereas improving "Knowledge and Competence" (H_1) would be particularly advisable for C2 and M2. Furthermore, improving "Corporate culture and Internal Relationships" (S_1) is especially advisable to C2 and M2. Noticeably, according to the B/C ratios, some firms may want to "borderline accept" the idea of investing on ICAs whose ratios are only slightly smaller than 1, such in the cases of "Knowledge and Competence" (H_1) and "Rel. with Partners and Suppliers" (R_4) for M1. This is especially true when the interviewees experienced some internal disagreement on certain ICAs (as observed for both impact and investment on H_1 within M1). The assessment performed by employees does not affect most of the results displayed in Table V. In fact, the synthesis of managers' opinions (without considering employees) would have returned the same final recommendations, with the notable exception of "Process" (S_3), whose B/C ratio according to the managers of M2 would have been 1.055. M2 managers might therefore consider investing on S_3 after a discussion with the employees about its actual and perceived costs and benefits. Owning managers are in line with other managers on two-thirds of ICAs, although the only identifiable common pattern suggests that owning managers are more sensitive to "Rel. with Institutions" (R2) and "Rel. with Investors" (R3) than others. This is coherent

with the role taken over by the entrepreneur, who needs to collect external resources from investors and public institutions (e.g. through public subsidies) and is aware of the great benefits that purposeful relationships with such subjects can generate.

The results of the B/C analysis, matched and supported by the literature discussed in Section 2, suggest the following proposition, in line with the *P1*:

P7. SFFs should target their strategic planning efforts toward improvements in their internal processes.

5. Conclusions and future developments

Despite the flourishing literature studying FFs, few studies explored the role played by IC in them, and even fewer focussed on SFFs. This paper described how ICAs' benefits and costs are perceived in four manufacturing SFFs. Somehow surprisingly, we found a fair average accordance across the SFFs about the leading role of "Process" and "Knowledge and Competence," due to their high perceived impact on value creation. Nevertheless, firms operating in more turbulent markets show a high standard deviation on some ICAs (such as "Process" and "Knowledge and Competence"). This suggests an internal disagreement that, especially when observed among managers, should stimulate a common reflection in order to avoid strategic ambiguity. The interviewees in our sample experienced much more internal disagreement when dealing with the expected comparative investments needed by the eight ICAs. Nevertheless, we observed that more innovative firms appear more concerned with the costs related to process improvements. The B/C analysis returned heterogeneous results for the four SFFs, but emphasized how process improvements are fundamental for most of them (all of them if we exclude employees from the analysis).

This study presents two main potential limitations. The first is typical of multiple case studies, whose statistical generalization is not possible (Giuliani, 2013). Nevertheless, as discussed before, this study aims to identify relevant concepts that may concur to build theory and encourage empirical studies, rather than to discuss generalizable empirical relationships. The second limitation depends on the implementation of the framework, which classifies the wholeness of a firm IC in terms of eight generic ICAs. This may be considered an over-simplification, as most of the ICAs can be divided into several smaller and more specific ICAs. Nonetheless, an increase in the number of ICAs would cause an exponential increase in the number of pairwise comparisons and consequently of the interviews duration, dramatically reducing the reliability of the interviewees' answers. Therefore, we complied with the original eight-ICAs classification defined in the theoretical paper introducing the framework (Cricelli *et al.*, 2013), also to guarantee its comparability with earlier implementations of the framework in other contexts.

The implications of this study are twofold. On the one hand, the implementation of the ICF allowed providing recommendations to the interviewed firms with respect to their future IC strategy and to alert them in case of excessive internal disagreement. On the other hand, our explorative case study, matched with insights from the literature, allowed us to propose seven tentative propositions about IC in SFFs. Such propositions should be appropriately tested in future studies.

In fact, several areas for future research arise from the seven propositions. We observed a fair agreement within the four SFFs about the impact of the eight ICAs. Future studies might explore to what extent such agreement is influenced by groupthink, which is known to be an issue in SFF, or affected by the firm's size,

industrial sector, innovativeness, socio-economic environment and business model. It may also be insightful to compare the perceptions of small family and non-FFs. As this study is based on interviewees' perceptions, future researches may want to verify whether the perceived importance of an ICA and its actual contribution to value creation coincide. Further researches could also be conducted in order to determine the impact on SFFs' performance of internal strategic disagreement with respect to the ICAs' impact on value creation. A greater focus on how organizational conflicts can be managed effectively to solve internal strategic disagreement in SFFs might also bring major benefits. We observed that firms operating in more turbulent markets are more likely to experience internal disagreement with respect to expected impact of the ICAs. Thus, future researches should verify whether such disagreement is actually related with market turbulence, and to what extent it is influenced by other causes. Finally, according to the B/C analysis, most firms agreed on the fundamental role of the ICA "Process." Future work is needed to verify whether "Process" is a primary source of value creation according to most SFFs, and to what extent the result changes with firm size, industrial sector, innovativeness, socio-economic environment or business model.

Notes

1. Note that most ICAs can have a direct impact only on a limited set of other ICAs. A graph of direct interdependencies has been proposed in literature (Cricelli *et al.*, 2013).
2. If the interviewee strongly prefers ICA_1 to ICA_2, ICA_2 to ICA_3 and ICA_3 to ICA_1, it is likely that one of the three judgments was provided accidentally, in such case the interviewer just proposes to reconsider all of them and verifies whether they actually represent the interviewee preferences. This inconsistency is physiological when many alternatives are present, and up to certain levels does not represent a serious issue (Battistoni *et al.*, 2013).

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