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# **Strategic Context, Organizational Features and Network Performances: A Survey on Collaborative Networked Organizations of Italian SMEs**

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**Abstract.** In the growing body of business network literature the need of phenomenological perspective is increasingly perceived. In this paper the results of an empiric research on the Enterprise Network Agreement (ENA) is reported. ENA is an important form of collaboration among companies, born in Italy, whose diffusion is rapidly growing, because it is considered by policy-makers a promising mean for the entrepreneurial development and the re-industrialization of the Country. Based on a survey addressed to a significant sample of ENAs formalized in central Italy regions, the paper draws a phenomenological framework on the strategic context of network formation and its organizational features on one side, and the performances obtained on the other side. This empiric evidences may represent a first attempt to build a solid base for the development of a credible scientific literature on business networking. From a theoretical point of view, this study firstly provides interesting insights to the living discussion in the managerial literature about “engineered” and “emergent” networks. Secondly, a specific focus is devoted to analyze those types of network in which ICT sector is involved and that are distributed in at least at two provinces, that is the kind of networks which is candidate to became what in the literature can be included in ‘second generation Virtual Breeding Environment’. In particular, the study aims to understand the characteristics of these different collaboration forms, and of how these characteristics influence their performances. At the same time, the research can serve as a useful indication for policy-makers to address supporting actions towards the most promising network collaborations.

**Keywords:** Strategic context, organizational features, performance, Enterprise network agreement (ENA), survey.

## **1 Introduction**

Network collaborations have become an important business management strategy

to improve the competitiveness of companies, especially for SMEs operating in complex and turbulent environments. SMEs are characterized by tight resources, which puts them in particular difficulty to increase internationalization and rapid technological change. Collaborative networked organizations (CNO's) can improve the competitiveness of firms by providing access to external resources, synergies and by fostering rapid learning and change [1].

For several years, scholars have been developing a very rich literature on business collaboration, framing different perspectives [2-4] and demonstrating the usefulness of collaboration strategy, especially for SMEs [5]. Despite the enormous effort spent on theorizing collaborative strategies and processes, it is always difficult to study the real features of networks in a phenomenological perspective able to integrate theoretical development with empirical evidences.

The Italian context could nowadays represent a formidable opportunity to advance on this direction, providing a good economic and institutional framework to gain a specific knowledge based on a real-cases approach. Firstly, because of the Italian economy structure, where more than 99 per cent of companies are SMEs, wishing to keep their business autonomy but feeling the need to cooperate in search of competitive advantages [6]. Secondly, in the light of the recent legislative framework defined by Law 122/2010 that introduces the Enterprise Network Agreement, a very broad range of networks are now formalized in Italy according to standardized and disclosed procedure, thus increasing the visibility of network implementation processes [7]. Thirdly, the availability of official data indicating the main characteristics of real networks represents a good start to design a comparative study on their empirical features.

## **2 Strategic Context and Organizational Features of Collaborative Networks: Theoretical and Institutional Perspectives**

Theoretical literature and empirical observation demonstrate that CNOs are complex entities, whose proper functionality and performance may strongly depend on their strategic context and their organizational features [8].

As far as the strategic context of formation is concerned, literature normally refers to the specific pre-conditions characterizing the environment in which the network has been developed [9]. Some drivers that can be considered as condition affecting the success of the network are represented in particular by: i) the pro-activity about developing and focusing the originating idea [10]; ii) the important role that an external entity can play to stimulate the network design and implementation, helping partners to evaluate new development opportunities, on one hand, and assessing the strengths and weaknesses of the partners themselves, on the other hand [11]; iii) the importance of a good climate of trust among the partners, which can be testified by the existence of previous collaborations [12]; iv) the importance of an objective condition of network economic benefits [13], which is perceived as an opportunity to develop markets and initiatives that would not otherwise be reached by individual firms, as often happens for the international competition.

In this analysis dimension an important debate has divided international literature regarding the strategic value of a prior planning of collaborative relationships among firms [14]. It is possible to distinguish two major process of network formation: "emergent" or "engineered" [15]. In the first case, the links between the various companies tend to form spontaneously and are influenced by cultural, social and economic context of the area in which such collaborations are formed. Alternatively, in "engineered" cooperation, these conditions are not sufficient in itself to develop inter-company synergies but represent essential elements for formulating the strategic planning of networking, which is then modulated with respect to the network design, partner selection and performance measurement and control. In this context a "trigger entity" is considered helpful to monitor the opportunities and threats from the external environment and capable of identifying possible synergies among potential partners.

Moving to consider the organizational characteristics, the literature gives much importance to the network model, defined as the set of elements characterizing the structure of the collaboration [16, 17]. Particularly, the analysis of the model can be carried out from three different perspectives: i) the strategic planning activities [18]; ii) the organizational leadership, mainly related to the skills and the position that the person who leads the network project has to possess in order to achieve the strategic goals, coordinate the activities, managing the relationships among the partners and nurturing a climate of trust (so called "network manager" or "alliance manager") [19]; iii) the operating model, based on the specific processes that companies are willing to share through collaboration, going to distinguish whether such synergies are mainly pursued on creating new business development opportunities and/or integrating core/support internal processes [20-22]. In this context, a very significant literature has emerged to deepen and illustrate the different models of innovative networking, exploring their impact on the organizational features and strategic perspectives. Particular attention should be devoted to the approach of VBE perspective [23], by focusing on the 2nd generation VBEs. This VBEs, which are not bound to geographical regions or specific activities and integrate their process through innovative ICT approaches, shall play an active role in the society/market as competitive entities [24].

Finally, the issue of network performances has to be considered in an innovative way, overcoming a traditional approach and integrating financial and non-financial dimensions. To this extent, the predominance of strategic activities and the high complexity of collaborative networks management tend to produce weak financial returns in the short run [25]. The exploitation of the partners' synergies reflecting on higher revenues, lower costs, investment returns, requires a longer time perspective and should be built on higher level confidence among the partners with a strong perception of the network potential benefits. For this reason, as in the new ventures, it is necessary to emphasize the "intangibility" of subjective performance [26], paying attention to important signals in terms of: investment realized by the network, considered as an important output of the collaboration; financial support received by banks and public institutions; level of satisfaction of the coordinator of the network; confidence in achieving strategic results; willingness to participate in further collaboration experiences.

Framing all these concepts into an institutional perspective, the case of Italy provides an important opportunity to develop a phenomenological perspective to study the CNOs on empirical basis.

In 2009 the Italian government has defined a new legal framework to regulate and stimulate collaborative networks on contractual basis, introducing a new legal tool named “Enterprise Network Agreement” (ENA). The contract can be implemented for a wide variety of collaborations, both in terms of vertical alliance, f.e. in the form of supply chain among companies that operate in the same sector at different stages of production, and horizontal alliance, f.e. among competitors sharing some special projects of innovation and strategic development. The contract has to be drawn according to a formal procedure with a notary, requiring an official registration with the competent Chamber of Commerce where the companies reside, and it must indicate (law n. 122/2010): i) references of partners; ii) strategic objectives; iii) performance measurement criteria to assess the progress toward strategic goals achievement; iv) network action plan; v) duration of the agreement; vi) specific endowment to manage cooperation activity.

By combining the above presented theoretical and institutional perspectives, the paper intends to fill a gap on network literature and policy making strategies, and to answer to the following research questions: which features the collaborative networked organizations present in terms of strategic context of formation, organizational characteristics and performances, and how these features are influenced by the network dimension (e.g. number of partners)? How the emergent/engineered process of network formation and implementation can affect network performances? What are the specific characteristics of collaborative networked organizations of SME's involving ICT sector and geographically distributed and which level of differential performance they show?

### **3 Data and Methodology**

In order to answer the above mentioned research questions a survey has been conducted to a sample of real cases of CNOs, by performing a telephone structured interview [27] with the person in charge for network management and coordination.

The population is represented by 1.213 ENAs recorded in the official Chamber of Commerce registers, involving 5.811 business entities, 103 provinces and all the Italian regions. The breakdown of legal forms allows to note that over 75 % of the total business entities are individual businesses, partnership and limited companies, i.e. the typical organizational structure of entrepreneurial and small-medium enterprises (SMEs). Basing on this database, the research focused on ENAs formalized on the regions of Central Italy (Tuscany, Lazio, Umbria, Marche and Abruzzo), mostly characterized by traditional SMEs system operating in an economic environment with a broad range of competitive and uncompetitive conditions.

The original list included 307 ENAs, involving more than two thousand business entities. Considering the network contract as the unit of analysis, the sampling has focused on the partners belonging to the ENA, with the final objective to individuate the network coordinator. The questionnaire has been completed with the method of telephone interview supported by detection system (CATI Id Monitor) where the script

reference and the quota allocations have been transferred and computerized, implementing all the controls of logical consistency and flow control. A total of 1.800 companies were contacted to carry out 339 interviews in total, lasting on average 15 minutes, that allowed to complete the full questionnaire for 214 network contracts, reaching a coverage of 70%.

The data collected have been elaborate in a set of descriptive statistics detailed for dimension classes (2-5 partners, 6-10 partners, more than 10 partners). A specification of results related to those networks involving at least one ICT partners (registered with ISTAT code J) and geographically distributed in at least two provinces has been obtained. The analysis has been completed through a cluster identification based on selected features of “engineered” and “emergent” networks, represented by: 1. incubation promoted by one/more entrepreneur/s; 2. strategic objectives focused on creating new business opportunities, 3. appointment of a professional figure to manage the network; 4. presence of a business and action planning; 5. commitment to share the strategic process. The network have then been classified to be “engineered”, with the presence of at least three conditions, differentiating in “strong” (compliance with all the five points), “moderate” (points 2, 3, 4 and 5) and “medium” (points 2, 4 and 5). Other network have been considered “emergent”, with a “low” (less than three) or “weak” (less than one) presence of the above mentioned conditions. Focusing on descriptive incidence related to more innovative performance<sup>1</sup>, the impact of different strategic contexts and models (“engineered” vs “emergent”; focus in ICT with more than 2 provinces) has been measured through a differential calculation between the specific clusters and the average results referred to the whole sample.

In the light of the research design and method adopted, the study performed is characterized by the following limitations and delimitations. The structured interviews may be biased by characteristics of interviewers, response sets, acquiescence, social desirability effect and problem of meaning [27]; the data collection is based on the complete survey to network coordinator/manager and has considered only qualitative and subjective issue; the network coordinator perception and involvement may have overestimated answers on subjective performances; this study only includes the ENAs formalized in Central Italy regions.

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<sup>1</sup> Defined by: innovative investments (software, patents and other intangible assets), banking and institutional support (i.e. the network has received the support as required and benefitted from grants for R&D, innovation and internationalization), high level of coordinator satisfaction (incidence on answers referred to highest levels on the scale), perceived positive network benefits (affirmative answer to the specific question), confidence on strategic objectives fulfillment (high and moderate level indicated on replies), declared interest on improving internal communication and professionalization of network management (frequency of citation) and positive orientation for future partnership (affirmative answer to specific question).

#### 4. Results and Discussion

Results are divided in three sections of analysis, represented by strategic context, organizational features and performances. The following tables show only the most significant responses collected through the structured questionnaire that presented in some cases one choice and in other cases multiple preferences.

**Table 1.** Strategic context of collaborative networks formation

	Total sample (#214)	Breakdown by dimension			Focus ICT & > 2 provinces (#21)
		2-5 partners (#114)	6-10 partners (#58)	> 10 partners (#42)	
<b><u>Network originating idea</u></b>					
- find new markets	59.8%	59.6%	62.1%	57.1%	28.6%
- realize new products	32.7%	37.7%	29.3%	23.8%	42.9%
- cost reduction	32.6%	28.9%	29.3%	47.6%	0.1%
<b><u>Per-existing collaboration</u></b>					
- yes, informal	42.1%	44.7%	44.8%	31.0%	33.3%
- no	41.1%	38.6%	44.8%	42.9%	42.8%
<b><u>Network incubation</u></b>					
- owner/s of one/more partners	62.6%	67.5%	55.2%	59.2%	47.6%
- business association	15.9%	10.5%	20.7%	23.8%	9.5%
- manager of one/more partners	11.2%	8.8%	15.5%	11.9%	19.0%
<b><u>Internationalization</u></b>					
- partners not internationalized	40.7%	40.4%	37.9%	45.2%	52.4%
- minority of partners internation,	26.2%	27.2%	27.6%	21.4%	19.0%
<b><u>Main strategic objectives</u></b>					
- New strategic segment	74.3%	78.1%	70.7%	69.0%	81.0%
- Core process integration	13.1%	12.3%	12.1%	16.7%	9.5%
- Support process integration	11.2%	9.6%	13.8%	11.9%	9.5%

The first table (Tab. 1) shows that more than half of the collaborative networks (59.8%) origin on the basis of an idea of developing new markets, followed by at a certain distance from the other objectives (32.7% for the realization of new products and 32.6% for the reduction of costs). The network size is not particularly important in the different level of response. The results referred to ICT networks involving more than two provinces are dominated by the goal of the new products and show less orientation to the development of new markets; this suggests the combination with the traditional manufacturing sector to a re-industrialization. On previous collaboration, the sample is equally divided (approximately 40%) on those networks with a pre-existing informal occasions and the others with no experience of cooperation; even in this case the size is not a discriminating feature. What it can be observed is that the biggest networks and ICT networks tend to set-up without a pre-existing collaboration experience, consequently relying on the common project to find the right trust and confidence for partnership. With reference to the incubation process, this is mainly managed by one/more network entrepreneur/s, with an important role that can be assumed in some cases by business associations and company manager/s. These professionals are particularly important in ICT networks, confirming the higher innovation impact in the managerial perspective also. Focusing on the level of internalization, results seem to confirm a typical feature of SMEs entering the network:

these enterprises operate mainly in domestic markets and only a minority competes in international markets. This trend is even more pronounced in networks involving ICT sector, assumed to be a specialization with a supporting role for domestic business. Analyzing the main strategic objectives, there is a clear preponderance of business opportunities (and revenues) development rather than cost-reduction through process (primary and support) integration. With the increase in size this tendency is attenuated and augment the incidence of efficiency measures. In the case of ICT, the network development objective is strongly felt and aims to be realized, as seen before, through the creation of new products.

Looking at the organizational characteristics (Tab. 2), in more than one half of the cases network management is performed by one of the owners. This feature becomes less present in complex networks. It is also possible to note the significant contribution of managerial figures or experts, assuming a visible presence in the network formed by ICT companies.

**Table 2.** Organizational features of collaborative networks

	Breakdown by dimension				Focus
	Total sample (#214)	2-5 partners (#114)	6-10 partners (#58)	> 10 partners (#42)	ICT > 2 provinces (#21)
<b>Network management</b>					
- owner/s of one/more business partners	58.4%	61.4%	62.1%	45.2%	57.1%
- manager/s of one/more business partners	17.8%	15.8%	19.0%	21.4%	9.5%
- internal network manager	17.3%	16.7%	13.8%	23.8%	19.0%
- external appointed expert	6.5%	6.1%	5.2%	9.5%	14.3%
<b>Business and action planning</b>					
- no	39.7%	38.6%	43.1%	38.1%	23.8%
- yes, before the agreement	27.1%	27.2%	27.6%	26.2%	33.3%
- yes, on start-up phase	25.7%	25.4%	25.9%	26.2%	38.1%
<b>Operational synergies</b>					
- Marketing and sales	72.4%	70.2%	72.4%	78.6%	52.4%
- Production	39.3%	37.7%	37.9%	45.2%	42.9%
- R&D and quality	32.2%	38.6%	25.9%	23.8%	52.4%

As far as network project activities are concerned, a higher percentage of networks (about 40%) does not realize business and action planning, leaving the operational activities to be managed through spontaneous and reactive processes. ICT networks are more oriented to planning, confirming a greater attitude to management innovation.

Observing the kind of synergies developed, a strong focus emerges on marketing and sales processes, without ignoring the other purposes. ICT networks, consistently with their specialization and vocation to create new process and products, present greater synergies on the R&S processes and quality.

Finally, moving to measure the performances, Tab. 3 reports the summary of the results of the questionnaire. Investments are mainly concentrated in the marketing and advertising area, whereas the personnel training and new technologies investments are concerning much more the small networks; for ICT networks it is possible to confirm the importance of technological investments. Financial support received from banks and public institutions is not significant: in the majority of cases this support is still not

required, demonstrating that the collaboration born with the intention to experiment real strategic synergies; in the case of ICT network it is possible to note a relevant percentage of funding received for innovation, internalization and R&S, coherently with the context and organizational characteristics mentioned. Perception of actual benefits resulting from the collaboration is at a medium standing, while the level of satisfaction of network coordinators it's a medium-high level, without a particular differentiation resulting from the dimension. Confidence on strategic objectives achievement is at medium and high intensity, regardless of the network complexity. These conditions do not influence the new partnership attitude that significantly decreases with higher dimensions. What happens to ICT networks is very relevant because with an equal level of satisfaction there is a very strong collaboration attitude.

**Table 3.** Performance of collaborative networks

	Total sample (#214)	Breakdown by dimension			Focus
		2-5 partners (#114)	6-10 partners (#58)	> 10 partners (#42)	ICT > 2 provinces (#21)
<b>Investments</b>					
- marketing and advertising	59.5%	54.0%	71.6%	60.0%	38.5%
- software, services and technol.	43.8%	52.4%	39.3%	30.0%	61.5%
- personnel education	24.0%	25.4%	28.6%	16.7%	38.5%
<b>Banking support</b>					
- not required	87.9%	87.7%	86.2%	90.5%	81.0%
- required and obtained	7.5%	8.8%	6.9%	4.8%	14.3%
- required and not obtained	3.3%	3.5%	5.5%	0.0%	0.0%
<b>Support form public institutions</b>					
- not obtained	72.0%	64.0%	82.8%	78.6%	42.9%
- obt. for innov., internat., R&D	20.6%	28.1%	13.8%	9.5%	52.4%
- obtained for networking support	7.5%	7.9%	3.4%	11.9%	4.8%
<b>Perceived positive benefits</b>					
- yes	47.2%	47.4%	48.3%	45.2%	42.9%
- no	52.8%	52.6%	51.7%	54.8%	57.1%
<b>Coordinator level of satisfaction</b>					
- excellent	11.2%	11.4%	10.3%	11.9%	9.5%
- very good	35.0%	34.2%	36.2%	35.7%	33.3%
- good	21.5%	24.6%	19.0%	16.7%	33.3%
- medium	13.6%	13.2%	15.5%	11.9%	0.0%
<b>Confidence on strategic objs ach.</b>					
- high	56.1%	55.3%	60.3%	52.4%	52.4%
- moderate	34.1%	36.8%	25.9%	38.1%	42.9%
- low	9.8%	7.9%	13.8%	9.5%	4.8%
<b>Orientation for future partnership</b>					
- yes	50.5%	58.8%	46.6%	33.3%	81.0%
- no	49.5%	41.2%	53.4%	66.7%	19.0%

Developing the last part of research, the following table (Tab. 4) reports the analysis of the impact of different strategic contexts and models (“engineered” vs “emergent”; focus in ICT with more than 2 provinces) on innovative performance, as defined in the previous paragraph. Particularly the differential incidences are calculated comparing specific cluster and the average results obtained on innovative performance against the same results referred to the whole sample. As can be observed, the innovative performance tend to be positive related to “engineered” networks, developing a linear

impact on differential incidence for “strong” (+18.4%), “moderate” (+8.0%) and “medium” (+5.0%) level of engineered conditions. The lack of the same conditions, typical features of an “emergent” model, implies a growingly negative impact in case of “low” (-4.0%) and “weak” (-25.4%) levels.

**Table 4.** Differential impact of strategic contexts and models on innovative performance

	Engineered			Emergent		ICT > 2 provinces (#21)
	Strong (#18)	Moderate (#12)	Medium (#44)	Low (#130)	Weak (#10)	
Innovative Investments	+19.8%	-7.4%	+53.9%	-19.4%	-90.8%	-7.4%
Banking support	+9.2%	+0.9%	-5.2%	+1.0%	-7.5%	+6.8%
Institutional support	+7.2%	+12.8%	+2.2%	-2.1%	-10.6%	+31.8%
Coordinator satisfaction	+26.0%	+12.1%	+3.7%	-2.4%	-46.3%	+4.3%
Perceived benefits	+56.3%	+16.3%	-10.1%	-6.7%	-13.7%	+21.9%
Confidence on objectives ach.	-1.3%	+9.8%	+0.7%	+0.6%	-20.2%	+5.1%
Future partnership	+16.2%	+24.5%	-0.5%	-2.8%	-20.5%	+30.5%
<b>Differentials in average</b>	<b>+18.4%</b>	<b>+8.0%</b>	<b>+5.0%</b>	<b>-4.0%</b>	<b>-25.4%</b>	<b>+10.9%</b>

Statistics seem to confirm the attitude of network contract to produce different effects in function of organizational characteristics. Also with reference to ICT enterprises can be note differential performances visibly higher than average, which are positioned at the middle between “strong” and “moderate” model. Particularly important seem to be the results in term of institutional supports, perception of collaboration advantages and orientation towards future collaborations. These are very relevant circumstances to represent the effectiveness of networks whereby the potential synergies are perceived both internally and externally, in a long term collaboration perspective. This confirms the importance of greater innovativeness and management pro-activity related to this strategic context and organizational conditions.

## 5 Summary

The paper draws a phenomenological analysis of collaborative networked organizations of SMEs based on a survey addressed to a significant sample of ENAs formalized in the central regions of Italy.

Strategic context is mostly characterized by networks implemented on the idea of developing new markets, with no significant pre-existing collaboration, whose process of incubation is mainly promoted by one/more business owner/s, involving partners with a weak international competition profile and that choose the new segment development as first strategic objective of network. In ICT networks with a visible geographical distribution, the goal of new product development is prevalent and the role of managers in process incubation is stronger. Organizational analysis shows that the network management is mostly performed by one/more business owner/s (probably

the same who promoted the incubation), leaving the operational activities managed on unplanned way and seeking for strategic synergies on marketing and sales processes. ICT networks are more incline to involve managerial experts and oriented to planning the operational activities. Investments are coherently concentrated in marketing and advertising functions, financial support received from banks and public institutions is not significant, perception of network benefits and confidence on strategic objectives achievement is good, though not reflecting on positive orientation for future partnership that remains at a medium level. ICT networks show a stronger attitude to capture financial support and a more positive attitude to collaborate. In conclusion, most of the networks analyzed are set-up for a real willingness to cooperate and not to exploit financial contribution; a central role on network incubation and management is played by entrepreneur/s following unplanned process of marketing and sales integration in order to reach strategic development of new business segment.

By further developing the analysis and focusing on the impact of different strategic contexts and models ("engineered" vs "emergent"; focus in ICT with more than 2 provinces), the research demonstrates that the innovative performance tends to be positively associated to "engineered" networks. Also with reference to ICT networks it can be noted visibly higher performances than average, especially in terms of institutional supports, perception of collaboration benefits and the positive orientation for future collaborations.

These results not only confirm theoretical perspectives, but also seem to trace an important route for the commitment of those who promote this tool to bring out the potential of SMEs, which may start to seize opportunities even from the systemic crisis that the Italian economy and his entrepreneurial paradigm is undergoing a long time now.

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