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Overcoming sustainability barriers through Formalized Network Contracts (FNCs): the experience of Italian SMEs

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Overcoming sustainability barriers through Formalized Network Contracts (FNCs): the experience of Italian SMEs.

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ABSTRACT

The role of formal business networking in SMEs is receiving more attention from scholars and practitioners. However, several aspects remain unclear, including if and how, corporate sustainability approaches are implemented and aligned within such networks, mostly created for competitiveness and resource efficiency purpose. With the aim of filling this gap in the literature over Small Business Social Responsibility, an empirical investigation is proposed by analyzing 389 Formalized Network Contracts and their original legal document, following Bocken et al. (2014) business model archetypes and NBS (2012) studies on sustainable innovation and, normative-making perspectives. Findings include the addition of a new general aims for such FNC that is the creation and enablement of clusters, following the perspective of Creation of Shared Value. In addition, we demonstrate that FNC is a suitable tool for micro, SMEs, and individual entrepreneurs to meet sustainability issues introducing eco-innovations, eco-efficiency and shared value herein their products/services, business models and organizational changes as roughly half of these contracts include a reference to sustainability issues.

KEYWORDS: Formalized Network Contracts (FNCs), Sustainability, Creation of Shared Value (CSV); Corporate Social Responsibility (CSR)

JEL CODES: L22; M14; Q01; Q56

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1 INTRODUCTION

The backbone of the European economic system is represented by micro-SMEs that count for 92.8% of the entire European economy (where SMEs are 99.8% of the overall companies). Following the European definition of SMEs, in 2015, 23 million SMEs generated €3.9 trillion in value added and employed 90 million people (European Commission, 2016). One of the most pressing problems for these SMEs is to find new customers, the second is the lack of skilled staff, and the third is represented by an "increasing competition" sentiment (European Commission, 2016). With the aim of tackling these issues, the European Union devotes greater attention to SMEs competitiveness and the Small Business Act (SBA) is an example. SBA is guidance for the Member states to improve SMEs growth removing existent obstacles and providing a list of paramount importance topics. This agenda includes also the attention that SMEs should put on transform environmental challenges into economic opportunities, while acting sustainably as two-third of the total European industrial pollution is due to SMEs, because of external normative barriers to difficult to be respected (Eurobarometer, 2012). A recent study estimates that only 26.5% of Italian companies (with at least one employee) have invested in the period 2010-2015 and will continue to invest in eco-innovations in the future (Symbola, 2016). Also, the literature over Small Business Social Responsibility (SBSR) confirms that SMEs face several issues in implementing a sustainable behavior. Generally, the literature explains this corporate unsustainability as a result of the inconsistency of the existent tools to address sustainability issues at firm level (Horisch, Johnson, & Schaltegger, 2015; Johnson, 2013, 2015; Johnson & Schaltegger, 2016). Moreover, to justify the aversion towards SBSR are the lack of knowledge, resources (time, financial and human ones) and practical suitability of the tools most of them developed having in mind large companies (Spence, 2014; Vázquez-Carrasco & López-Pérez, 2012). Few studies combine solutions to overcome these barriers with SMEs capabilities and the related pressure towards market competitiveness and resource efficiency. One way-out to enhance competitiveness among SMEs is the adoption of collaboration strategies and strategic network alliances (Freeman, Edwards, & Schroder, 2006; Håkansson & Snehota, 2006; Kirkels & Duysters, 2010; Lee, Kelley, Lee, & Lee, 2012; Swoboda, Meierer, Foscht, & Morschett, 2011). Practically, these collaboration strategies may happen with different grade of formalization: from informal cooperation to joint-venture agreements (Gulati, 1998, 1999). Most of the studies discuss formal and informal collaborations, network performances, interpersonal and organizational features and the distribution of power between networks' members (Keast, Brown, & Mandell, 2007; Keast, Mandell, Brown, & Woolcock, 2004; MacGregor, 2004; M. Mandell, Keast, & Chamberlain, 2016; M. P. Mandell & Keast, 2008; O'Donnell, 2004; Storey, 1994). Conversely, there is a paucity of works discussing

how SMEs may use networks as a driver of SBSR and, in general, to achieve social and environmental outcomes or if social and environmental impacts are considered as part, leverage or a key factor for the network performance. Precisely, only the work of von Høivik and Shankar (2011) describe the potentialities offered by a network model to undertake CSR and to address the limitations faced by the SMEs when they try to implement CSR individually (von Høivik and Shankar, 2011). The purpose of this study is to shed light on the inter-firm collaborations, and particularly, to locate the Italian phenomenon of the Formalized Network Contracts (FNCs) in the picture of SBSR. An FNC is juridical instrument, introduced in 2009 and designed by the Italian Government to offer a concrete answer to the SBA, herein the European framework. With respect to typical contractual networks, which are formed through interconnected bilateral or plurilateral contracts, and differing from other traditional forms of collaborations (such temporal agreement, consortia, joint ventures, etc.), this new tool mandatorily manages: outcomes related to specific business programs, compositions of the network and content to build the parties innovative capacities and to improve their competitiveness. The research questions are: Is sustainability included herein the FNC, to what extent and how? Is this normative-making approach towards sustainability the real trigger point?

Findings include the addition of a new general aims for such FNC that is the creation and enablement of clusters, following the perspective of Creation of Shared Value. In addition, we demonstrate that FNC is a suitable tool for micro, SMEs, and individual entrepreneurs to meet sustainability issues introducing eco-innovations, eco-efficiency and shared value herein their products/services, business models and organizational changes as roughly half of these contracts include a reference to sustainability issues.

The remainder of the paper is organized as follow. Section 2 presents a discussion of the literature review on SMEs networking and social responsibilities herein the networks. Section 3 presents our hypotheses (more precisely on FNCs in the Italian context) and the rationalization of the methodologic process according to the classification of FNCs herein the social and green economy, while Section 4 describes the composition of our sample. Section 5 is dedicated to present and discuss the results, and Section 6 concludes our work presented the social and managerial implications of our study. Finally, an appendix has been added in order to show how the analysis on FNCs has been done.

2 THEORETICAL BACKGROUND

2.1 Business Networks in SMEs environment

As highlighted by Oliver and Ebers (1998), one of the most problematic aspects in analyzing company networks is the lack of a coherent and observable definition. It is very hard to find works adopting the same definition of firms' networking: the term "network" is sometimes supplanted by equivalent expressions such as "partnership", "coalition", "strategic alliance", "inter-organizational relationship", "cooperative form", "collaborative form". Scholars agree in the dualistic view of formal and informal (or social) networks. Formal business networks are defined as organizations that bring together entrepreneurs with the aim of sharing information and experiences for mutual advantage Parker (2008) or as "initiatives to bring together firms to co-produce, co-market, co-purchase or co-operate in product or market development trough contractual agreements" (Huggins, 2001) or, according to the prevailing characteristics of the participant firms or to the main goals pursued they identify inter-firms/inter-organizational networks (Huggins & Thompson, 2015) or alliances (Mazzola, Perrone, & Kamuriwo, 2016; Mitsuhashi & Greve, 2009). With the aim of helping entrepreneurs add value, informal business networks are realized through social networks also in the form of clusters as geographical group of economically and socially interconnected companies and institutions orchestrate towards achieving enhanced performance and building competitive advantage (Chow & Chan, 2008; Li, de Zubielqui, & O'Connor, 2015). Inter-organizational cooperation unlocks new opportunities to increase companies' competitiveness by leveraging common practices, knowledge and innovation, improve production processes, gain market share, extend and integrate the supply chain, decrease costs, deploy new offerings, integrate and leverage innovation strategies and other competitive factors (Barringer & Harrison, 2000; Shaw, 2006). These alliances may play a strategic role for those companies tremendously subjected by the effects of the growing complexity of the competitive environment, with the awareness that they cannot develop all the skills they need to compete successfully (Ricciardi, 2010). In other terms, a network is established when two or more organizations mutually see collaboration as beneficial, so organizational goals and external opportunities jointly determine alliances (Mitsuhashi and Greve, 2009). The layouts of such networks adopt different legal form such: strategic alliances, industry-umbrella organizations, multi-party collaborations and stakeholder sets (Altobelli & Carnazza, 2011; Barringer & Harrison, 2000; Harland & Knight, 2001; Rullani, 2010).

de Man has suggested a comprehensive classification of networks approaches, based on the main goal/goals that the networked organizations want to achieve (De Man, 2004). These are: quasi-integration networks, primarily horizontal networks established to achieve market power; supply (and demand or customer) oriented networks aimed at increasing efficiency; solution networks, between producers of complementary goods and services aiming to serve a comprehensive customer-specific problem; R&D networks, between companies aiming to share risks, costs and/or competences in the development of new technologies; standardization networks aiming to set dominant technology in a product/service field.

More than in large corporations, SMEs lack economies of scale, and have less access to information and other critical innovation resources (Mohannak, 2007). Through accessing and exploiting external resources of the network, SMEs can overcome some of the assumed disadvantages of limited size enhancing their performance and growth (Havnes & Senneseth, 2001). According to Lin and Lin (F. Lin & Lin, 2016), the determinants of network relationships in SMEs performance comprise five factors: sharing knowledge, accelerating innovation, reducing transaction costs, gaining a better reputation, and creating new market opportunities (Lin and Lin, 2016). For this purpose, an SME that overcomes the entrepreneurial dimension of individualism by seeking growth and development opportunities must adopt new managerial conducts that include links and inter-organizational relationships in their business routine (Lai, Lionzo, Stacchezzini, & Rossignoli, 2015). The phenomenon of SMEs networks has been analyzed by scholar focusing on network: in informal economy such those of micro entrepreneurs (Darbi & Knott, 2016), for innovation purposes (Clifton, Keast, Pickernell, & Senior, 2010; Colombo, Laursen, Magnusson, & Rossi-Lamastra, 2012; Gronum, Steen, & Verreynne, 2016; Gronum, Verreynne, & Kastelle, 2012), to reduce transaction costs (F. J. Lin & Lin, 2016), to facilitate knowledge flows and technology creation (Konsti-Laakso, Pihkala, & Kraus, 2012), to internationalization (Eberhard & Craig, 2013; Haddoud, Jones, & Newbery, 2017; Jin & Jung, 2016), to develop new product (Mazzola & Perrone, 2013; Mazzola et al., 2016; van de Vrande, de Jong, Vanhaverbeke, & de Rochemont, 2009).

In general, the advantages for SMEs networking relies on: (i) development of more complex products by integrating available skills; (ii) achievement of higher production volumes by optimizing and cumulating stand-alone capacities; (iii) increased geographical distribution of product and services; (iv) decrease in resource expenditure (Mezgár, Kovács, & Paganelli, 2000). These networks add flexibility and organizational capabilities among diverse partners (Díaz-Chao, Sainz-González, & Torrent-Sellens, 2016; Li et al., 2015; Parida, Patel, Wincent, & Kohtamäki, 2016; Vázquez-Carrasco & López-Pérez, 2012). The reticular forms can be distinguished according to the following types (Andrea Cardoni & Tiacci, 2013): the *development network* represents the form of collaboration to pursue business opportunities systematically; *the network of primary processes* represents the ideal collaboration form to maximize the synergies between the production and commercial structures of companies belonging to compatible market sectors or supply chains; *secondary process network* are for non-systematic and occasional exploitation of synergies in supporting processes to counteract a high market instability or the difficulty of integrating into primary activities.

The adoption of such network enables process of value co-creation and represents a source of competitive advantages herein the business strategy (Garzella & Fiorentino, 2014). The uptake of

CSR as part of the network (cluster) agenda will also lead to innovation through cooperation and competition as well as the challenges faced by the SMEs in implementing CSR can be minimized by being part of a network (cluster).

2.2 SBSR, sustainability and SMEs business network

Studies on SBSR confirms that SMEs face several issues in implementing a sustainable behavior creating situation of a general unsustainability. This situation is explained by the inconsistency of the existent tools to address sustainability issues at firm level (Horisch et al., 2015; Johnson, 2013, 2015; Johnson & Schaltegger, 2016). As a consequence, SMEs justify their aversion towards SBSR stating that is due to the lack of knowledge and resources (time, financial and human ones), that, conversely, large companies have (Baumann-Pauly, Wickert, Spence, & Scherer, 2013; Fernandez & Camacho, 2016; Spence, 2014; Tomšič, Bojnec, & Simčič, 2015; Vázquez-Carrasco & López-Pérez, 2012). For this study, we address sustainability, CSR and stakeholder management as closer concepts, according to the Euclidean demonstration of closeness given by the study of Fassin et al. (2015) regarding the Italian context (Fassin et al., 2015).

One way to overcome this individuality is represented by the adoption of network model also in addressing sustainability issues according to the main function of the network, the model, the managerial organization and governance, and the internal value creation dynamics (Taurino, 2015). A set of organizations located in the same local context, operating in the same sector or supply chain and having the same stakeholders, face a large number of common social and environmental problems (Battaglia, Bianchi, Frey, & Iraldo, 2010). Alongside the physical proximity, the strategy towards environmental issue could be achieved using a *collaborative network* that gives coordination and synergy among partners D'Alessio, 2008 (Noran, 2010). In fact, the network approach is suitable to coordinate the actions according synchronism (time), delocalisation (space) and interactions among different partners (Floridi, 2009; Murillo & Lozano, 2009). The adoption of CSR herein the network represents a managerial innovation denoted by its effect under structural, interactive and cognitive dimensions of the innovation and typical management process (Abdirahman, Sauvée, & Shiri, 2014; Santana, Vaccaro, & Wood, 2009).

Network model is a means to undertake CSR and to address the limitations faced by the SMEs when they try to implement CSR individually (von Høivik & Shankar, 2011). Instead of maintaining CSR as a reactive-defensive strategy and as a pure support function to reduce risks and costs for shareholders, CSR must be taken to the next level as a fundamental value creation driver (von Høivik & Shankar, 2011). The network becomes the pivot of a new value creation process able to achieve network's growth, with innovation and proactivity/external pressure. Being part of a network increases the likelihood of SMEs recognizing SR issues and their ability to act on them; organizations achieve increased ethical awareness. As part of a cluster of individual companies, those that are faced with resource challenges can improve their organizational capabilities, such as specialized staff, leadership, and management capabilities (suppliers-buyers' relations) (Vurro, Russo, & Perrini, 2009).

According to Melè (2009), four elements of the network approach are highly relevant for an ethical perspective: (1) intention, shared goals and participative activities in the practice of networking; (2) exchange of resources and transmission of information and knowledge or/and learning these from other network actors; (3) the exercise of power of each actor toward other actors; and (4) the behavioral and ideological influence within a network (Melé, 2009).

Moreover, SBSR represents a source for differentiation and visibility in increasingly complex and dynamic markets (Morsing & Perrini, 2009). Among the different types of innovation that are likely to be addressed within the concept of collaboration, the network approach can be classified under the Business Model Innovation (Camarinha-Matos, Afsarmanesh and Boucher, 2010). Bocken et al. (2014) identified eight sustainable business model archetypes that are enumerated as follows: Maximise material and energy efficiency; Create value from 'waste'; Substitute with renewables and natural processes; Deliver functionality, rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; Develop scale-up solutions. According to that model, collaborative approaches are organizational archetypes to develop scale up solutions (Bocken et al., 2014). Herein these collaborative approaches, several typologies of SME's network can be distinguished, using market and entrepreneurial advantages (Jansson, Nilsson, Modig, & Hed Vall, 2015). We distinguish among: B2B green public procurement networks (Rizzi, Frey, Testa, & Appolloni, 2014), B2B/B2C supply chain (Formentini & Taticchi, 2016; Vurro et al., 2009), eco-innovation product/services/processes aimed network (Klewitz & Hansen, 2014; Pacheco et al., 2017), responsible innovation (Halme & Korpela, 2014), shared value enabling clusters (Porter & Kramer, 2011).

The main difference herein these types of network is determined by intentionality and sustainability contractualisation, that open up the discourse over norm-making and norm-taking approaches in SBSR (de los Reyes, Scholz, & Smith, 2017; Poncibò, 2016). A major difficulty in studying network effects in the implementation of CSR principles is its complexity and duration (Abdirahman et al., 2014), our study will contribute to investigate if FNC are helpful in implementing CSR and sustainability principles among SMEs. The next section of our study will present and discuss the Italian scenario of FNCs herein our research questions.

3 THE ITALIAN SCENARIO OF FNCS AND THE DEVELOPMENT HYPOTHESES

The study of relationships between businesses is one of the key issues in the management of exogenous and endogenous factors affecting business behavior (Passaponti, 1975). As Riparbelli remembers, in fact, "businesses do not have autonomous lives but live in correlations and interdependencies" (Riparbelli, 1962). This paper interprets the "network" as a system of inter-organizational relationships based on collaboration between enterprises for the governance of shared value processes that are likely to evolve over time (Capaldo, 2007). More precisely, we will address to small business' networks, formalized trough a "network contract" (known as Contratto di Rete¹), introduced in Italy during 2009. The network contract allows two or more enterprises, on a purely contractual basis, to pursue the goal of individually and collectively increasing their capacity for innovation and their competitiveness on the market. To this end they mutually undertake, based on a shared framework program, to collaborate in predetermined forms and contexts regarding the running of their own companies and to exchange industrial, commercial, technical or technological information or services, or to jointly perform one or more activities that is part of each company's corporate purpose (Ricciardi, 2004). The Italian formal network is as a specific contractual agreement aimed at bringing together firms to co-produce, co-market, copurchase or co-operate in product or marked development (Ferrari, 2010). According to Bastia, in a network context, these legally autonomous companies, realize consciously and finalize production co-ordination, exploiting the aspects of technical and economic complementarity of their respective administrations with a view to achieving joint economic objectives, from which indirectly obtaining individual benefits (Bastia, 1989). These interrelationships may bind companies with transitory agreements with limited content, or large-scale agreements with characters of stability in the medium to long term (Broglia Guiggi, 2001; Mancini, 2010).

As suggested by Cerrato, the current regulatory system draws up an autonomous situation, with its own but minimal discipline². The "network agreement" is a contract (Cerrato, 2016) with some specific issues. It has to be stipulated by "entrepreneurs", as proscribed by law; it must be

¹ Art.3 paragraph 4-ter and following of Decree 5/2009, converted into Law 33 of 2009 and subsequently by Art. 42 of Decree 78/2010 translated into Law 122/2010 and other updated amendments

² If two or more companies wish to enter a network contract, they must legally agree on few essential elements.

⁽a) The purpose, namely the strategic objectives of innovation and of increasing the competitive capacity of the participants;

⁽b) The object, that is the 'network program', which must indicate in a relatively detailed manner the concrete actions to be undertaken, the timing, the estimated costs and expected benefits, the role and obligations of each participant and the relative rights;

⁽c) How to "measure" the progress of the network towards the objectives;

⁽d) The goals set;

⁽e) The duration of the contract;

⁽f) The procedures for joining other parties and the rules for taking decisions of the participants on any matter or aspect of common interest.

legally typical, as defined by a rule of law; at least bilateral, because it is referred to "the entrepreneurs". The contract must be with a communion of purpose and associative, since the function of "collaboration" is clearly outlined for a common, individual and collective goal (innovation and capacity-building), although it provides that instrumental activities for its purpose can be embodied in forms of "commercial exchange" and even if an organizational structure can be embryonic. It has to be open, since it is possible - unless this implies changing the original contract or necessarily requiring the consent of all - that other entrepreneurs "adhere". Finally, it must have an in bound form, because the network contract is 'acquired' by registration in the business register and is required to be drawn up by means of a public document or private written authentication.

The Italian law defines the main guidelines for SMEs wishing to adopt a networked model, while companies are free to define the purpose, the management of the network, goals and subobjectives herein the network programme. According to Ricciardi et al. (2014), 75% of the total business entities herein these network contracts are individual businesses, partnership and limited companies, i.e. the typical organizational structure of entrepreneurial and small-medium enterprises (SMEs). Lombardi (2015) defines two strategic elements of the network contract: the arrangement of strategic goals, to be achieved using innovative actions/processes: the definition of the network programme (Lombardi, 2015). Business and management scholars are willing to analyze network contracts as a source of competitive advantage (Cantele, Vernizzi, & Ricciardi, 2016). While in their work of 2011, Tiacci and Cardoni (2011) give a comparison between traditional cluster and network agreements³, in 2013, they analyzed the phenomenon as a way to reindustrialize the Italian economic system (A. Cardoni, Rossi, & Tiacci, 2011; Andrea Cardoni & Tiacci, 2013; Tiacci & Cardoni, 2011). Cagnazzo et al. (2014) use the financial statement analysis to evaluate network performances (Cagnazzo et al., 2014). Aureli and Forlani analyzed network contracts herein the tourism sector, using the database of Unioncamere and selecting 6 case studies (Aureli & Forlani, 2015). Ricciardi et al. (2014) analysed the network contract herein the ICT sector in terms of business performances using a survey (Ricciardi et al., 2014). Only the study of Del Baldo (2016) considers the network contract herein the tourism sector as a vehicle of CSR and sustainable development. Finally, our research questions are mainly focused on sustainability integration herein these norm-making juridical tools. As del los Reyes et al. (2017) states regarding norm-making approaches that is a suitable option for managers and entrepreneurs when they perceive other options as business failures (de los Reves et al., 2017). As SBSR literature demonstrates the ineffectiveness of different tools and the presence of several barriers and limitations to small entrepreneur social responsibilities, so, normative-making frameworks could be applied. On the opposite side, Spence (2014) imputes SBSR as an output of an entrepreneurial logic derived from the ethic of care and from the entrepreneurial proactive approach towards societal issues. In our study, the FNCs are *di per se* a voluntary norm-making approach to manage collaboration and to enhance business performances. First, we would like to investigate if sustainability related issues are broadly included herein the FNC (RQ1), and suddenly, we analyzed to what extent (RQ2) and how (RQ3). Trying to answer to the call of Spence (2014) about the need of further study to address the responsible behavior of micro-companies and SMEs, individual entrepreneurs and embedded local companies, we ask also if this normative-making approach towards sustainability could be a real possibility given by the adoption of this tool to overcome the well-known barriers of SBSR (RO4). FNCs might be useful to put on the right track small entrepreneurs and they provide directly tangible benefit of SBSR even when is traditionally perceived as a business cost. Summarizing, according to SBSR literature (Johnson & Schaltegger, 2016), sustainability is hard to achieve in small businesses (-), while the network approach in SMEs could entail positive results (+) for the business success (von Høivik & Shankar, 2011). With an evident lack of studies on SBSR in formalized-network of SMEs, our study would like to offer a concrete contribution on the application of such business model innovations, generating highchallenging social and managerial implications.

³ Also in the Italian context, scholars refer to the phenomenon of network contracts using different synonyms such: enterprise network agreements, formalised network agreement and formalised network contracts.

4 DATA AND METHOD

4.1 Overview of the method

To answer our research questions, we performed a qualitative content analysis on the FNCs legal document collected. Content analysis is a research method widely applied in management sciences and it has been used in documental analysis of sustainable public procurement by Testa et al. (2016). Alternative to direct interviews, the researcher examines the communication that a person/a company/ companies has produced to determine such behavior/s (Kerlinger, 1964, p. 544). Successively, the researchers replicate the study to enhance the validity and generalizability of the conclusions (Krippendorff, 1980). In particular, we performed a deductive content analysis. The structure of analysis is operationalized from previous knowledge to test previously defined research questions. The objectivity means that the process applied to analyze the document let researchers able to replicate the study and achieve the same results. In order to be consistent, the documents need to be systematically analyzed and categorized, to guarantee reliable results. This deductive qualitative content analysis has been performed according to the process discussed by Elo et al. (2014; 2008), to enforce credibility, dependability, conformability, transferability, and authenticity to our methodology. We prepare Table 1 to give trustworthiness to our content analysis according to Elo et al., (2014).

Preparation phase	Collection of material	The universe of FNCs available at April 2017 on the website of the Union of the Ital- ian Chambers of Commerce database is com- posed by 18.079 companies involved and 3.588 FNAs signed).
	Sampling strategy	10% of the entire universe to use as sample. We privileged: FNCs belonging to innova- tion purposes, presumably oriented to local development activities or internationaliza- tion, and clearly governed by a leader. We included also FNCs creating new juridical entities.
	Selecting the unit of analysis	
Organization phase	Categorization and ab- straction	Search herein the content of the FNC: *sos- tenib *green *eco *social *responsab *verd *stakeholder *solid *CSR Separate FNC without keywords; FNC =1; FNC >1
	Interpretation	Analyze the content of the entire FNC; fo- cusing the attention on the first part related to network partners; the network aim and the network programme. Apply categorization.
	Representativeness	Focus on the percentage of cases where sus- tainability is mentioned in the FNC and its declination. Give descriptive statistics of the data collected
Reporting phase	Reporting results	Build a logic and systematically representa- tion of the results and provide a full descrip- tion of the analysis process.

Table 1: Phase and procedure of the content analysis according to Elo et al. (2014)

Starting from the entire universe of FNCs available at April 2017 on the website of the Union of the Italian Chambers of Commerce, (18.079 companies involved and 3.588 FNCs signed), we selected a sample of 394 items, where for 389 FNCs the contract was effectively downloadable. This represents the 10% of the overall universe (we added +10% on 359 in order to have the possibility to compensate the sample with eventually not-available documents). As an FNC is a private document, its public availability is a research challenge. The process of the collection of such information and the access to these juridical agreements has been done selecting a number of report among those available in the database. Each report can be obtained only through a formal request submitted to the Chamber of Commerce and paying fee to access the register. This represents a limit for the study, but conversely it enforces our study of credibility as we read and analyze original documentations. The access to such information and the availability of the entire pages pertaining to a specific contract is a privileged source of information, as usually the public web-portal provides only a short abstract for each FNC. As explained in the next section FNCs were analyzed using a matrix in which all the sustainability criteria were matched with the broader aim of the FNC, participants structure, and sustainability orientation. The analysis was performed through a careful reading of FNC documents, looking for the sustainability criteria previously listed in the matrix.

As derived from the literature review on network contracts, the FNC has clear aims, that usually does not imply directly to match sustainability issues. In order to avoid any bias to consider or exclude what is sustainability and what is not, we use two previous works. The first is those of Bocken et al. (2014), presenting three sustainable business model archetypes within:

- 1. *technological features* such as: maximize material and energy efficiency; create value from waste; substitute with renewables and natural processes
- 2. *social features* such as: deliver functionality rather than ownership; adopt a stewardship role; encourage sufficiency
- 3. *organizational features* such as: repurpose for society/environment; develop scale up solution.

The second work we use as benchmark is those edited by the Network for Business Sustainability (2012) to explain to executives the role of innovation for sustainability. The report identifies three main approaches to sustainable business innovation: operational optimizations to implement "eco-efficiency" i.e. doing the same thing, better; organizational transformation to unlock new market opportunities; systems buildings aimed at achieving societal changes.

With the purpose to avoid bias due to misinterpretation, we use the Report of Green Italy (edited by Symbola Foundation in 2010) that states that the notion of green economy is meant to be used in an extensive acceptation (Symbola, 2010). Not only the business opportunities offered by new technological and technical solutions in response to emerging shortages (energy, water, food, greenhouse gas emissions), but considering also the possibilities linked to an evolved economic system where all the subjects (consumer, citizens, institutions and politicians) share a commitment towards the conscious and responsible use of resources. In addition, we follow the description of social economy and third sector organizations, in relation to the term of social innovation that is published in the Third Report on social innovation edited by the research center CERIIS, International Research Center on Social Innovation, in 2017 (Caroli, 2017). The CERIIS report demonstrates that 28% of companies interviewed adopt sustainability-oriented innovation in their business model; 26% in relational innovation; 21% in the technological innovation; 18% in their organizational model and 8% in their governance model. The same report presents as business field of the social economy: health care; social assistance; coworking and smartworking; crowdfunding and microcredit; culture; training; social inclusion; environmental improvement; sustainable mobility; urban redevelopment and revitalization of peripheral communities; support to the person and sustainable tourism. As such, we use the definitions herein provided to classify the belonging of the companies signed the FNC in the social and/or green economy. In addition, we use the work of Garzella and Fiorentino (2014) to fully assess the adoption of an environmental strategy by companies, at different level and in several forms. Finally, the matrix explains the methodology used to analyze the FNC (Table 2).

Relation between SMEs included in the		Sustainability area to be reached	
FNC and sustainability	FNC focus	through the FNC	Label
All in social/green econ-			
omy	Increase market presence	New market opportunities	1a
One or more in so-			
cial/green economy	Increase market presence	New market opportunities	1b
		New business model customer/user ori-	
Not predetermined value	Increase market presence	ented	2
All out of social/green			
economy	Increase market presence	Incremental eco-innovation	3a
All out of social/green	L		
economy	Increase market presence	Radical eco-innovation	3b
All out of social/green		Eco-efficiency - Environmental perfor-	
economy	Resource efficiency	mance	4
All out of social/green	Resource efficiency	Eco-efficiency - Environmental perfor-	
economy	Supply chain B2B	mance	5
Not predetermined value	Common goods	Shared value	6
One or more in social		Social-efficiency herein social econ-	
economy	Resource efficiency	omy and third sector organisations	7

Table 2: Explanation of the methodology used to analyze the FNCs

4.2 The use of the matrix to analyze the sample

The matrix comprises seven labels, for label number 1 and 3, we recognize two sub-categories. The first column is dedicated to the analysis of the companies herein the FNCs. In particular, we carefully read all the partners presentations and part related to companies' descriptions. We create the first variable that is namely the presence of the networked partners herein the social and/or green economy. If the FNC reported in the description of the company any suggestion about previous inclusion in the business sector, missions, activities related to green and social economy, we considered also if this situation was limited to one partner or more.

Label 1a, 1b and 7 considered the presence of companies in the social and green economy before the FNC. In particular, the distinction between 1a and 1b occurs in terms of inclusion of all the partner in social/green economy before the FNC (1a) or presence of 1 or more partner (1b) before the subscription of such contract. This distinction is explained by the need to demonstrate the network effect discussed in the literature by several authors. Indeed, Label 7 comprises FNCs where the companies herein the network are all mission-driven and pertain by nature to social economy/solidarity economy/third sector organizations.

As presented in the previous sections, FNCs has usually different aims. According to the classification of de Man (2004), we recognize: FNCs to enhance market power in several ways (internationalization, R&D, new product/service/business model innovation user oriented); supply (B2B) oriented networks aimed at increasing resource efficiency. While de Man recognizes also standardization networks aiming to set dominant technology in a product/service field, we added a new one category that is consistent with Bocken et al. (2014) and with NBS (2012) that are those networks related to creation of clusters, system-building, advocacy, and by extension to common good preservation. In this category, for instance, we include those FNCs that are a practical application of the Porter and Cramer's declination of Creation of Shared Value through enabling clusters. After the identification of the general aim of the FNC, we proceeded to decline the extent of the FNC for sustainability purposes. We identified contracts where sustainability is perceived as a way to open up new market opportunities, putting more "greenness" or "socialness" to the ordinary business (1a, 1b). FNCs where completely different subjects decided to sell or to coalize to offer new product/services fully integrated directly to a customer (2). Label 3a identifies those contracts aimed at creating new eco- or social products using incremental innovation; while Label 3b distinguishes contracts created to develop new radical social or eco-innovation. With the aim to improve resource efficiency and, by consequence, their environmental performances, we distinguish the case of Label 4, where the trigger point is eco-efficiency of companies pertaining to the same business sector, but not the same supply chain; and Label 5, that comprises contracts regulating companies of the same B2B supply chain. Finally, Label 6 indicates FNCs built on the concept of enlarge value creation dynamics and processes involving different subjects of the same area to build awareness, to spread knowledge or to advocate a topic, herein the use or deployment of resources of a particular area, as common good. Label 7 comprehends network contracts used to create resource efficiency services and process only herein the social economy and among third sector organizations.

4.3 Data collection and features of the sample

As mentioned before, initially we selected a sample of 389 FNCs representing largely the 10% of the overall universe of FNCs herein the Italian context. The sample is composed by 17% of FNC having juridical autonomy, 83% are FNCs that does not create a separate entity (without juridical autonomy). The sample of FNC with juridical autonomy represents one third of the total FNCs with juridical autonomy; where the others represent roughly the 20% of the entire universe of the FNCs without juridical autonomy that are the majority of the FNCs available. About the number of networked companies, our sample covers 19% of the companied involved with an average of companies per FNC of 5.87, completely in line (Fig.1) with the statistical overview of the FNC phenomenon officially provided by Unioncamere (2014) that distributed the majority of the FNC in the range from 4 to 9 organizations partner of the FNC.

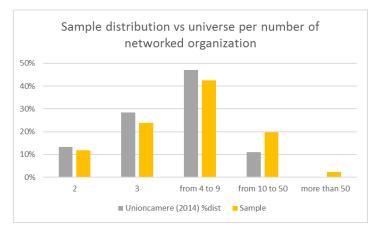


Figure 1 Sample distribution vs. universe composition per number of networked organization per each FNC

The distribution of our sample by business sector of networked companies has been done counting the occurrences of the ATECO codes for each company herein the same FNC. This has been compared to the those published by Unioncamere in 2014. We would like to stress than the ATECO code is relevant to categorize the companies herein the network and not the FNC itself. Although, also the number of companies here in report officially published by Unioncamere has been doubled in number from 2014 to 2017. Figure 2 shows the distribution of the sample by business sector compared to universe distribution, almost homogeneous.

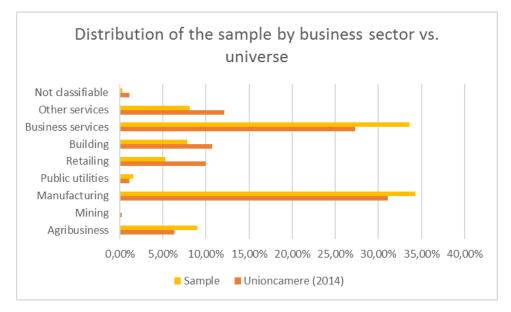


Figure 2 Distribution of the sample by business sector and comparison with the universe distribution

5 RESULTS

The results of the content analysis reveal that 54% (i.e., 210 contracts) of the FNCs had not any references to sustainability issues (FNC=0), while the rest of the sample is divided in: 16,7% has a reference to sustainability (FNC=1) as ancillary item out of the scope of the FNC and without influencing the sustainability orientation of such contract (i.e., 65 contracts); the final 29,3% that are equal to 114 contracts can be defined as *core*. In the *ancillary contract*, the presence of the keyword counted one, usually is implied in the title simply as buzzword or without any implications in the content of the contract. An example of this is given by the contract #1222: "*partners will act in the respect of environmental legislations*", or as a title of the FNC as the case of FNC #971 named GREENET without any effective greening purposes. About the other FNC denominated as *core*, we applied the matrix reported in the previous section. Taking into account taxonomy proposed in Table 2, results are presented in Table 3.

Label	Occurence	% distribution
1a	6	5%
1b	14	12%
2	21	18%
3a	7	6%
3b	11	10%
4	20	18%
5	7	6%
6	20	18%
7	8	7%

Table 3:	Occurrences	by	label	l
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According to Table 3, the labels with a majority of contract are equally distributed (18% each) between Label 2, Label 4 and Label 6 that means that sustainability herein FNCs is predominantly used to business model creation, resource efficiency towards process herein the same business, and to enable clusters herein social and economic context fully identified by social embeddedness

within local specific context, for instance to safeguard common goods or stewardship of cultures (such eno-gastronomy, slow tourism, regional brands, slow mobility, etc.).

FNCs deal with sustainability issues in innovative ways. If Table 3 shows the sustainability area reached through the application of the FNC, Figure 3 presents the distribution of the topics covered herein contracts.

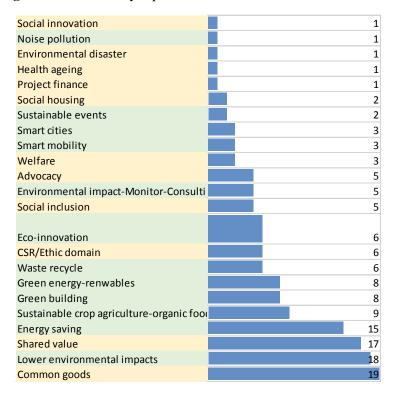


Figure 3 Sustainability topics covered herein FNCs

The topics cover different and various area of sustainability distinguishing more social or more environmental related contracts. The sum of the rows of Figure 3 is equal to 145, as a single FNC may cover more than one topic. For instance, those contracts that deal with *common goods*, usually refers to the creation of local clusters able to *share the value creation processes* within different subjects like fishermen, tour operators, restaurants, online vendors, social cooperatives herein the tourism sector. The contract related to environmental disaster has been colored in light yellow, as it refers to an FNC aimed at dealing with creation of a network of companies that offers services to earthquake victims. On the environmental side, most of the contracts refer to be strictly linked to lower environmental impacts of their product/services/processes usually implying energy saving tools and techniques.

The average number of companies herein each contract denoted interesting inferences (Tab. 4). Following always the same classification presented in Table 2, FNC labelled with the code 3b are smaller than others. 3b are FNCs related to companies networked with the general aim of increasing their market presence, and specifically the partners decide to build a network around the development of a radical eco-innovation, even they operate in a market that cannot be defined as green or they even adopted a green strategy before according to Garzella and Fiorentino's model (2014). Conversely, the contract labelled with number 5, that are those created to manage resource efficiency during the processes of the same supply chain (B2B), implement eco-efficiencies strategies to lowering the general environmental performance. This suggests that the application of FNC in long supply chain can effectively be a tool to push the logic of full-efficiency herein the business partners, even SMEs. This evidence is in line with the literature over the stakeholders' relationships model in SMEs highlighting how human resources and business partners are the most important categories of influencers.

Label	No. Networked organizations	Max ⁴
1a	3,67	5,00
1b	5,27	12,00
2	6,52	20,00
3a	4,29	9,00
3b	3,10	5,00
4	6,35	22,00
5	8,57	28,00
6	6,79	20,00
7	6,00	13,00
Average	5,87	

Table 4 Avg. number of networked organizations grouped

Other interesting results emerged by the distribution of contracts between FNCs that unify companies that fully compete herein social and green economies, and to those contracts applied by companies outside sustainability business sectors. More than a half of the companies (64; 56%) were out of the sustainability issues addressed by the contract or completely out of the social and green economy, in general. We provide such classification analyzing companies' profound descriptions usually published in the first section of the FNC. Conversely, one third of the FNCs regard networks where only one or more companies may play a trigger role in pushing the partners behavior on sustainable tracks (37; 32%); while only 13 contracts, i.e. 11%, are founded by partners fully sustainability oriented.

In following subsections an explanation of the Bocken et al. (2014) model is provided considering three dimensions. This framework has been visualized in a 3D-cube representation in which main characteristics of data are crossed.

5.1 Building x and y axes

With the aim of applying Bocken et al. (2014) model to our analysis, we cross the data about companies' presence herein sustainability sectors with the sustainability topics covered by each FNCs. In order to provide this first intersection, the data of Figure 4 have been clustered applying those categories published by Bocken et al. (2014). According to Table 5, FNCs are suitable tools for SMEs to simultaneously increase their market presence and share investment herein the development of eco-innovations (more than 40% summed). In addition, they revealed their importance also to set up resource efficiency in eco-efficiency and resource efficiency strategies in supply chain. Furthermore, the adoption of technological improvement accounts for two third of the FNCs, while the organizational transformation accounts only for 12%.

Table 5 Distribution of FNCs by presence of companies yet in social and/or green economy matched with Bocken classification of business model archetypes

Other carateristics	All in	1 or 1+	All out	All in	1 or 1+	All out
		in			in	
Advocacy on social issues	0	0	3	0%	0%	3%
Eco-innovation	6	23	24	5%	20%	21%
Network of network	0	1	0	0%	1%	0%
Resource efficiency	7	6	16	6%	5%	14%
Shared value - enabling cluster	0	6	14	0%	5%	12%

⁴ The minimum presence of companies per contract is obviously 2.

Social innovati	on	0	1	2	0%	1%	2%	
Resource efficiency in economy	solidarity	0	0	5	0%	0%	4%	
Categories	All in	1 or 1+ in	All out	Al	ll in	1 or 1+ in	All out	
Tech	13	29	40	1.	1%	25%	35%	
Social	0	1	10	0)%	1%	9%	
Organisational	0	7	14	0)%	6%	12%	

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5.2 Building x and z axes

The match, between the presence of companies yet in social and green economy with the concept of innovation for sustainable development, has been done applying the classification provided by NBS (2012): "eco-efficiency" processes herein resource efficiency framework (RE), opening of new markets (M) and systems buildings aimed at achieving societal changes (SV). From the distribution of the FNCs by presence in the social and green economy and innovation for sustainable development, companies already present in the social and green economy are looking to create new market strategies, while companies out of these markets would like to bet more on resource eco-efficiency doing the same thing better. FNCs where there is the presence of one or more than one companies already in the green and social economy are the majority. These companies may play again a pivotal role engaging other companies in selling new eco-product, eco-services or social services increasing their economic performance and contributing to societal improvement, as well (Tab. 6).

Table 6 The match between axe x and NBS model (z)

Categories	All in (100%)	1 or 1+ in (100%)	All out (100%)	Categories	All in	1 or 1+ in	All out
SV	0	6 (16%)	14 (22%)	SV	0	5%	12%
RE	5 (38%)	3 (8%)	26 (41%)	RE	4%	3%	23%
Μ	8 (62%)	28 (76%)	24 (38%)	MKT	7%	25%	21%

5.3 Composing axes y and z

Merging our results obtained after the application of the Bocken et al. (2014) model with the results obtained with the model of NBS (2012), we conclude that most of the FNCs are focused on eco/social innovation of product/services and business model. The rest of FNCs deals with the creation of organizational transformation of companies that end in the creation of new organizational forms herein local cluster to the stewardship of local culture, traditions, and economic performance, as well. Third, in order of importance, are those FNCs that link social transformation to resource efficiency purposes; an example of this category is given by the numerous FNCs signed to set up new internal welfare processes putting together different companies with the same need (Tab. 7).

Table 7 The a	axes y	and	Z
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Categories	Tech	Social	Organisational
SV	4	6	24
RE	5	15	6
MKT	45	6	3

5.4 3D-cube visualization

Now, three axes (x-y; y-z and x-z) can be represented in the 3D-cube visualization that summarize the relationships of FNCs contract analyzed.

Figure 4 reports values shown in previous tables on the three principal axes of the cube highlighting in detail characteristics of analyzed FNCs.

In particular, the relationship shown in Table 5 between x-axis (i.e., involvement degree in CSR of firms before the involvement in FNCs) and y-axis is represented in the green face of the 3D-cube. Notice that the y dimension represents the Bocken taxonomy (Bocken et al., 2014).

Considering the blue face, it represents the link between the type of firms involved in FNCs (x-axis) and the NBS model (z-axis, i.e., SV; RE; MKT), as presented in Table 6.

Finally, red face describes Table 7 where on y-axis is represented the Bocken classification on business model archetypes (i.e., ORG.: SOC.: TECH.) and z-axis.

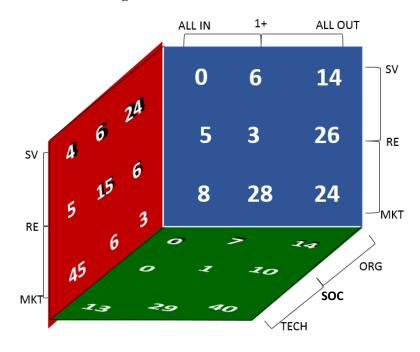


Figure 4: 3D-cube visualization

6 DISCUSSION AND CONCLUSION

Our study identified four research questions. The first was formulated around the inclusion of sustainability aims and objectives herein Formalized Network Contract (RQ1). We demonstrate that even FNCs are not thought and formulated a priori to tackle with sustainability issues, quasi one out of two contracts included a core or ancillary reference on sustainability related keywords. Or better, 29,4% of FNCs are core focused on sustainability. RQ2 was formulated the extent of such implementation of sustainability issues, and we demonstrate the presence of multiple reason from inclusion of resource efficient motivation, to market competitiveness. This link between an aim of the contract and the great literature of CSR in networked SMEs is a result of paramount importance for in the management research. RQ3 investigated how this implementation happened, and our results show two dimensions: the first is the topic addressed that is directly linked to the business sector and the green or social strategy implied; the second is an explanation of the companies included in such contracts are out of the green and social economies. As a consequence, in those FNCs the probability that a CSR-network effect happened between business partners is higher. Our results, in line with the available statistic on FNCs in the Italian economy, show also

that those FNCs implied to manage supply chains are the larger one, while those dedicate to radical eco-innovation are the less extended. Finally, we asked if our study could effectively contribute to the advancement of the knowledge of the broad SBSR. Considering that roughly one third of such contracts puts sustainability issues in the core part of the juridical document (network program and network objectives), we can affirm that these companies are interpreting FNCs as a way to adopt a normative-making approach towards sustainability herein SMEs. Moreover, the quasi totality of such contracts implies the adoption of an ethical code as a mandatory requirement, and this evidence enforces the use of such juridical tools to overcome the barriers discussed in the SBSR literature.

Several managerial impacts and practical outputs arise from our study. First, the demonstration of the pros of such tool may represents a strategic leverage for public policy in other countries; second, it contributes to the growing literature over FNCs providing a new perspective as called by several scholars; third, it represents an innovative way to guarantee the sustainable development of companies and territories.

From the taxonomy discussed, future studies could derive conclusions over: the utilitarian approach to sustainability of the FNC among autocratic networks; collaborative and cooperative approach to sustainability herein democratic network; and, opportunistic approach herein in isomorphic network where is the market pressure that influences the adoption of such FNC (like the presence of a big leader among the business partners).

In addition, in order to confirm results obtained from present study and with the aim to advance the research on characteristics of firms involved in FNCs, a sensitivity analysis on different taxonomies of FNC could be thought. Using different types of cluster analysis allows considering several methods of aggregations of data based on mathematical measures of distance. These methodologies, combined with Principal Component Analysis are powerful not only in data visualization but also in grouping observation based on FNCs' characteristics. A first step will be to build a hierarchical agglomerative clustering with the intent to represent groups identified in present work and to analyze if differences can be found when another algorithm (i.e., kmeans) is applied. Another examination will be to change the number of clusters in order to identify different groups of contracts and to do a sensitivity analysis with the aim to improve knowledge on characteristics of FNCs and firms. Finally, some methodologies from expert systems can be used for clustering FNCs. Indeed, Self Organizing Maps (SOM) are unsupervised artificial neural networks able to aggregate observations starting from data, so they have been successfully used in clustering problems (Park, Chon, Bae, Kim, & Lek, 2018; Vesanto & Alhoniemi, 2000). Not only, fuzzy clustering is another very interesting methodology based on the idea that an observation can be part of more than one cluster with different membership degree. This methodology allows obtaining for each observation a function that indicates different membership degrees to different groups (Gabriel, Campbell, Djurdjevic, Johnson, & Rosen, 2018; Jahangoshai Rezaee, Jozmaleki, & Valipour, 2018; Xue et al., 2018).

7 References

- Abdirahman, Z.-Z., Sauvée, L., & Shiri, G. (2014). Analyzing network effects of Corporate Social Responsibility implementation in food small and medium enterprises. *Journal on Chain and Network Science*, *14*(2), 103–115. https://doi.org/10.3920/JCNS2014.x005
- Altobelli, C., & Carnazza, P. (2011). Nuove configurazioni distrettuali e reti di impresa: le strategie per rafforzare la competitività. *Zazzaro A.(a Cura Di) Reti D'imprese E Territorio*. Bologna: Il Mulino.
- Aureli, S., & Forlani, F. (2015). The effects of formal networks on territorial tourism offers. Current usage of network contracts in Italy. *European Journal of Tourism Research*, 10(July), 76–94.
- Barringer, B. R., & Harrison, J. S. (2000). Walking a Tightrope: Creating Value Through Interorganizational Relationships. *Journal of Management*, 26(3), 367–403. https://doi.org/10.1177/014920630002600302

- Bastia, P. (1989). *Gli accordi tra imprese: fondamenti economici e strumenti informativi.* Bologna: Clueb.
- Battaglia, M., Bianchi, L., Frey, M., & Iraldo, F. (2010). An innovative model to promote CSR among SMEs operating in industrial clusters: Evidence from an EU project. *Corporate Social Responsibility and Environmental Management*, 17(3), 133–141. https://doi.org/10.1002/csr.224
- Baumann-Pauly, D., Wickert, C., Spence, L. J., & Scherer, A. G. (2013). Organizing Corporate Social Responsibility in Small and Large Firms: Size Matters. *Journal of Business Ethics*, pp. 1–13. https://doi.org/10.1007/s10551-013-1827-7
- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2013.11.039
- Broglia Guiggi, A. (2001). Le aggregazioni di imprese. Torino: Giappichelli.
- Cagnazzo, L., Tiacci, L., Cardoni, A., & Brilli, M. (2014). Financial statement analysis for enterprise network design. *IFIP Advances in Information and Communication Technology*, 434, 1–9.
- Camarinha-Matos, L. M., Afsarmanesh, H., & Boucher, X. (2010). The role of collaborative networks in sustainability. *IFIP Advances in Information and Communication Technology*, 336 AICT, 1–16. https://doi.org/10.1007/978-3-642-15961-9_1
- Cantele, S., Vernizzi, S., & Ricciardi, F. (2016). The emerging wave of agility-oriented business networks in Italy: a new strategy for facing global competition. *World Review of Entrepreneurship, Management and Sustainable Development*, 12(2/3), 270–284. https://doi.org/10.1504/WREMSD.2016.074967
- Cardoni, A., Rossi, V., & Tiacci, L. (2011). Le reti d'impresa e la sfida per l'innovazione: un progetto di networking tra PMI nel settore della meccanica. AUR&S Agenzia Umbria Ricerche, (5–6).
- Cardoni, A., & Tiacci, L. (2013). The "Enterprises' Network Agreement": The Italian Way to Stimulate Reindustrialization for Entrepreneurial and Economic Development of SMEs. *The* "*enterprises*" *Network Agreement*," 471–480. https://doi.org/10.1007/978-3-642-40543-3_50
- Caroli, M. (2017). L'innovazione delle imprese leader per creare valore sociale, Terzo rapporto CERIIS sull'innovazione sociale, Studi ed esperienze sull'innovazione sociale – CERIIS. Milano: FrancoAngeli Editore.
- Cerrato, S. (2016). Appunti sul contratto di rete: un modello «à la carte» dal contratto all'istituzione... e ritorno. *Rivista di Diritto dell'Impresa*, (3), 491.
- Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management*, 45(7), 458–465. https://doi.org/http://dx.doi.org/10.1016/j.im.2008.06.007
- Clifton, N., Keast, R., Pickernell, D., & Senior, M. (2010). Network Structure, Knowledge Governance, and Firm Performance: Evidence from Innovation Networks and SMEs in the UK. *Growth and Change*, 41(3), 337–373. https://doi.org/10.1111/j.1468-2257.2010.00529.x
- Colombo, M. G., Laursen, K., Magnusson, M., & Rossi-Lamastra, C. (2012). Introduction: Small Business and Networked Innovation: Organizational and Managerial Challenges. *Journal of Small Business Management*, 50(2), 181–190. https://doi.org/10.1111/j.1540-627X.2012.00349.x
- Darbi, W. P. K., & Knott, P. (2016). Strategising practices in an informal economy setting: A case of strategic networking. *European Management Journal*, *34*(4), 400–413. https://doi.org/10.1016/j.emj.2015.12.009
- de los Reyes, G., Scholz, M., & Smith, N. C. (2017). Beyond the "Win-Win." *California Management Review*, 59(2), 142–167. https://doi.org/10.1177/0008125617695286
- De Man, A.-P. (2004). *The Network Economy: Strategy. Structure and Management*. Aldershot: Edward Elgar.
- Del Baldo, M. (2016). Formal Cooperation for Developing Sustainability and Corporate Social

Responsibility Among Tourism SMEs in Italy: Insights, Limits and Potentialities of the Network Contract. In S. O. Idowu & R. Schmidpeter (eds.), *Key Initiatives in Corporate Social Responsibility: Global Dimension of CSR*. Cham: Springer International Publishing, 103–129. https://doi.org/10.1007/978-3-319-21641-6_5

- Díaz-Chao, Á., Sainz-González, J., & Torrent-Sellens, J. (2016). The competitiveness of small network-firm: A practical tool. *Journal of Business Research*, 69(5), 1769–1774. https://doi.org/10.1016/j.jbusres.2015.10.053
- Eberhard, M., & Craig, J. (2013). The evolving role of organisational and personal networks in international market venturing. *Journal of World Business*, 48(3), 385–397. https://doi.org/10.1016/j.jwb.2012.07.022
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative Content Analysis. *SAGE Open*, 4(1), 2158244014522633. https://doi.org/10.1177/2158244014522633
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x
- European Commission. (2016). Annual report on European SMEs 2015/2016, 1–105. https://doi.org/10.2873/886211
- Fassin, Y., Werner, A., Van Rossem, A., Signori, S., Garriga, E., von Høivik, H. W., & Schlierer, H. J. (2015). CSR and Related Terms in SME Owner-Managers Mental Models in Six European Countries: National Context Matters. *Journal of Business Ethics*, 128(2), 433– 456. https://doi.org/10.1007/s10551-014-2098-7
- Fernandez, J. L., & Camacho, J. (2016). Effective Elements to Establish an Ethical Infrastructure: An Exploratory Study of SMEs in the Madrid Region. *Journal of Business Ethics*, *138*(1), 113–131. https://doi.org/10.1007/s10551-015-2607-3
- Ferrari, C. (2010). The Italian "Network Contract" A new tool for the growth of enterprises within the framework of the "SMALL BUSINESS ACT." *Colum. J. Eur. L. Online*, *16*, 77–89.
- Floridi, L. (2009). Network Ethics: Information and Business Ethics in a Networked Society. Journal of Business Ethics, 90(SUPPL. 4), 649–659. https://doi.org/10.1007/s10551-010-0598-7
- Formentini, M., & Taticchi, P. (2016). Corporate sustainability approaches and governance mechanisms in sustainable supply chain management. *Journal of Cleaner Production*, 112, 1920–1933. https://doi.org/10.1016/j.jclepro.2014.12.072
- Freeman, S., Edwards, R., & Schroder, B. (2006). How Smaller Born-Global Firms Use Networks and Alliances to Overcome Constraints to Rapid Internationalization. *Journal of International Marketing*, 14(3), 33–63. https://doi.org/10.1509/jimk.14.3.33
- Gabriel, A. S., Campbell, J. T., Djurdjevic, E., Johnson, R. E., & Rosen, C. C. (2018). Fuzzy Profiles: Comparing and Contrasting Latent Profile Analysis and Fuzzy Set Qualitative Comparative Analysis for Person-Centered Research. *Organizational Research Methods*, 1094428117752466. https://doi.org/10.1177/1094428117752466
- Garzella, S., & Fiorentino, R. (2014). An integrated framework to support the process of green management adoption. *Business Process Management Journal*, 20(1), 68–89. https://doi.org/10.1108/BPMJ-01-2013-0002
- Gronum, S., Steen, J., & Verreynne, M.-L. (2016). Business model design and innovation: Unlocking the performance benefits of innovation. *Australian Journal of Management*, 41(3), 585–605. https://doi.org/10.1177/0312896215587315
- Gronum, S., Verreynne, M.-L., & Kastelle, T. (2012). The Role of Networks in Small and Medium-Sized Enterprise Innovation and Firm Performance. *Journal of Small Business Management*, 50(2), 257–282. https://doi.org/10.1111/j.1540-627X.2012.00353.x
- Gulati, R. (1998). Alliances and networks. Strategic Management Journal, 19(4), 293-317.
- Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20(5), 397–420.
- Haddoud, M. Y., Jones, P., & Newbery, R. (2017). Export promotion programmes and SMEs' performance. *Journal of Small Business and Enterprise Development*, 24(1), 68–87. https://doi.org/10.1108/JSBED-07-2016-0116

- Håkansson, H., & Snehota, I. (2006). No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*, 22(3), 256–270. https://doi.org/10.1016/j.scaman.2006.10.005
- Halme, M., & Korpela, M. (2014). Responsible innovation toward sustainable development in small and medium-sized enterprises: A resource perspective. *Business Strategy and the Environment*, 23(8), 547–566. https://doi.org/10.1002/bse.1801
- Harland, C. M., & Knight, L. a. (2001). Supply network strategy. *International Journal of Operations* & *Production Management*, 21(4), 476–489. https://doi.org/10.1108/01443570110381381
- Havnes, P.-A., & Senneseth, K. (2001). A Panel Study of Firm Growth among SMEs in Networks. *Small Business Economics*, 16(4), 293–302. https://doi.org/10.1023/A:1011100510643
- Horisch, J., Johnson, M. P., & Schaltegger, S. (2015). Implementation of Sustainability Management and Company Size: A Knowledge-Based View. *Business Strategy and the Environment*, 24(8), 765–779. https://doi.org/10.1002/bse.1844
- Huggins, R. (2001). Inter-firm network policies and firm performance: evaluating the impact of initiatives in the United Kingdom. *Research Policy*, *30*(3), 443–458. https://doi.org/https://doi.org/10.1016/S0048-7333(00)00092-5
- Huggins, R., & Thompson, P. (2015). Entrepreneurship, innovation and regional growth: a network theory. *Small Business Economics*, 45(1), 103–128. https://doi.org/10.1007/s11187-015-9643-3
- Jahangoshai Rezaee, M., Jozmaleki, M., & Valipour, M. (2018). Integrating dynamic fuzzy Cmeans, data envelopment analysis and artificial neural network to online prediction performance of companies in stock exchange. *Physica A: Statistical Mechanics and Its Applications*, 489, 78–93. https://doi.org/10.1016/j.physa.2017.07.017
- Jansson, J., Nilsson, J., Modig, F., & Hed Vall, G. (2015). Commitment to Sustainability in Small and Medium-Sized Enterprises: The Influence of Strategic Orientations and Management Values. *Business Strategy and the Environment*, n/a-n/a. https://doi.org/10.1002/bse.1901
- Jin, B., & Jung, S. (2016). Toward a deeper understanding of the roles of personal and business networks and market knowledge in SMEs' international performance. *Journal of Small Business and Enterprise Development*, 23(3), 812–830. https://doi.org/10.1108/JSBED-08-2015-0104
- Johnson, M. P. (2013). Awareness and Application of Sustainability Management Tools in Small and Medium-Sized Enterprises. *Academy of Management Proceedings*, 2013(1), 1–18. https://doi.org/10.5465/AMBPP.2013.16036abstract
- Johnson, M. P. (2015). Sustainability Management and Small and Medium-Sized Enterprises: Managers' Awareness and Implementation of Innovative Tools. *Corporate Social Responsibility and Environmental Management*, 22(5), 271–285. https://doi.org/10.1002/csr.1343
- Johnson, M. P., & Schaltegger, S. (2016). Two Decades of Sustainability Management Tools for SMEs: How Far Have We Come? *Journal of Small Business Management*, 54(2), 481–505. https://doi.org/10.1111/jsbm.12154
- Keast, R., Brown, K., & Mandell, M. (2007). Getting The Right Mix: Unpacking Integration Meanings and Strategies. *International Public Management Journal*, 10(1), 9–33. https://doi.org/10.1080/10967490601185716
- Keast, R., Mandell, M. P., Brown, K., & Woolcock, G. (2004). Network structures: Working differently and changing expectations. *Public Administration Review*, 64(3), 363–371. https://doi.org/10.1111/j.1540-6210.2004.00380.x
- Kerlinger, F. N. (1964). Foundations of Behavioral Research. New York: Holt, Reinhart, and Winston. Inc. Kintsch, W. and JR Miller.
- Kirkels, Y., & Duysters, G. (2010). Brokerage in SME networks. *Research Policy*, 39(3), 375– 385. https://doi.org/10.1016/j.respol.2010.01.005
- Klewitz, J., & Hansen, E. G. (2014). Sustainability-oriented innovation of SMEs: a systematic review. Journal of Cleaner Production, 65, 57–75. https://doi.org/10.1016/j.jclepro.2013.07.017
- Konsti-Laakso, S., Pihkala, T., & Kraus, S. (2012). Facilitating SME Innovation Capability through Business Networking. *Creativity and Innovation Management*, 21(1), 93–105.

https://doi.org/10.1111/j.1467-8691.2011.00623.x

- Krippendorff, K. (1980). Validity in Content Analysis. *Computerstrategien Für Die Kommunikationsanalyse*, 69–112. Retrieved from http://repository.upenn.edu/asc_papers/291
- Lai, A., Lionzo, A., Stacchezzini, R., & Rossignoli, F. (2015). *Dall'impresa al network. Profili di governance e modelli di business: Profili di governance e modelli di business*. Milano: FrancoAngeli.
- Lee, H., Kelley, D., Lee, J., & Lee, S. (2012). SME survival: The impact of internationalization, technology resources, and alliances. *Journal of Small Business Management*, 50(1), 1–19. https://doi.org/10.1111/j.1540-627X.2011.00341.x
- Li, H., de Zubielqui, G. C., & O'Connor, A. (2015). Entrepreneurial networking capacity of cluster firms: a social network perspective on how shared resources enhance firm performance. *Small Business Economics*, 45(3), 523–541. https://doi.org/10.1007/s11187-015-9659-8
- Lin, F. J., & Lin, Y. H. (2016). The effect of network relationship on the performance of SMEs. Journal of Business Research, 69(5), 1780–1784. https://doi.org/10.1016/j.jbusres.2015.10.055
- Lin, F., & Lin, Y. (2016). The effect of network relationship on the performance of SMEs. *Journal* of Business Research, 69(5), 1780–1784. https://doi.org/10.1016/j.jbusres.2015.10.055
- Lombardi, R. (2015). *Le reti d'impresa in economia aziendale: Profili critici e interpretativi* (Vol. 67). Torino: Giappichelli Editore.
- MacGregor, R. C. (2004). Factors associated with formal networking in regional small business: some findings from a study of Swedish SMEs. *Journal of Small Business and Enterprise Development*, *11*(1), 60–74. https://doi.org/10.1108/14626000410519100
- Mancini, D. (2010). Il sistema informativo e di controllo relazionale per il governo della rete di relazioni collaborative d'azienda (Vol. 91). Busto Arsizio: Giuffrè Editore.
- Mandell, M., Keast, R., & Chamberlain, D. (2016). Collaborative networks and the need for a new management language. *Public Management Review*, 9037(August), 1–16. https://doi.org/10.1080/14719037.2016.1209232
- Mandell, M. P., & Keast, R. (2008). Evaluating the effectiveness of interorganizational relations through networks. *Public Management Review*, 10(6), 715–731. https://doi.org/10.1080/14719030802423079
- Mazzola, E., & Perrone, G. (2013). A strategic needs perspective on operations outsourcing and other inter-firm relationships. *International Journal of Production Economics*, *144*(1), 256–267. https://doi.org/http://dx.doi.org/10.1016/j.ijpe.2013.02.012
- Mazzola, E., Perrone, G., & Kamuriwo, D. S. (2016). The interaction between inter-firm and interlocking directorate networks on firm's new product development outcomes. *Journal of Business Research*, *69*(2), 672–682
 - https://doi.org/http://dx.doi.org/10.1016/j.jbusres.2015.08.033
- Melé, D. (2009). The Practice of Networking: An Ethical Approach. *Journal of Business Ethics*, 90(SUPPL. 4), 487–503. https://doi.org/10.1007/s10551-010-0602-2
- Mezgár, I., Kovács, G. L., & Paganelli, P. (2000). Co-operative production planning for smalland medium-sized enterprises. *International Journal of Production Economics*, 64(1), 37– 48. https://doi.org/http://dx.doi.org/10.1016/S0925-5273(99)00032-8
- Mitsuhashi, H., & Greve, H. R. (2009). A Matching Theory of Alliance Formation and Organizational Success: Complementarity and Compatibility. Academy of Management Journal, 52(5), 975–995. Retrieved from http://amj.aom.org/content/52/5/975.abstract
- Mohannak, K. (2007). Innovation networks and capability building in the Australian hightechnology SMEs. *European Journal of Innovation Management*, 10(2), 236–251. https://doi.org/10.1108/14601060710745279
- Morsing, M., & Perrini, F. (2009). CSR in SMEs: do SMEs matter for the CSR agenda? *Business Ethics: A European Review*, 18(1), 1–6. https://doi.org/10.1111/j.1467-8608.2009.01544.x
- Murillo, D., & Lozano, J. M. (2009). Pushing forward SME CSR through a network: an account from the Catalan model. *Business Ethics-a European Review*, 18(1), 7–20. https://doi.org/10.1111/j.1467-8608.2009.01545.x
- Noran, O. (2010). Towards an Environmental Management Approach for Collaborative

Networks. *Collaborative Networks for a Sustainable World*, *336*, 17–24 https://doi.org/10.1007/978-3-642-15961-9_2

- O'Donnell, A. (2004). The nature of networking in small firms. *Qualitative Market Research: An International Journal*, 7(3), 206–217. https://doi.org/10.1108/13522750410540218
- Oliver, A. L., & Ebers, M. (1998). Networking Network Studies: An Analysis of Conceptual Configurations in the Study of Inter-organizational Relationships. *Organization Studies*, 19(4), 549–583. https://doi.org/10.1177/017084069801900402
- Pacheco, D. A. de J., ten Caten, C. S., Jung, C. F., Ribeiro, J. L. D., Navas, H. V. G., & Cruz-Machado, V. A. (2017). Eco-innovation determinants in manufacturing SMEs: Systematic review and research directions. *Journal of Cleaner Production*, 142, 2277–2287. https://doi.org/10.1016/j.jclepro.2016.11.049
- Parida, V., Patel, P. C., Wincent, J., & Kohtamäki, M. (2016). Network partner diversity, network capability, and sales growth in small firms. *Journal of Business Research*, 69(6), 2113– 2117. https://doi.org/http://dx.doi.org/10.1016/j.jbusres.2015.12.017
- Park, Y.-S., Chon, T.-S., Bae, M.-J., Kim, D.-H., & Lek, S. (2018). Multivariate data analysis by means of self-organizing maps. Ecological Informatics: Data Management and Knowledge Discovery: Third Edition. https://doi.org/10.1007/978-3-319-59928-1_12
- Parker, S. C. (2008). The economics of formal business networks. *Journal of Business Venturing*, 23(6), 627–640. https://doi.org/http://dx.doi.org/10.1016/j.jbusvent.2008.01.003
- Passaponti, B. (1975). *Politiche di aggregazione aziendale: attienze e diversificazioni*. Pisa: Colombo Cursi.
- Poncibò, C. (2016). The Contractualisation of Environmental Sustainability. *European Review of Contract Law*. https://doi.org/10.1515/ercl-2016-0018
- Porter, M. E., & Kramer, M. R. (2011). The Big Idea : Creating Shared Value. Harvard Business Review, 89(1), 1–2. https://doi.org/10.2469/dig.v41.n1.28
- Ricciardi, A. (2004). *Le reti di imprese. Viaggi competitivi e pianificazione strategica* (Vol. 90). Milano: FrancoAngeli.
- Ricciardi, A., Cardoni, A., & Tiacci, L. (2014). Strategic Context, Organizational Features and Network Performances: A Survey on Collaborative Networked Organizations of Italian SMEs. In Working Conference on Virtual Enterprises (pp. 534–545). Heidelberg: Springer.

Riparbelli, A. (1962). Correlazioni ed interdependenze fra organism aziendali. Colombeo Cursi.

- Rizzi, F., Frey, M., Testa, F., & Appolloni, A. (2014). Environmental value chain in green SME networks: The threat of the Abilene paradox. *Journal of Cleaner Production*, 85, 265–275. https://doi.org/10.1016/j.jclepro.2014.09.001
- Rullani, E. (2010). Economia delle reti: l'evoluzione del capitalismo di piccola impresa e del" made in Italy." *Economia E Politica Industriale*.
- Santana, A., Vaccaro, A., & Wood, D. J. (2009). Ethics and the Networked Business. *Journal of Business Ethics*, 90(SUPPL. 4), 661–681. https://doi.org/10.1007/s10551-010-0599-6
- Shaw, E. (2006). Small Firm Networking: An Insight into Contents and Motivating Factors. *International Small Business Journal*, 24(1), 5–29. https://doi.org/10.1177/0266242606059777
- Spence, L. J. (2014). Small Business Social Responsibility: Expanding Core CSR Theory. Business & Society, 0007650314523256-. https://doi.org/10.1177/0007650314523256
- Storey, D. J. (1994). Understanding the Small Business Sector. Thomson Learning Emea. https://doi.org/10.1016/0024-6301(95)90953-2
- Swoboda, B., Meierer, M., Foscht, T., & Morschett, D. (2011). International SME Alliances: The Impact of Alliance Building and Configurational Fit on Success. *Long Range Planning*, 44(4), 271–288. https://doi.org/10.1016/j.lrp.2011.04.002
- Symbola, U. (2010). GreenItaly Rapporto 2010.
- Symbola, U. (2016). GreenItaly Rapporto 2016.
- Taurino, T. (2015). A Cluster Reference Framework for Analyzing Sustainability of SME Clusters. Procedia CIRP, 30, 132–137. https://doi.org/10.1016/j.procir.2015.02.138
- Testa, F., Grappio, P., Gusmerotti, N. M., Iraldo, F., & Frey, M. (2016). Examining green public procurement using content analysis: existing difficulties for procurers and useful

recommendations. *Environment, Development and Sustainability*, 18(1), 197–219. https://doi.org/10.1007/s10668-015-9634-1

- Tiacci, L., & Cardoni, A. (2011). How to move from traditional to innovative models of networked organizations: A methodology and a case study in the metal-mechanic industry. *IFIP Advances in Information and Communication Technology*, 362 AICT, 413–420. https://doi.org/10.1007/978-3-642-23330-2_45
- Tomšič, N., Bojnec, Š., & Simčič, B. (2015). Corporate sustainability and economic performance in small and medium sized enterprises. *Journal of Cleaner Production*, *108*, 603–612. https://doi.org/10.1016/j.jclepro.2015.08.106
- van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., & de Rochemont, M. (2009). Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29(6–7), 423–437. https://doi.org/https://doi.org/10.1016/j.technovation.2008.10.001
- Vázquez-Carrasco, R., & López-Pérez, M. E. (2012). Small & medium-sized enterprises and Corporate Social Responsibility: a systematic review of the literature. *Quality & Quantity*. https://doi.org/10.1007/s11135-012-9713-4
- Vesanto, J., & Alhoniemi, E. (2000). Clustering of the self-organizing map. *IEEE Transactions* on Neural Networks, 11(3), 586–600. https://doi.org/10.1109/72.846731
- von Høivik, H. W., & Shankar, D. (2011). How Can SMEs in a Cluster Respond to Global Demands for Corporate Responsibility? *Journal of Business Ethics*, 101(2), 175–195. https://doi.org/10.1007/s10551-010-0708-6
- Vurro, C., Russo, A., & Perrini, F. (2009). Shaping Sustainable Value Chains: Network Determinants of Supply Chain Governance Models. *Journal of Business Ethics*, 90(SUPPL. 4), 607–621. https://doi.org/10.1007/s10551-010-0595-x
- Xue, M., Zhou, L., Kojima, N., dos Muchangos, L. S., Machimura, T., & Tokai, A. (2018). Application of fuzzy c-means clustering to PRTR chemicals uncovering their release and toxicity characteristics. *Science of the Total Environment*, 622–623, 861–868. https://doi.org/10.1016/j.scitotenv.2017.12.032

8 APPENDIX: FNCS ANALYSIS

In present appendix, authors report an example of how the analysis on documents has been done. Mainly, it has been a textual study of each contract in order to identify characteristics previously discussed.

Interesting examples of how these FNCs are contractualizing sustainability issues, and how the contract may manage the behavior can be taken directly from part of the original document (Table 8). The column label refers to Table 2.

FNC id	Summary	Quote	Label
¥734	5 SMEs operating in completely differ- ent business sectors (food, paper, retail- ing, etc.) would like to develop an inno- vative integrated Eco-Compatible Pack- aging	 develop innovation and improve the competitive ability through the research and development of new types of materials and processes required for the production of the eco-Compatible and Sustainable Packaging; to increase the competitiveness of businesses through the conduct of research, design, production, marketing and / or use of eco-compatible and sustainable packaging; to increase the competitiveness of businesses on the market by characterizing their products and services for the high innovative level of packaging systems with reduced environmental impact; research and development for new materials from recycled paper; achieve the environmental sustainability objective in the design and production of packaging. 	3b
#142	11 partners (fishermen, social coopera- tives, SMEs) of the Comacchio area	Collaborate to create synergies between different sectors through the creation and / or development of the following activities, with the aim of improving the innovative capacity and competitiveness on the market: Tourist trails involving fishermen, fishermen, fishing, trans- formation, sustainable use of the coast and valleys and the cultural aspects of the environmental and natural manage- ment of the area; Cultural promotion events, through the use of physical places, property or in enjoyment to any title to the adherent companies; Sales of other products, aimed at the production of income for the local population, but always respecting the values of sustainability and advocacy	6
#1196	3 SMEs operating in the building, com- mercial and retailing sectors would like to co-jointly create a network to offer in- novative eco-services for themselves	Network partners recognize CSR values as a fundamental part of the network itself	4
#1682	8 SMEs, mostly operating in the eco- packaging sector yet, would like to adopt new eco-efficient processes like co-joint collection of used paper herein local context	The participating companies, in whatever form they organ- ize, share the exercise of their activities in the field of pack- aging and / or its use / recycling and related services; In order to design, produce and disseminate the use of Sus- tainable Packaging, as defined by the Principles of the sus- tainable packaging coalition, the participants feel that they have to structure their organizations, products and services to operate in accordance with the principles and limits im- posed on environmental, social and economic sustainability.	16
#1700	10 among SMEs, microSMEs and indi- vidual companies already operating in the same supply chain with different tasks such management / maintenance of buildings, electrical systems, supervi- sion and thermo-technical, finishing of interiors and furnishings decide to co- jointly set up a coordinated offer to their B2C	n ganizational innovation by encouraging the growth of the adherents to support the development of a socially responsible and environmentally sustainable culture to achieve a better quality of life.	
#556	3 SMEs operating in the real estate and building maintenance with the aim of in- creasing their market competitiveness decide to set up a FNC	To contribute both to the promotion of the development of "Concept" for innovative buildings and Social Housing as well as the development of new Eco-Sustainable and Com- patible Eco-Building and Building Automation Products and Process technologies with particular attention to energy sav- ing, all in order to better meet the needs for better valuation of real estate assets	2

Table 8: Examples and citations derived by FNCs analysis

#211	18 partners (1 museum) of the Garda ge- ographical region decide to promote the development and rationalization of the promotion and commercialization of their business services and to improve the economic, social and cultural situa- tions of participating undertakings and the territory where they operate	The creation of a structure to promote the use of bicycles and alternative mobility, spreading the culture of using leisure, tourism and outdoor activities with eco-friendly forms. We also want to spread the culture of Veronese territory through the promotion of artistic, cultural, tourism and food and wine resources, identifying and valorizing suitable cy- cling routes also thematic.	6
#663	2 SMEs are obliged to collaborate in the design, development and marketing of projects for the sustainable development of the territory and of the companies of Trentino and Alto Adige, which enhance and integrate the skills, experiences and relations of the companies involved in the Network.	Companies decide to create integrated bids in green econ- omy, sustainable development, green marketing, sustainable tourism, environmental sustainability, stakeholder dialogue, promotion and marketing of projects designed through tools and actions that can create and disseminate the culture of sus- tainable development and green economy both in the public and private organizations	2
#1422	1 SME and 2 farmers	Companies share the exercise of their respective activities in the field of cohesion and enhancement of territories, identi- ties and the most original and authentic forms of tradition, with particular reference to the productions of excellence, agro-food and handicrafts	6
#1425	2 SMEs to build a multi-level govern- ance to coordinate an answer to the in- crease of local tourist	There is a strong and stringent need to connect the world of private social, associations and religious organizations with different institutional levels - Local, regional, national and European - with businesses providing goods and services for walkers, travelers, pilgrims interested in traveling through the vie Francigene	6