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Innovation and e-commerce in clusters of small firms: The case of a regional e-marketplace

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Innovation and e-commerce in clusters of small firms: The case of a regional e-marketplace

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Abstract

This paper draws on the literature on innovation in clusters and e-commerce to investigate how a particular kind of innovation project, the establishment of a regional e-marketplace (REM), may contribute to regional development. Using a firm-centred perspective, the role of geographical and cognitive proximity, absorptive capacity and other firm characteristics in the adoption and development of this particular type of innovation project is assessed. Hypotheses are tested with reference to the case of an REM recently established in the Italian area of Valtellina. The policy implications of the study are that REMs deserve support as an instrument of territorial development both in the establishment and in the implementation phase, more with "soft policies" than with "hard policies".

Key words: clusters, innovation policy, e-commerce, proximity, Italy

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1. Introduction

In the last 20 years, a considerable amount of research has been carried out on the organisation and development of local networks of SMEs, focusing on clusters, local productive systems, districts and milieux innovateurs. Among others, two topics have received a great deal of attention from scholars: innovation and geographical versus cognitive proximity.

Innovation is widely considered to be the key to promoting economic development and growth (Dosi & Nelson, 2010; Giuliani, 2011), and clusters that manage to obtain and maintain global or national leadership in their markets do so thanks to their firms' investment in the creation of innovative ideas and the generation of technological, organisational and marketing innovations. Furthermore, it has been recognised that competitive advantage is built not on the sectors to which firms belong (high-tech versus low-tech), but on firms' flexibility and innovation (Chiarvesio et al., 2004). Besides technological innovation, the absorption and diffusion of marketing, strategic or other types of knowledge have also been recognised as equally relevant to feeding cluster firms' competitiveness, even though less attention has been devoted to these aspects.

A second stream of research on clusters has focused on the debate about the importance of geographical proximity as opposed to cognitive proximity. On the one hand, the districts literature has stressed the importance for innovation of localised networks of geographical proximity, through which "experiential knowledge" flows across the local production network and increases its innovation capacity (Audretsch, 1998; Belussi et al., 2008; Cooke, 2001; Maskell & Malmberg, 1999). However, "[t]he existence of a local agglomeration of firms does not represent a sufficient condition for competitiveness and development; firms within clusters may not be well coordinated and may have not developed yet an adequate division and specialization of labour (Parrilli, 2007). Simultaneously, local firms and their production systems need to connect to external actors to acquire relevant resources, such as knowledge, finance, distribution channels, as means to strengthen their competitiveness (Maskell and Malmberg, 1999; Guerrieri and Pietrobelli, 2004; Boschma, 2005; Torre and Rallet, 2005; Parrilli and Sacchetti, 2008)" (Parrilli et al., 2010, p.353). Hence, a growing literature prefers to distinguish the concept of proximity between different dimensions and relates knowledge and innovation flows to cognitive, organisational, social and institutional proximity rather than to geographical proximity (Boschma, 2005).

In accordance with this line of thought, other studies have focused on the opportunities for firms to redesign processes and business organisations through electronic networks on a worldwide scale, providing evidence that physical proximity and localisation have become

less important. Virtual companies and electronic marketplaces have been proposed as new models of organisation, in which ICT is considered as the driver of the firms' competitiveness (Kelly, 1998; Malone & Laubacher, 1998).

In the last decade many e-marketplaces have appeared, but scholars highlight that short-term sales are often inconsistent for SMEs involved in e-commerce and many e-marketplaces cease to exist after some time (Chiarvesio et al., 2004). Furthermore, according to Ndou et al. (2011), in 2006 just 750 active digital marketplaces were registered in the directory of e-market services, compared with the 2,233 identified by Laseter et al. in 2001. Chiarvesio et al. (2004) and Pine and Gilmore (1999) suggest that policies should stress the value of historical roots and the experience of SMEs regarding new initiatives, such as electronic networks whose strength relies on the capacity of aggregating firms online by exploiting shared interests and experiences at the local level as well. The authors also point out the need for future studies to deal with the evolution of local trends in ICT through case studies capable of describing in detail the opportunities and threats involved in the use of technological solutions by local SME networks.

The aim of this paper is to explore whether firm clusters may take advantage of the establishment of regional e-marketplaces, which firm characteristics can influence the outcomes of this kind of innovation project and which elements should be embodied in a policy aimed at fostering the adoption and diffusion of REMs.

The analysis is based on micro-level data collected via a questionnaire submitted to firms operating in the REM "Store Valtellina" (SV) and other sources such as interviews and accountancy data. The implications in terms of policies are that REMs deserve support as an instrument of territorial development both in the establishment and in the implementation phase, with policies aimed at fostering cooperative relationships, both intra- and extra-cluster, and promoting the diffusion of innovation by means of territorial "animateurs".

The rest of the paper is structured as follows: Section 2 outlines the theoretical framework and formulates the research questions, Section 3 introduces the case study, Section 4 describes the empirical findings and Section 5 discusses the results of the analysis and proposes policy suggestions.

2. Theoretical framework and research questions

The theoretical framework for the analysis draws both on the literature on clusters and regional development and on the information and management literature concerning the determinants of the adoption of e-commerce and regional e-marketplaces.

2.1 Regional e-marketplaces

Over the past decade e-commerce has stood out from other distribution channels as the commercial solution of the future in European countries as well as globally. In Italy, for instance, in 2010, B2C (business-to-consumer) e-commerce experienced growth of 17% and in 2011 the online sales from Italian sites reached 8 billion euros (+20%).[1] Despite the e-commerce growth in Italy exceeding that of other European countries, in absolute values Italy still lags behind: the Italian market accounts for only one-sixth of the English one (51 billion), one-quarter of the German market (34 billion) and less than half of the French market (20 billion). A structural reason for the slower adoption of the e-commerce solution in this country may be the strong presence of small and medium-sized enterprises (SMEs), accounting for 99% of the total entrepreneurial system.

When trying to access e-commerce markets, SMEs have to face some costs, such as training for their personnel and contracts with service providers and telecommunications providers (Fariselli et al., 1999). These costs act as entry barriers because they are more demanding for a small than for a large corporation (OECD, 1995). Furthermore, being just a drop in the ocean of the World Wide Web, SMEs face the problem of visibility, which imposes – sometimes prohibitive – promotion efforts.

However, the growing importance of e-commerce as a distribution channel also compels SMEs to find ways to overcome the technological gap since ICTs facilitate the following (De Berranger & Meldrum, 2000):

- the access to global markets (Fariselli et al., 1999);
- the management of one-to-one customer relationships at a low cost (Webb & Sayer, 1998) and external communication flows, increasing the interaction with users and suppliers (Lèbre La Rovere, 1998);
- the establishment of brand names (Webb & Sayer, 1998);
- the possibility of carrying out sales promotion to global consumers (Hamill & Gregory, 1997) and reducing the distribution costs (Hoffman et al., 1995).

One way to overcome the entry barriers is for smaller firms to seek access to the market together as a network (Fariselli et al., 1999). The network can be established among regional actors. Several advantages can emerge from strengthening the links between producers and

[1] Data provided by "Osservatorio e-Commerce B2c 2011", promoted by Netcomm and the School of Management of Politecnico di Milano, downloadable at http://www.consorzionetcomm.it/Area_Dati/Politecnico_Di_Milano/ECommerce_B2c_In_Italia_Accelera_La_Crescita_Tra_Nuovi_Ingressi_E_Modelli_Di_Business_Innovativi.kl.

service providers and creating a shared online "showroom" for the territorial supply. The increase in the unit margin made possible by e-commerce is estimated at 60% with respect to traditional channels.[2] Moreover, in the case of low density of the market, a larger proportion of customers can be reached from a central location without building a widespread retail channel (Santarelli & D'Altri, 2003) or hiring importing agents worldwide. Other advantages are:

- the sharing of fixed costs deriving from the establishment and maintenance of the e-commerce system;
- economies of scale with respect to the access to logistics and banking services and personnel training;
- an increase in the opportunities for cross-selling;
- the achievement of a critical mass and a strengthened reputation both for the individual product or service and for the territory as a whole, owing to the virtuous circle generated by the reciprocal link.

The expansion of classical distribution channels can also increase the consumers' loyalty and the repeated consumption of local specialities by tourists, who can decide to expand their consumption in their places of residence too. Targeting loyal consumers is also a means to overcome the problem of experience goods, the quality of which is discovered only after direct observation or consumption (Nelson, 1970), which can constitute an obstacle to the e-commerce of eno-gastronomic products.

On the consumers' side, the first advantage lies in transaction cost reduction (Santarelli & D'Altri, 2003). This is especially true for typical products whose market is mainly regional and thus are hard to find outside the area of production. Finally, searching for products and comparing prices on the Internet are less costly than visiting retail stores (Santarelli & D'Altri, 2003).

This has moved government authorities to promote regional electronic marketplaces (REMs), especially for SMEs, in the hope that they will spearhead the creation of e-business communities and contribute to regional economic development (Gengatharen & Standing, 2005).

"Digital marketplaces can be defined as web-based systems that link multiple businesses together for the purpose of trading or collaboration and are based on the notion of

[2] Observateur Cetelem 2007, Internet World Statistics 2009, cited in Rapporto ASSINFORM sull'Informatica, le telecomunicazione e I contenuti Multimediali 2010, Ch. 14 "Il mercato dell'Ecommerce B2c".

electronically connecting multiple actors to a central marketspace, in order to facilitate exchanges of different types of resources as information, goods and services" (Ndou, Del Vecchio & Schina, 2011).

Scarce attention has been devoted to investigating the reasons underlying the success of regional e-marketplaces and to propose a comprehensive framework that can be used to examine the factors affecting the success or failure of government-supported SME-REMs. Gengatharen and Standing (2005), in an attempt to fill this gap, propose a framework that identifies the most significant factors in the following: SME-owner innovativeness; REM ownership structure and governance that engender trust and build critical mass by including SMEs in REM development and management; matching the REM focus and structure with the regional profile by leveraging community ties and existing business relationships; adopting a staged approach to REM development; and ensuring that the REM benefits are understood by SMEs.

One factor that predicates the need for further efforts in the evaluation of e-marketplaces is the number of government-sponsored REMs that are being considered and established – despite past failures – as a means to promote regional growth and encourage the uptake of e-commerce among SMEs (Gengatharen & Standing, 2004).

Specific benefit-evaluation frameworks for REMs can provide existing and potential market makers with a clear idea of the costs and benefits to be considered, given the complexities involved in establishing and maintaining REMs (Brunn et al., 2002).

The literature has highlighted that short-term sales are often inconsistent for SMEs involved in e-commerce and many e-marketplaces cease to exist after a certain amount of time (Chiarvesio et al., 2004). Furthermore, according to Poon and Swatman (1999), the reason why participants are still connected is not because of tangible profits but rather because of the promise of future opportunities.

This raises the following research question:

Research question 1a: *In the literature, the perceived economic short-term benefits appear to be inconsistent for many SMEs: does the same apply to REMs' SMEs?*

HP1(a): Belonging to an REM is likely to increase the opportunities for cross-selling, but the economic benefits become consistent only in the long run.

Research question 1b: *In the case of inconsistent short-term economic benefits, which factors determine the survival of an REM and firms' satisfaction?*

HP1(b): The reasons determining firms' satisfaction and the survival of an REM are likely to be the promise of future opportunities and an interest in territorial promotion.

2.2 Clusters, firm characteristics and innovation

As a process of innovation, the establishment of an REM inside a regional cluster can be evaluated using the categories employed in the research on clusters and innovation. A growing number of scholars highlight the importance of considering the determinants of innovation in clusters at the micro-level, to understand the contribution of the micro- to the meso-level, while previous studies have usually considered the inverse relationship (Giuliani & Bell, 2005).

"A view maintained by many economists is that knowledge spillovers, which are by definition a public good (Arrow, 1962; Jaffe, 1989), tend to be highly localised (Jaffe et al., 1993), a property that links conceptually geography and innovation. Within this stream of studies, robust empirical evidence has shown that a relationship exists between spatial clustering, knowledge spillovers and firms' innovative output" (Giuliani, 2007). Using a partially different perspective, other studies have explored the role of social capital[3] in clusters, showing that it reduces the transaction costs and opportunism in social and market relations and may foster knowledge diffusion and innovation (Anderson & Jack, 2002), as well as improving firms' performance and clusters' competitiveness (Cooke at al., 2005).

However, in an attempt to explore and understand how clusters innovate and foster development, a growing number of studies have begun to emphasise the role of individual firms in cluster innovation processes (Beaudry & Breschi, 2003; Bell & Albu, 1999; Caniels & Romijn, 2003; Lazerson & Lorenzoni, 1999; Maskell, 2001), showing that the process of diffusion is not always pervasive and driven mainly by the geographical proximity of cluster firms, but rather depends on the role of technological gatekeepers, the connection with extra-cluster sources and the absorptive capacity of firms, i.e. "the ability of a firm to recognise the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990, p.128). The capacities of some firms to absorb, diffuse and exploit

[3] Social capital (Granovetter, 1973; Grootaert & van Bastelaer, 2001; Putnam, 1993) is the stock of resources of trust and cooperation shared by a certain group. According to Trigilia (2001), it favours local development in many ways. By stimulating the exchange and diffusion of knowledge and trust inside the firm and among firms, it facilitates the development of tacit knowledge as a competitive resource; through the creation of networks between local public governments and intermediate institutions, it favours the improvement of the infrastructural and services endowment and the flows of capital and investments; and the presence of social capital and external economies is a source of attraction for firms in search of localisation advantages.

knowledge creatively can shape the learning dynamics of the cluster as a whole, as shown by Giuliani and Bell (2005) for the cluster of Colchagua Valley.

The characteristics of the firms, i.e. their being more or less linked to intra- and extra-cluster knowledge, export-oriented and interested in local development, are likely to determine their performance within SV, their expectations and their level of satisfaction with the innovation project.

Further suggestions for the analysis of the behaviour of REMs' SMEs related to innovation adoption can be drawn from the information and management literature. Poon and Swatman (1999) point out the importance of management support and enthusiasm for small businesses' IT success. Gengatharen (2008) argues that, in the evaluation of an REM's performance, the prevailing individualistic culture versus the collaborative nature of the participants affects the opinion that a portal is successful, while according to Harrison and Waite (2006), the timing of the adoption seems to have an impact on the experienced benefit: a greater proportion of earlier adopters experience a benefit with respect to later adopters. For Poon and Swatman (1999), the industry sector and the product nature might have something to do with Internet commerce adoption, given the preponderance of non-manufacturing firms in this market.

The second part of the analysis, then, will be devoted to understanding whether there are differences in the behaviour, knowledge base and relational ties of firms that determine different performances and different perceptions about the value of an REM. This can have important implications for policy suggestions. On the one hand, in fact, the analysis may reveal that only certain types of firms (for instance only firms that produce a certain type of good, have a particular knowledge base or have already started the e-commerce activity) can achieve gains from the establishment of an REM. In such a case, a policy should promote its adoption only by the firms that could take advantage of the project or otherwise enable other firms to reach the conditions for taking advantage of it. If, instead, should the analysis reveal that spillovers are independent of firms' characteristics, other considerations should guide the policy makers, for instance regarding how to limit the problems deriving from high appropriability of the gains.

In particular, the following research questions appear to be of interest:

Research question 2: *Which are the factors and the actors that play the greatest role in the adoption and diffusion of an innovation project such as an REM in a firm cluster?*

HP2(a): Both cognitive proximity and geographical and social proximity are likely to play a role in the adoption and diffusion of an REM, although in different phases.

HP2(b): The presence of technological gatekeepers is likely to be crucial in both phases.

Research question 3(a): *Is there a difference between SMEs belonging to an REM regarding their satisfaction and expectations? Which factors affect this outcome?*

HP3(a.1): Firms' satisfaction and sales are correlated with the intensity of participation in the promotion activities realised within the REM or self-run on the Internet by individual firms.

HP3(a.2): Firms' satisfaction and sales are correlated with the level of absorptive capacity of the individual firm.

Research question 3(b): *Which conditions/features of the participants determine greater satisfaction and hence the survival of the project?*

HP3(b): The personal attitudes of the management and characteristics of the firm (age, education, role in the firm, category of product, social capital, collectivist culture) are correlated with firms' satisfaction and sales.

3. The case study: the regional e-marketplace SV

In this paper the research questions are tested against the case of a regional e-marketplace, Store Valtellina (SV), recently established in Italy in a regional cluster[4] that is gaining the participation of a good proportion of SMEs.

Valtellina is a mountain area in the Lombardy Region, the local production system of which is based on the presence of SMEs producing eno-gastronomic typical products such as *bresaola*, *pizzoccheri*, wine and cheese, but also winter tourism services and spas. In 2010 some local producers, supported by the University of Pavia, the Bank "Credito Valtellinese" (BCV) and other territorial agents, started an e-commerce project for territorial products, with the technical and management assistance of an ICT company located in Rome, ISED S.p.a. This REM has now gathered about 40 producers belonging to the Valtellina area that have become partners in the e-commerce experience with the idea of proposing in an

[4] In this paper, since I am not interested in the specific topic of comparing different models of development of "economic localities", I use the general definition of "cluster" to define any geographical agglomeration of firms operating in one or more industries.

integrated manner the differentiated supply of quality products and services of the area, ranging from eno-gastronomic products, to handcrafts, to tourism services.[5]

The project is the outcome of an idea of a group of entrepreneurs and researchers that web districts could be a strategic solution for SMEs to increase their competitiveness, reach new markets and fill in the technological gap. Valtellina was chosen as a pilot case by the technological service provider company, ISED S.p.a., thanks to the consolidated relationships of the university, the partner of the project, with the bank and a number of representative companies of the region.

In the past, two similar initiatives had been proposed in Valtellina but they failed since the logistic model was not convincing for the involved firms. Once the companies understood that the model proposed by the logistic company could fulfil their needs, some of them enlisted, becoming "pilot enterprises", and helped in elaborating the organisational model. The output was a service platform expected to manage the whole e-marketing and e-commerce activities of the partners, integrating the physical and virtual channels, optimising the logistic aspects and taking charge of the whole set of back-up services.

Subsequently other territorial producers were contacted, starting from those linked by relationships of various natures to the pilots. Once a reasonable number of producers (about 10–15) had been reached, the system was started and run in. In a few months 75 enterprises were contacted with a result of about 40 members. The local bank played a role both in this phase and in the previous ones, above all in gaining the support of politicians. The presence of a university among the promoters contributed to the creation of trust in the initiative and facilitated the firms' interest.

3.1 The data

The analysis that follows is based on multiple sources of data. Micro-level data were collected at the firm level by submitting a questionnaire to 35 firms participating in SV during the period December 2011 to March 2012. Prior to submission, a focus group was conducted with a sample of entrepreneurs and the store manager in order to test and improve the questionnaire. Furthermore, face-to-face interviews with the store manager and the representatives of the university and the bank were conducted in order to understand the key variables in the process of aggregation and implementation of SV. Finally, the accountancy data regarding SV sales were employed.

[5] Although links to other tourism websites promoting Valtellina are present in the store, so far the only tourism services sold in the web portal have been ski passes and train tickets, but the analysis does not consider them since they are not currently available for purchase in SV.

Tables A1 to A6 in the Appendix indicate the main variables resulting from the questionnaire survey and their descriptive statistics. As Table A2 shows, the sample is composed of small and micro enterprises, covering the whole range of typical products of the region and having a low export orientation.

4. Main empirical findings

4.1 RQ1: REMs' benefits and firms' satisfaction

With regard to the first research question, belonging to an REM is supposed to increase the opportunities for cross-selling, diminish fixed costs thanks to the critical mass of producers and obtain better contracts, diminishing the variable costs.

The survey of entrepreneurs, as well as the accountancy data, however, reveals that sales in SV are still a minimal part of the turnover of most of the firms,[6] accounting for less than 0.01%, with the exception of one case of a handcrafter who increased his turnover by 8% thanks to the new market generated by the project.

Nevertheless, the analysis of sales throughout the considered period[7] reveals that, although e-commerce remains marginal as a distribution channel, sales in SV have increased in 1 year by 80% on average.

According to the opinion expressed in the survey, 50% of the firms agree with the statement that "SV brought economic gains" (Table A4, variable *ec-gain*). This means that, on the one hand, half of the firms are satisfied with their sales in SV despite their marginal share in the total turnover. A reason for this is given by the statement of one of the entrepreneurs involved in the focus group:

> Investing in SV allows adding to consolidated sales new revenues from customers we would have never reached otherwise. This is true especially for typical products, which are difficult to find outside the region, and even more difficult to find abroad.

While 50% of the firms are satisfied with the revenues, 78.57% (22 firms, see Table A4, variable *Overall*) are satisfied with their membership of SV. This means that other reasons than short-term economic gains account more for satisfaction.

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[6] This is probably the reason why only 5 out of 28 producers would be willing to pay 200 euros for the membership of the store (see Table A4, variable *Fee*).

[7] The variation has been calculated for the periods October 2010 to June 2011 and October 2011 to June 2012 since the project started in September 2010 and the summertime is the period of less intensive activity.

An analysis of the Spearman correlations[8] for overall satisfaction with the satisfaction factors (see Table 1) shows that the highest correlations concern the following statements:

- SV is a good promotional channel (0.73)
- SV opened up new markets (0.67)
- SV allowed the mark-up to be increased (0.64)
- SV lowered logistics and distribution costs (0.63)
- SV strengthened the firm image (0.58)

Furthermore, as Table A4 (variable *Ad_future_gains*) shows, almost 90% of the respondents would confirm their participation in SV because of the expected future gains. The reason is explained in the words of one of the leading entrepreneurs, a producer of typical pasta:

> Some English customers of mine, operating in traditional e-commerce with a physical warehouse, explained to me that in London it is usual for white-collar workers to purchase Italian typical products online and ask for delivery to their offices. Since Anglo-Saxon models usually find diffusion worldwide, we are awaiting for this evolution of consumers' habits.

Table A4 also shows that 24 firms (85.71%) would confirm their membership of SV because it is conceived as an instrument for territorial promotion (Variable *Ad_prom*).

These findings are consistent with those of the previous literature on REMs – which outlines that indirect benefits, such as territorial development, are more important in the perceived value of an e-commerce collaborative marketplace than direct benefits such as short-term economic gains – and on e-commerce – indicating firm image to be amongst the most relevant benefits (Lu, 2003).

Despite the REM being at an early stage of its life cycle, all these elements suggest that it will probably continue its activity, contrary to many similar projects. According to the store manager, the critical success factor of this project with respect to other similar ones is its logistic and organisational model characterised by a high degree of flexibility. The store, in fact, does not need a physical warehouse, but the different goods purchased online are picked up by express courier from the firms involved. Furthermore, the firms do not have to pay to

[8] The Kendall correlation gives similar results although with smaller coefficients. We have opted for Spearman because the R-package allows us to obtain levels of significance for Spearman. In the rest of the analysis the significance of the Spearman correlation is annotated as follows: $p < .001$, "***"; $p < .01$, "**"; $p < .05$, "*".

take part in SV, but the store manager draws a percentage from each item sold, which is however inferior to the mark-up requested in the traditional distribution channels.

This opinion is confirmed by the survey findings. When asked about their opinion on the organisation of the store and on possible suggestions to improve the service (Table A4, *Limits and suggestions variables*), 78.57% of the respondents consider the organisational model to be easily manageable.

A further positive outcome produced by the project is the accumulation of social capital. If, on the one hand, social capital has been a fundamental driver of the success of the project, on the other hand, the project has helped to increase it, both for the intra- and for the extra-cluster relationships.

Starting from the second dimension, the project achieved two kinds of results. First of all, new relationships have been created or consolidated with external actors, such as the university and the service provider company, which can potentially generate spillovers for the whole area. Second, given the core business of the project, commercial ties will spread outside the regional area, which so far is the main market for the products. The development of the project on the business-to-business (B2B) side will further enhance this aspect.

Regarding the intra-cluster social capital, the project strengthened the linkages among partners, both firms and associations. Two initiatives, in particular, followed the establishment of the REM. The first is the Quality Agrifood District, a project financed by the Lombardy Region in order to strengthen the competitiveness of the local agrifood system. The second is the "Club of Exporters", a project promoted by the Chamber of Commerce with the aim of organising a training programme to expand entrepreneurs' export capability. All the interested producers of the store have participated in both projects. Although their start-up cannot be attributed in an exclusive way to the SV partnership, the REM strengthened the sense of cohesion of the partners, contributing to fostering the cohesion of the group members, their identity as innovators and their enthusiasm for the development of their firms and territory.

This is consistent with what happened in the similar case of the REM RegWA, in which "the first few years of participation on the REM and portal were perceived to offer community benefits like a sense of belonging and a need to demonstrate support in building the image of the region. Once the community benefits have been realised, participants begin to look to the REM for perceived strategic benefits. The participants in RegWa who have currently not received any direct business from the REM claim to still be there because their competitors are and because the wide regional acceptance and use of the portal make it a good advertising channel. However, with time, RegWa participants are beginning to view

REM participation in terms of how it is going to affect their bottom line (perceived economic benefits)" (Gengatharen & Standing, 2005, p.431).

4.2 RQ2: Technological gatekeepers, cognitive proximity and social capital

In order to address the second research question, it can be interesting to analyse the features of the actors playing the role of gatekeepers and leaders in the adoption and diffusion process of SV. As recognised by Giuliani (2005, p.279): "[I]n spite of their latent nature, technological gatekeepers are vital nodes of interconnection between intra- and extra-cluster knowledge systems and, therefore, they may positively impact on the cluster absorptive capacity. Identifying them, understanding their characteristics vis a vis those of the other cluster firms, should therefore be a priority in research".

The principal gatekeeping role has been played by the University of Pavia, thanks to a consolidated relationship of one of its research groups with the firm cluster. Although in this case the role of gatekeeper is attributed to a university, and not to a private firm as in Gambardella (1993), the same characteristics identified by Giuliani (2005) apply to this case: "their role is not institutionalized, which means that they have not been formally attributed this role at the local level; and, second, their function is likely to be the result of highly informal interactions with both intra- and extra-cluster actors – a condition which renders their visibility limited to the external observer" (Giuliani, 2005, p.279).

Secondly, pilot enterprises played a major role. In particular, one of them, the leader of *pizzoccheri* and typical pasta production, invested time and resources in promoting participation in the project, first among local firms and, once started up, worldwide as a representative of the local entrepreneurs, together with the store manager, belonging to ISED S.p.a.

The two more relevant features of this firm are: a strong export orientation (60% of exports in the total turnover, the second firm for export share amongst the 28 interviewed) and a high level of social capital. Also, the other firms participating in the first phase share the same characteristics, although they are less pronounced. All of them, in fact, are part of the strong network of relations, as shown by the results from the variable *Joint_pr*, indicating whether firms have some projects in common and with whom, and the variable *Projects_after*, indicating whether firms are involved in projects started up after SV. The network emerging from the answers given to the related questions in the questionnaire highlights that eight of the firms participate in SV as protagonists (plus two local firms that are not involved in the project). Three of these firms also took part in the related project @bilita, promoted by ISED S.p.a., in which the university is a scientific partner, which

gained the financial support of the Italian MISE (Ministry for Economic Development) with the grant Industria2015, aimed at creating an innovative platform for B-to-B and B-to-C e-commerce for networks of firms.

In the words of the store manager, the pilot enterprises share the following features:

> … they are characterised by vision and perspective, are recognised as local leaders and are embedded in a network of local contacts, including political ones. They also had the role of declining the project on the territory, providing criteria or proposing minimum quality standards for other firms interested in adhering.

As far as social capital is concerned, it played a role in the firms' choice to join the partnership. Valtellina, as many other regions, is characterised by clustered networks of relations. The pilot enterprises easily gained the participation of the entrepreneurs linked to them by friendship or familiar linkages, while others rejected the proposal due to the presence of conflict relations with some of the pilot enterprises.

To sum up, in Valtellina, the process of adoption of an REM has been favoured by technological gatekeepers and some leader firms capable of absorbing new knowledge from external sources, sharing their knowledge with other less advanced firms, thus generating spillovers, and enhancing the competitiveness of the whole area. This behaviour of leaders is motivated both by self-interest, since an REM gains an advantage from the increased critical mass of firms, and by an interest in territorial promotion. Local leaders, in fact, show prevalently a collectivist culture and are keen to advance the whole cluster's competitiveness, allowing innovation to spread from the *technological gatekeepers* to firms less connected to external sources of knowledge. The fact that only 8 firms have been convinced to take part by ISED or the university, against 15 convinced by other firms (see Table A5, variable *Rec_entr*), also means that if external linkages are important for bringing innovation into the system, internal social capital is important for the diffusion of innovation within the system, as well as to less innovative and connected firms.

This case confirms the hypothesis that cognitive proximity and linkages with external sources of knowledge play a major role in the adoption phase, while geographical proximity and internal social capital do so in the diffusion phase.

4.3 RQ3: Satisfaction, performance and firm characteristics

In this section the data derived from the survey are used to understand which factors affect firms' satisfaction and short-term economic gains obtained from the involvement in SV.

4.3.1 Correlation promotion–sales/satisfaction

First of all, the hypothesis that greater satisfaction with sales volumes and the amount of economic gains is correlated with the intensity of the online promotion activities carried out by the participant firms is tested. For this purpose, an index is employed, created by summing up the variables *Link*, *Other_Know*, *Promo*, *Blog* and *Web_mktg*[9] (see Table A5). This index, named *Commitment*, has been correlated with *Overall* (SV has brought me economic gains), obtaining a Spearman correlation of 0.16; however, it is not significant.

Similarly, the correlation between *Committed* and *Ad_ec_gain* (if I could go back I would confirm my adhesion to SV because it brought me economic gains) is 0.32 but not significant.

Correlating *Commitment* with the results in terms of sales, the Spearman correlation between the index and the total sales realised by the firms in the seven considered quarters[10] (*Tot*) gives a coefficient of -0.07. The correlation of *Commitment* with *Var*, indicating the change in sales realised between the last quarter of 2010 and the last quarter of 2011[11] gives a coefficient of 0.03, signifying no correlation at all.

The single variables forming the *Commitment* variable also show a null or not significant correlation with sales.

An examination of the correlations between *Commitment* and all the other variables in the data set, instead, reveals that it is strongly associated with variables referring to the social capital, i.e. *Rel-gain* (0.43*), *Joint_pr* (0.56**) and *Projects_after* (0.40*). This means that in this regional partnership the most pro-active firms are also those that are more connected and interested in strengthening the entrepreneurial relations.

A high correlation is also present between *Commitment* and *E-comm* (the firm already had an e-commerce activity), which could be thought of as an indicator of absorptive capacity in e-commerce, as I will show in the next section.

4.3.2 Absorptive capacity

Most researchers who have made an effort to operationalise and quantify the concept of absorptive capacity have measured absorptive capacity by R&D (Murovec & Prodan, 2009)

[9] Confirmation of the validity of this variable as a proxy for the level of commitment is provided by its significant and negative correlation with *Ad_no_costs* (-0.48**), *Ade_free* (-0.56**) and *Ade_org* (-0.41*).

[10] From October 2010 to June 2012.

[11] The last quarter of 2010 is that of greater economic results in the first year and the last quarter of 2011 is the quarter when the survey has started. *Var* and *Tot* are positively correlated, meaning that those firms that realised the best sales also increased their sales more than other firms.

or by the introduction of new products in previous years (Hollenstein & Woerter, 2008), since this concept is usually referred to as the capacity to absorb new knowledge in the technical field.

In this case a particular type of technological innovation is considered, which requires more commercial than technological expertise and openness to be applied with proficiency, since the application is run by an external society, while firms are requested to exploit it and make it work.

For this reason, differently from previous studies, five variables related to the use of the Internet and the commercial orientation of the firm have been chosen as possible indicators of absorptive capacity:

- *Wsite* (the firm previously had a website);
- *E-comm* (the firm conducted e-commerce activity before entering SV);
- *For_Mis* (the firm participated in foreign trade missions);
- *Catalogue* (the firm had a catalogue of its products);
- *Export_levels* (obtained by dividing the variable Export – % of exports on turnover – in four levels for the following values of the export share: 0; 1-9; 10; >10).

A principal components analysis was carried out on these variables, allowing us to detect three variables that explain 78% of the variance. The first, named *PC_export*, is highly correlated with *For_Mis*, *Catalogue* and *Export_levels*; the second, *PC_website*, is correlated with *Wsite* and to a lesser extent with *For_Mis*; the third, *PC_e-commerce* is correlated with *E-comm*.

The reasons for the inclusion of *Wsite* and *E-comm* are that it is likely that firms that had already experienced e-commerce activity could be more equipped to understand the value of an REM and the costs and benefits of this specific project. Even more likely is that firms that did not have a website are less able to understand its value and apply it.

As regards the other three variables, they can be considered as a good indicator of the pro-activity of firms in the commercial phase. It is a stylized fact that, on average, exporting firms perform better than non-exporting firms; in particular, they tend to be more productive, more capital-intensive, more innovative and more efficient (Clerides et al., 1998; Girma et al., 2004; Hessels & van Stel, 2009; Kneller & Pisu, 2007).

According to Hessels and van Stel (2009), there are two main explanations for this. “First, in order to be able to export, firms need some kind of competitive advantage such as unique resources or innovative abilities, because they have to adapt their products or services to foreign markets. Exporting firms either already possess these resources and capabilities

before entering a foreign market or they have to develop these since the knowledge and capabilities that the firm has developed for the local or national market are often not suitable to operations abroad (Lu and Beamish 2001)" (Hessels and van Stel, 2009, p.5). The second explanation – which confirms the appropriateness of including exports in an indicator of absorptive capacity – is that "export may also contribute to learning or competence development. By doing business abroad firms are exposed to new processes and technologies which may further contribute to increased productivity and innovativeness. In sum, exporting facilitates both the exploitation of existing knowledge and the acquisition of new knowledge (e.g., market knowledge and technological knowledge) (Blalock and Gertler 2004; Yeoh 2004)" (Hessels and van Stel, 2009, p.5).

In order to understand whether absorptive capacity is positively correlated with sales in SV, the three variables *PC_export*, *PC_website* and *PC_e-commerce* have been correlated with the variables *Tot* and *Var*. The Spearman correlation coefficients reported in Table 2 show that the highest correlations are between *Tot* and *PC_export* and *Tot* and *PC_e-commerce*, although the coefficients are not significant. As regards the correlation between the variables indicating absorptive capacity and the other satisfaction variable, Table 2 reports that there is a positive correlation, although not significant, with the satisfaction about economic gains for those who already managed an e-commerce activity, but this coefficient is not significant either.

An interpretation of these results could be that the organisational model proposed is very simple to adopt and firms do not need particular skills or capacities in order to take advantage of it. This means that an REM project is characterised by high appropriability and high spillovers for all the firms involved, independently of their previous experience.

Table 3 summarises the significant correlation coefficients related to absorptive capacity variables with respect to all the other variables.

Interestingly, there is a high correlation between *PC_export* and adhesion for trust in the proposer (*Ade_trust* variable), suggesting that absorptive capacity and trust (one of the components of social capital) could be related.

Moreover, firms that have already managed an e-commerce solution have strong commitment to the project and did not join because it was a free promotional channel but rather for the possible gains in terms of cross-selling and for the interest in the B-to-B channel.

4.3.3 Firms' and entrepreneurs' characteristics

As far as firms' and entrepreneurs' characteristics are concerned, there is no significant correlation between satisfaction (indicated with the variables *Ec_gains* and *Overall*) and sales (indicated with the variables *Tot* and *Var*) and the personal characteristics of the respondent[12] (variables *Age*, *Gender*, *Educ*, *Years*, *Role*) and with the time of adoption (variables *Early_Ad* and *Later_Ad*).

Furthermore, the type of product does not seem to be correlated with the total sales. Products have been divided into the following categories: wines and spirits, fresh gastronomic goods, non-fresh gastronomic goods and handcrafts. No significant correlations have been found for *Tot* and *Var* with product categories. Furthermore, when asked if their products are well-suited to e-commerce, there is a general consensus, with the exception of one producer of cheese and two producers of mushrooms and other sauces.

The hypothesis that entrepreneurs who demonstrate a collectivist culture have higher satisfaction than those with an individualistic culture (Gengatharen, 2008) is instead confirmed by the data.

The Spearman correlation for *Ad_prom* (I would reconfirm adhesion because it is an instrument of promotion of the territory) and overall satisfaction is 0.54**.

The principal component analysis for *Imp_rel_dummy* (obtained as a dummy variable from the variable *Imp_rel* – interested in consolidating relations among entrepreneurs – greater than 5) and *Ad_prom* (I would reconfirm adhesion because it is an instrument of promotion of the territory) gives a factor (named *Collectivist*) that explains 51% of the variance and whose correlation coefficient with overall satisfaction is 0.48*.

On the contrary, the social capital variables (*Ties_bef*, *Joint_pr*, *Consort*, *Corp_ties*, *Foreign_mis*, *Other_ties*) do not show a correlation with higher satisfaction or with collectivist culture, while, as detailed in section 4.2, project ties are strong among pilot enterprises that share more than one innovation project in the marketing area.

5. Policy suggestions and concluding remarks

In this paper the experience of the REM SV has been analysed in order to contribute both to the literature on innovation in clusters and to the specific literature on e-commerce for SMEs. It has been shown that, although clustering per se does not influence the innovation and learning behaviour of cluster firms (Giuliani & Bell, 2005), in Valtellina leader firms and intermediate agents, playing the role of technological gatekeepers, were able to absorb

[12] The respondents are the person responsible for SV in each firm.

new knowledge from external sources and share their knowledge with others less advanced firms, thus generating spillovers and enhancing the competitiveness of the whole area. A first policy issue hereof is the implementation of measures aimed at strengthening the firms' knowledge base and leading to stronger extra-cluster links.

A second issue concerns the opportunity to support the establishment of an REM. Despite the economic gains being limited, at least in this first phase, the growing performance of SV, as well as the advantages perceived by most of the firms from membership of the REM, detailed in section 4.2, suggests that local authorities should promote the diffusion of REMs in regional clusters.

In the case of SV, however, no public funding was provided, but local institutions gave political support to the project. However, a related project, @bilita, aimed at realising a technological platform to be exploited by SV as well, obtained public national funds. While the ordinary administration of the REM is self-sustainable, in fact, investment in the technological infrastructure is not costless.

The unwillingness to pay to participate in SV and the fact that few REM projects succeed in starting and surviving mean that without public financial support in the start-up phase it will be difficult to see a high diffusion of REMs.

In this case, then, a policy offering financial support to REMs could provide different forms of additionality: project additionality, cognitive capacity additionality and network additionality.[13]

While central and local governments (and often firms themselves) tend to focus mainly on financial resources and institutions, they seldom address the key aspect of learning processes (Parrilli et al., 2010). Besides "hard" subsidies, "soft" policies (Aragón et al., 2012) focusing on fostering cooperative relationships, both intra- and extra-cluster, and promoting the diffusion of innovation by means of territorial "animateurs" are suggested.

To sum up, in the introductory phase, policy makers should encourage the adoption of an REM by financing the acquisition of know-how and technical infrastructure but also by identifying the possible pilot enterprises characterised by high export orientation, commercial vision and linkages inside the cluster, proposing them to adopt the model and later also encouraging its adoption amongst the least innovative firms.

[13] Additionality is a multi-dimentional concept (Molle & Djarova, 2009). Of interest to our paper are: project additionality (Davenport et al., 1998), occurring when the project is cancelled unless it is supported by public funding; cognitive capacity additionality, resulting in a positive impact on competences and expertise (Hyvärinen, 2005); and *network* additionality, when government support helps to create networks (OECD, 2006).

Our conclusions are instead in partial contrast to the statement that "without the creation of national and regional structures of innovation, the effort of clusters and districts would be too weak, since the relevant activities (e.g. R&D, advanced training, qualified technical assistance), infrastructures and institutions (e.g. R&D centres, laboratories, universities) are too expensive to be financed by small firms alone. Without these structures, the process of innovation would lack the "institutional thickness" that is necessary to make the system work efficiently and competitively (Amin and Thrift, 1994)" (Parrilli et al., 2010, pp.359–360). This case study has shown that there is no need to institutionalise the learning behaviour, but rather that the role of a technological gatekeeper is crucial in identifying possible innovations relevant to the local productive system and supporting its adoption and implementation. The most important issue is that both local leaders and external sources of knowledge look not only at the short-term economic gains but also at the long-term benefits deriving from an innovation project like an REM.

In the second part of the analysis some variables, such as the propensity to export and previous experience of e-commerce, were proposed as possible indicators of absorptive capacity and variables of Internet marketing as indicators of entrepreneurship and pro-activity in an e-commerce context. The degree of correlation between these variables and the performance indicators is low, at least in this first phase of activity. This means that there is also high appropriability of the results of this kind of innovation project within the least involved firms and investing fewer resources in the project, and some firms can be considered as "net sources" (Giuliani, 2005), transferring more knowledge and resources than they receive, within the system. These results lead to some policy suggestions, in order to limit the threats emerging from opportunism and free-riding.

Given the high level of spillovers, in fact, policy makers could favour the active participation of any member through a share in the participation fee, granted to firms showing pro-active behaviour. This is because the intensity of effort is critical and the REM performance is influenced by each single firm's effort.

To conclude, some limits of the analysis conducted and issues to be addressed in future research are pointed out.

First of all, a limitation of this paper is that focusing on a single case limits the generalisability of the findings, since SV is still in an early stage of its life cycle. Further research should examine and compare similar experiences in more advanced stages of development. A second limitation of the analysis is the availability of only 28 observations, which prevents the use of more advanced statistical tools such as multilevel models.

A further open issue to be explored in future research concerns the most appropriate territorial scale for the establishment of an REM. There is, in fact, a trade-off between a large

scale, which could mean a greater critical mass and visibility, and a smaller scale, whereby higher social capital would facilitate the creation of the network and greater homogeneity in the production would preserve a sense of typicality, which is very important for eno-gastronomic products.

Finally, future studies investigating the determinants of the performance of REMs of regional products should also consider the importance of the price factor in consumers' behaviour, since in e-commerce the price is the fundamental factor for determining consumers' behaviour, while usually for local specialities purchases are more influenced by the quality and place of origin.

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TABLES

Table 1 – Correlation between satisfaction variables and overall satisfaction

	Overall
Ec-gain	0.44*
Rel-gain	0.45*
Prom-gain	0.73***
Mktg-gain	0.47*
Image-gain	0.58**
Cross-gain	0.43*
No-gain	-0.67***
Mkt-gain	0.67***
Log-gain	0.63***
Services	0.33
BtoB	0.38*
Mark-up	0.64***

p < .001, "***"; p < .01, "**"; p < .05, "*"

Table 2 - Correlation between sales and variables of absorptive capacity

	PC_export	*PC_website*	*PC_e-commerce*
Tot	0.28	-0.05	0.33
Var	0.12	-0.08	0.11
Ec_gains	-0.01	-0.01	0.24
Overall	0.13	-0.12	-0.17

p < .001, "***"; p < .01, "**"; p < .05, "*"

Table 3– Significant correlation coefficients between variables indicating absorptive capacity and other variables

	PC_export	*PC_web-site*	*PC_e-commerce*
Educ	0.52**		
Services	0.41*		
Ade_trust	0.46*		
Foreign_mis	0.45*		
BtoB		0.39*	
Mkt-gain		0.41*	
Integr		0.52**	
Ties_bef		0.42*	
Ade_Free			-0.44*
Cross-gain			0.41*
Imp_BtoB			0.51**
Commitment			0.51**
Blog			0.59**

p < .001, "***"; p < .01, "**"; p < .05, "*

APPENDIX

Table A1- Characteristics of the respondents

Name	***Description***	***#***	***%***
Gender	*Gender of the respondent*		
	Male	17	60.71
	Female	11	39.29
Age	*Age of the respondent*		
	29-40	8	28.57
	41-60	17	60.71
	>60	3	10.71
Years	*Years of activity in the firm*		
	0-5	7	25.00
	6-20	10	35.71
	>20	11	39.29
Educ	*Education of the respondent*		
	Secondary	1	3.57
	High	18	*64.29*
	Graduate	7	*25.00*
	Post-graduate	2	*7.14*
Role	*Role in the firm*		
	sales/marketing/export	8	28.57
	Owner	8	28.57
	Managing director	7	25.00
	Partner	3	10.71
	Employee/collaborator	2	7.14

Table A2 – Characteristics of the firms

Name	***Description***	***#***	***%***
Empl	Number of employees		
	0-5	10	35.71%
	6-10	10	35.71%
	11-20	4	14.29%
	20-50	4	14.29%
Prod	Main activity of the firm		
	Wine and spirits	7	25.00
	Bresaola and cured meats	3	10.71
	Coffee	2	7.14
	Handcrafts	4	14.29
	Pasta and pizzoccheri	1	3.57
	Juices	2	7.14
	Sauces and other gastronomic products	7	25.00
	Cheese	2	7.14
Export	Export percentages		
	No export	17	60.71
	2	1	3.57
	5	1	3.57
	8	1	3.57
	10	3	10.71
	30	2	7.14
	60	1	3.57
	70	1	3.57
	90	1	3.57
Turnover	Turnover (€)		
	< 200.000	7	25.00
	200.000 - 500.000	2	7.14
	500.000 - 2.000.000	9	32.14
	> 2.000.000	10	35.71
Employees	Number of employees		
	0-5	10	35.71
	6-10	10	35.71
	11-20	4	14.29
	20-50	4	14.29

Table A3 – Dummy variables for firms characteristics (1 = yes, 2 = no)

Name	***Question in the questionnaire***	***# of 1 (yes)***
Wsite	Did you have a web site before SV?	26
E-comm	Did you have an e-commerce activity before SV?	6
For_Mis	Have you ever participated in foreign trade missions?	18
Perf_satis	Are you satisfied with the performance of your firms in the last 3 years?	21
Catalogue	Do you have a catalogue of your products?	23

Table A4 – Opinions about Store Valtellina, number of firms for each possible item of response

Name	***Description***	**#**			
	Opinion variables	*Strongly agree*	*Agree*	*Disagree*	*Strongly disagree*
Ec-gain	SV brought economic gains	2	12	9	4
Rel-gain	SV activated or consolidated the relations among entrepreneurs	7	8	9	3
Prom-gain	SV is a good promotional channel	5	18	4	1
Mktg-gain	SV diminished marketing costs	0	7	13	7
Image-gain	SV contributed to improve corporate image	6	15	6	1
Cross-gain	Sv increased the opportunities of cross-selling	5	9	6	6
No-gain	SV hasn't brought me any advantage	2	2	9	14
Mkt-gain	SV opened up new markets	4	9	10	5
Log-gain	SV diminished the distribution and logistics costs	4	7	10	6
Fee	A would be willing to pay a participation fee of 200 euros per year	1	4	9	13
Services	SV increased the services for clients	0	14	9	4
BtoB	SV contributed to generate contacts with new firms (BtoB)	1	5	13	8
Mark-up	SV allowed the mark-up to be increased	0	4	11	12
Overall	Overall, I am satisfied with SV	10	12	5	1
	If I could go back, I would confirm my adhesion to SV because...				
Ad_ec_gain	… it brought me economic gains	4	9	11	3
Ad_no_costs	… only because it was free of charge	8	9	9	2
Ad_rel_gain	… it brought me relational gains	6	11	8	2
Ad_prom	… it is an instrument of territorial promotion	9	15	2	2
Ad_future_gains	… of expected future economic gains	7	18	2	1
	Limits and suggestions variables				
Need_Mktg	The marketing plan should be more accurate	3	11	11	1
Need_fees	Entrepreneurs should be more involved, for instance by means of participation fees	1	5	15	5
Feed_selec	Need of greater selection of the participants (more quality)	1	7	14	4
Need_mass	Need of involving a critical mass of entrepreneurs also from other regions	0	6	17	3
Need_price	Need of diminishing prices and more special offers	0	8	15	3
Need_deliv	Need of diminishing the shipment costs	1	12	11	1
Need_graph	The graphics of SV web portal should be more engaging	2	6	15	3
Prod	The products sold are not well suited for e-commerce	0	3	15	8
Content	The portal contents are enough accurate and complete	5	17	4	0
Person	Greater opportunity of personalisation in the portal would be useful	2	9	14	1
Easy	The system and the organisational procedure are easily manageable	7	15	3	1
Support	Stronger training and tutorship for the single entrepreneurs would be useful	2	13	11	1
Integr	Better integration between SV and the corporate system would be useful	0	14	11	1

Table A5 – Participation and activity variables

Name	*Question in the questionnaire*		*# of 1 (yes)*
	I have joined the project following the advice of…		
Rec_entr	… another entrepreneur	1 yes, 0 no	15
Rec_Bank	… the Bank	1 yes, 0 no	1
Rec_Univ	… the University	1 yes, 0 no	2
Rec_ISED	… ISED	1 yes, 0 no	6
Rec_Cat	… Trade Union	1 yes, 0 no	5
Rec_other	… Others	1 yes, 0 no	4
Ade_comp	I joined the project in order to keep up with the competitors	1 yes, 0 no	3
Ade_trust	I joined the project for trust in the proposer	1 yes, 0 no	12
Ade_free	I joined the project because it was a promotional channel free of charge	1 yes, 0 no	13
Ade_comm	I adhered because I trusted in the project	1 yes, 0 no	22
Ade_org	I adhered because the requested organisational committed was not too high	1 yes, 0 no	6
Early_Ad	I adhered before the start-up	1 yes, 0 no	18
Later_Ad	I adhered after the start-up	1 yes, 0 no	9
	In order to spread the knowledge of SV (one or more choices)		
Link	I posted the link or the logo on the firm's web-site	1 yes, 0 no	13
Logo	I posted the logo on the package of my products	1 yes, 0 no	0
Recomm	I recommended it to other entrepreneurs	1 yes, 0 no	18
No_act	I haven't made any activity	1 yes, 0 no	4
Other_Know	I made other activities	1 yes, 0 no	8
	In order to improve the sales on SV (one or more choices)		
Promo	I made special offers for my products	1 yes, 0 no	19
Blog	I participated in promotional activities towards blogs	1 yes, 0 no	9
Web_mktg	I made web marketing campaigns addressing to my products	1 yes, 0 no	3
Other_sales	I made other activities	1 yes, 0 no	3
No_act_sail	I have not made any activity	1 yes, 0 no	7
	Social capital variables		
Ties_bef	Did you have ties with other firms before SV	1 yes, 0 no	17
	If yes, what kind of ties?		
Joint_pr	Joint projects	1 yes, 0 no	7
Consort	Participation in Consortia, associations	1 yes, 0 no	15
Corp_ties	Formal corporate ties	1 yes, 0 no	1
Foreign_mis	Joint foreign missions	1 yes, 0 no	8
Other_ties	Other	1 yes, 0 no	1
Projects_after	Projects started up after SV	1 yes, 0 no	4

Table A6 – Importance variables

Name	***Description***	
	Adhering to SV, to which aspects was your firm most interest in? (9 most important, 1 less important)	# of firm attributing 9
Imp_rel	Creation of strenghten of the relationships among entrepreneurs	6
Imp_image	Marketing and corporate image	1
Imp_sales	Increase in sales	2
Imp_terr	Territorial development and promotion	2
Imp_number	Increase in the number of clients	3
Imp_cross	Opportunities of cross-selling	1
Imp_mkts	New markets	2
Imp_BtoB	Increase in sales towards and contacts with new firms (BtoB)	4
Imp_mark	Increase in the mark-up	5