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Luca Cremona

University Cattaneo, lcremona@liuc.it

Tingting Lin

University of Turku, tingting.lin@utu.fi

Aurelio Ravarini

Univerity Cattaneo, aravarini@liuc.it

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THE ROLE OF DIGITAL PLATFORMS IN INTER-FIRM COLLABORATION

Complete Research

Luca Cremona, Lab#ID, School of Engineering, LIUC – Università Cattaneo, Castellanza, Italy, lcremona@liuc.it

Tingting Lin, TUCS, Turku Centre for Computer Science, University of Turku, Turku, Finland, tingting.lin@utu.fi

Aurelio Ravarini, CETIC, School of Engineering, LIUC – Università Cattaneo, Castellanza, Italy, aravarini@liuc.it

Abstract

Previous studies have widely focused on the adoption and usage of Knowledge Management Systems, namely KMS, within a single organization or within supply chains. However, these prior studies have provided little explanations of the relations behind knowledge sharing and transfer, and few studies have provided empirical results of KMS adoption within cluster of firms. In contemporary inter-organizational relationships, digital platforms have gained attention for the enabling and improvement of communication, knowledge generation and information diffusion. This paper focuses on the cooperation, coordination and collaboration among a cluster of firms engaged in the usage of a digital platform. By integrating qualitative enquiries and Social Network Analysis (SNA), we illustrate the role of a digital platform in the interactions of firms within this cluster. Our research integrates theories pertaining to cooperation, coordination and collaboration in a framework of multiple stages, and clarifies the role of digital platform in this framework. The paper aims to contribute both to academia bringing together cooperation coordination and collaboration within a new framework, and to practitioners by understanding digital platform usage under a new context.

Keywords: Digital platforms, cooperation, coordination, collaboration, cluster of firms.

1 Introduction

Contemporary organizations have set the effective use of information and knowledge resources as an important goal to reach. More than ever, business value is created through intellectual rather than physical assets and knowledge becomes the most profitable resource. The identification and exploitation of these resources is becoming central to organizational success (Roberts et al. 2012). Knowledge exists in several locations within an organization, including culturally embedded practices, documents, policies, and with individual employees (Cremona et al. 2012; Grant 1991; Grant 1996; Nonaka and Takeuchi 1995). With the growing strategic importance of knowledge management, more firms are implementing knowledge management systems (KMS), defined as “a class of information systems applied to manage organizational knowledge” (Alavi and Leidner 2001, p.114). Dealing with

knowledge sharing or transfer, most of the times, involves higher-level capabilities (Dussauge et al. 1992; Szulanski 1996); hence the competitive performance depends not only on how much firms know but also on how much they use what they know (Haas and Hansen 2005). By using the term “IT alignment” researchers refer to the capability and need of the whole technical structure of the information system to be aligned with the organization (Tiwana and Konsynski 2010): an high level of centralization in the organization, and therefore an high one for decision making, reduces the degree of mutual knowledge transfer between members of the same organization (Kim and Lee 2006). Nevertheless, it is relevant to design IT tools not only to manage knowledge sharing but also to understand how to select and manage knowledge resources. Moreover, many studies focused on the introduction of KMS within a single firm (Levine and Prietula 2011), leaving the issue almost unexplored at the inter-organizational level. To address this gap, we studied a digital KMS platform adopted by a cluster of firms. Digital platforms have attracted research attention since they enable and improve the communication within groups (Mansour 2009), the generation of knowledge (Wasko and Faraj 2005), and the diffusion of information (Singh 2005; Nieves and Osorio 2013). Several academics investigated different aspects of a digital platform. Henfridsson and Bygstad (2013) focused on “the generative mechanisms of digital infrastructure, that is, the causal powers that explain how and why such infrastructure evolves over time”. In particular, they studied how knowledge contributes in the evolution of digital infrastructure. Murphy and Salomone (2013) studied the usage of social media technologies applied for enabling knowledge transfer and “optimizing the management of tacit engineering knowledge”. Previous studies mainly focused on the inherence mechanisms of knowledge sharing and management by digital platforms, yet rarely speculated upon the objective and consequence of such knowledge processes. In our paper, we strive to investigate the mechanisms for cooperation, coordination, and collaboration, through the effective usage of a digital platform. We allocate our case study within a specific context: an industrial cluster of SMEs that have adopted and used a digital platform for business purposes. With both theoretical and empirical work, we address the following research question and sub-questions at the firm level:

- What is the role of digital platforms on the cooperation, coordination and collaboration in a cluster of firms?
 - How does the extent of prior cooperation affect the usage of the digital platform?
 - How is coordination enacted on the digital platform?
 - How do interaction networks on the digital platform relate to the subsequent collaboration?

The paper is organized as follows: Section 2 sets theoretical foundations around cooperation, coordination and collaboration. Section 3 presents the methodology applied for scrutinizing data. Section 4 presents preliminary findings and discussions. Section 5 draws conclusions and presents contributions and future works.

2 Cooperation, Coordination and Collaboration

In an industrial cluster, the close goal interdependency motivates organizations to cooperate (Deutsch 1949; Tjosvold 1984). Heide & Miner (1992) investigated the potential value of interactive perspectives on inter-organizational cooperation, and showed the association of both extendedness and frequency of interactions with joint cooperation. Later on Johnson et al. (1996) reported that cooperative alliances succeed when partners merge firm-specific assets for mutual advantage. This cooperative behaviour may have various motivations (Kogut 1988). It may reduce transaction costs without the costs of internalization, or provide competitive advantage (Neupert 1994), or gain organizational knowledge (Inkpen 1992). Moreover, trust is the key to a cooperative relationship

(Buckley and Casson 1988). A relationship without trust makes partners tentative in their involvement and reluctant to reveal their true motives. Within the cooperative cluster, the outcome of cooperation generates mutual assistance, fosters communication and positive attitude, and thus facilitates effective coordination to complete joint tasks (Deutsch 1949; Tjosvold 1984).

Differing from cooperation which is motivated by interdependency of goals, coordination aims to manage the interdependency of activities (Malone 1987) by aligning cognitive understandings within the cluster. Gulati and Singh (1998) have bridged the two concepts of cooperation and coordination by identifying the impact of anticipated coordination costs on the hierarchical structure of cooperative relationships. The design of work systems and processes for cooperative purposes has also been influenced by coordination theory (Crownston and Osborn 1998; Malone and Crownston 1990). Successful collaboration in form of joint activities derives from coordination with shared understandings on the collaborating tasks; otherwise, even with prior alignment of cooperative incentives, problems will still occur in collaboration activities, such as in decision making, task allocation, resource assignment, and conflict resolution (Milgrom and Roberts 1992). Unlike physical interactions such as meetings, a digital platform facilitates virtual interactions among cluster members at any time and place, and therefore can be an effective coordination tool in order to align members' cognitive understandings, and thus promotes the subsequent collaboration.

Mentzer et al. (2001) reported that a collaborative relationship exists among two or more commercial partners when they share business targets, projects, information, knowledge and risks, investing resources in order to synchronize activities and coordinate workflow. Enabling collaboration is typically the result of aligning physical and information processes for reaching common objectives. Therefore, successful collaboration entails the premises of both cooperation and coordination. One of the main outcomes of collaboration among different parties is joint activities, i.e. activities performed between different parties (e.g. organizations) act as an alliance on the market (Kent 1991). Past studies about joint activities between different firms were mostly focused on the creation of alliances. The emphasis was on alliances formation and alliances performances, instead of individual firm's performance (Beckman et al. 2004; Siggelkow and Levinthal 2003). In this paper, we identify the alignment of actions, i.e. joint activities, as a crucial outcome of collaboration, which is established to improve the market positions of both the cluster as a whole, and each firm individually.

Our theoretical framework is presented in Figure 1, linking cooperation and coordination as two important stages for activating collaboration in a cluster of firms. As previously described, trust is a key component in enabling cooperation between firms and facilitating the alignment of incentives between them. The following step, i.e. coordination, aims at enforcing shared understandings on the collaborating tasks thus producing as an outcome their alignment. The last stage in the framework is represented by collaboration that is enabled only if previous stages are reached. If so, the alignment of actions, such as joint activities, can be performed both at the firm and at the cluster level. The three boxes represents important and subsequent stages to go through in order to get to the collaboration one. We will elaborate, in the following section, our empirical study to identify the role of digital platforms within this framework.

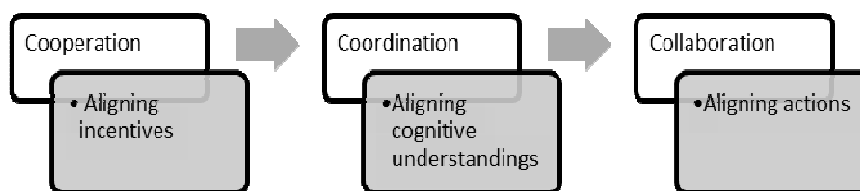


Figure 1. Theoretical framework

3 Methodology

The context of the empirical study was Lombardy Energy Cluster (www.energycluster.it/), a cluster of about 100 firms of small-medium size operating in the thermo-mechanical industry and located in Northern Italy. The cluster has been funded and coordinated since 2006 by EI, a development agency based in the territory where the companies of the cluster are located. EI had been carried out several initiatives to stimulate the firms to interact, such as exploratory analysis of the competencies of the firms and group business trips abroad to enhance the knowledge of specific foreign markets.

In January 2012, 28 firms belonging to the cluster, willing to increase their degree of internationalization by improving the sharing of knowledge about international markets, decided to jointly design and implement a web-based digital platform, called LE2012 (<http://ple.energycluster.it>). It is worth to note that a survey carried out by LC at the beginning of the project revealed that the 28 participating firms had very weak relationships, and most of them hardly knew each other.

The LE2012 platform, released in late 2012, has the typical features of a business networking platform, such as company profile pages, a wall where employees can publish posts, online thematic groups with restricted access and so forth. The project of development of the platform (funded by Lombardy Region) was led by EI and a research centre at LC, a university active in the technology transfer to small-medium enterprises.

LE2012 is a typical digital platform, i.e. a specific type information system for managing knowledge and information within different firms. It is worth noting that within the cluster there are firms that have supplier-customer relationships, and the entrepreneurial culture of this region is characterized by a diffused individualism (ISTAT 2014). Thus, these firms were not used to either share information about their processes and activities, or to act jointly on the market, e.g. engaging in joint sales activities, joint marketing promotions, etc.

Mixed methods are adopted in this case study, incorporating qualitative enquiries and Social Network Analysis (SNA). The mixed methods design is due to the exploratory nature of this research. Meanwhile, the usage of two methods enables corroboration between the findings. With this research design, we strive for multiple perceptions on the topical phenomena with different sets of empirical data (Mingers 2001; Venkatesh et al. 2013).

3.1 Data collection

As a major source of qualitative data, interviews were carried out with a pre-defined interview guide. A questionnaire, originally designed in English and later translated in Italian (with the contribution of a native English speaker), was used to carry out interviews. To get a higher data reliability and to evaluate the evolution of this platform, the interviews were carried out in two different timings, i.e. at the beginning of the project in October 2012, and in July 2013 when the firms had been using the platform. Specifically we conducted 17 interviews with the CEOs, marketing managers and/or sales manager in 6 firms selected as the most active members in the cluster (see Table 1), considering both their frequency of meeting participations and activities on the digital platform. The number of interviews carried out was 17 instead of 18 given that, during the second round of interviews, the CEO of MEC firm was not available for answering to the questions. Together with the interviews, in order to increase the validity of our coding and data analysis procedure, we aggregated multiple sources of evidence (Yin 2003): artefacts (i.e. extracts from the platform), documents from each firm (about performances and financial situations) and information from websites. The data were collected from both primary sources and secondary sources, including interviews, direct observations, participant observations, documentation, archival records, and physical artefacts (Yin 2003). We first collected data about the in-presence meetings during the initial phase of platform design, including social and

business meetings among the cluster members which aimed to explain the functionalities of the digital platform as well as to discuss the plans of usage once the platform would be up and running. Another set of collected data comes from the usage of the platform where different firms exchange knowledge and information, e.g. posts from different firms within the internal discussion forums. More information from the websites or firms' individual sections on the platform was also considered for the purpose of triangulation. Such data are, for example, the presentation of the firms, their activities, the representatives, their presence in foreign countries, and information regarding international projects (e.g. agents, branches or at least a contract).

The second part of data is collected and analysed leveraging the method of SNA (Wasserman and Faust 1994). Gulati (1998) suggests that social networks are valuable conduits of information that provide both opportunities and constraints for firms and have important behavioural and performance implications for their alliances. Therefore, SNA can provide meaningful information to complement and corroborate the qualitative data, especially data on the coordination of firms on the digital platform. For this purpose, we extracted interaction logs in the discussion forum within the digital platform, and linked the initiators of each forum topic with the subsequent repliers.

Firm Name	Number of Employees	Role of the interviewee	Age of the interviewee
NELLI	23	-Head of Special Projects	-30
		-Head of Production	-34
COLO	30	-Head of Marketing and sales	-40
		-CEO	-61
TERMI	25	-Head of Marketing and customer care	-57
QUADRI	31	-Councillor	-45
BOND	140	-Head of Marketing	-41
MEC	17	-CEO	-64
		-Head of Quality and customer service	-37

Table 1. An overview of the interviews

The interaction data for SNA spans from the beginning of 2013 when the digital platform is first available, until April 2014. From the data extracted, we collected the names of initiators and respondents, as well as their company affiliations, of all the interactive discussions. The networks are constructed at the firm level, i.e. we use the company affiliations as the basic nodes of network, and connect them according to their roles in the discussion. Figure 2 shows the basic construction of this network.

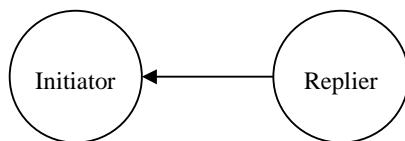


Figure 2. Basic unit of network

3.2 Data analysis

All interviews were tape-recorded and transcribed: the transcripts from the 17 interviews were aggregated into a case protocol helping the researchers in organizing data. The projects were encoded and structured using the software NVivo 10, following a grounded theory approach that aims at finding properties or links between data (Strauss 1987; Glaser 1992). The coding procedure was done as follows: first, in order to mitigate potential bias, the junior researcher (first coder) who had not taken part in the interviews read and coded the interview transcripts by identifying text passages that

included information about the constructs of the theoretical framework. Following the coding of the first coder the senior researcher (second coder), likewise, coded the transcripts. The comparison of the two coding resulted in an average inter-coder reliability of 85% according to Holsti (1969). The two coders then examined the mismatched coding and agreed on a final coding matrix that was used for the data analysis. The reasons for mismatches were discussed and solved, and most of the reasons seem to be clear, e.g. one coder had simply overseen an issue within a statement. Only in two cases when the reasons for mismatches were unclear, the third coder was called in as a referee. For the purpose of literal and theoretical replication, the instances of the theoretical constructs were determined for each firm whenever possible. A purposeful sampling strategy was pursued in order to stay in line with the research objectives and the multiple case studies design. In order to control for potential bias of organizational culture (Hofstede 1980), a pilot case study (Yin 2003; Dubé and Paré 2003), with aim to refine data collection plans and gain insights into the basic issues studied, was chosen which represents an Italian medium enterprise working in the thermo-electro mechanic industry; multiple case study on 5 firms to collect and analyse data to develop and test more robust theories.

The network analysis was realized with UCINET (Borgatti et al. 2002) using (1) visualization of socialgrams and (2) degree centrality, the number of ties connected to a certain node (Wasserman and Faust 1994) as the main index to reveal network connectivity and different actors' positions. As shown in Figure 2, the tie between two nodes is directed in our networks; therefore, we differentiate the Out-Degree and In-Degree in our analysis. Within our empirical context, Out-Degree means how many times one company (i.e. node) acts as replier participating in topics initiated by others, and In-Degree refers to the number of repliers to one company when it acts as the initiator. To be more specific, in a simple dyadic network as in Figure 2, the Initiator's Out-Degree is 0, and its In-Degree is 1; while the Replier's Out-Degree is 1, and its In-Degree is 0. In situations when a company initiates a topic with no replies, we set 1 as the value of its In-Degree. Furthermore, we read through each streams of forum discussion for qualitative analysis on the content of the topic, and identified the online interactions that elicit actual joint activities.

4 Findings and Discussion

The findings presented here are based on both qualitative and network data from January 2012 to April 2014. Though the data span a long period of time, the activities on the digital platform are still at a development stage: the participation of firms is increasing, but the platform is not yet fully exploited by the cluster.

It is worth noticing that given the voluntary nature of the participation to the platform, the 28 firms involved do not belong to any specific supply chain: some of them are direct competitors and a few of them have supplier-client relationships. This characteristic of the empirical domain of our study is coherent with the aim to investigate digital platforms beyond their traditional applications to support supply-chains.

Firms working in the same cluster have several chances to meet during local events or industry events mainly because they are typically located in close geographic areas. Managers and entrepreneurs have the chance to meet physically and to build relationships that could extend over firm's boundaries thus fostering trust among each other. Besides informal encounters, during the development of LE2012, formal business meetings were also held on a monthly basis. These meetings were organized with the official aim to practice the use of the platform, but their actual objective was to coach participants towards cooperation. In both formal and informal face-to-face meetings, the purposes and expected benefits of the platform became clear, thus the alignment of incentives was achieved among clustered

firms. Cooperation is established when firms are in concord with mutual interests, and trusting that working with others can bring support to their own business.

After the release of the digital platform in late 2012, the companies of the cluster began interacting online, and this led to a new degree of coordination, as well as to the resulting collaboration. The socialgram built with SNA illustrates the overall interaction network (Figure 3). The size and position of a node shows the centrality of each firm in the network. The more involved the firms are in the online interaction, the larger their nodes will be, and thus the more central they appear in the socialgram. Figure 3 visualizes the coordination networks, and the network configuration is in concord with the findings of our qualitative inquiries. Table 2 shows the detailed figures of both In-Degree and Out-Degree of all companies included in the online interaction network. When the platform went online firms started to post information about their internationalization interests, activities and opportunities, such as relevant trade fairs and tenders in foreign markets. Central initiators of the discussions are evident from both the socialgram (with the most arrows pointing towards them), and the centrality table (with the highest In-Degrees). According to Table 2, EI, NELLI, and LC are the most active initiators. Becoming aware of these opportunities, other firms in the cluster also started to comment and respond to these proposals. Table 2 clearly shows that the most active repliers are TERMI, BOND, and NELLI, who also occupy central positions in the socialgram of Figure 3. If we look closer at the centrality table (Table 2), EI and LC both have much higher In-Degree values than Out-Degree values, indicating their tendency to initiate topics rather than reacting to others' initiations. This corresponds to the roles of these two organizations as the moderators, and both have the purpose to facilitate discussion and propose news or new topics and monitor the effective usage of the platform.

According to SNA results, the influence of the platform for NELLI and BOND is on making them active both in initiating and replying to the topics, while TERMI tends to react to others' initiations rather than creating new topics. Correspondingly, in the interviews NELLI showed strong inter-firm connections, and that it has been very active inside the Energy Cluster. Their connections extended from social relationships to business contacts. On the other hand, interviewees from NELLI were active in the cluster both online and offline. NELLI, for example, has the youngest management team among the Lombardy Energy and the pool of firms investigated within the qualitative study. Within the digital platform, NELLI was also one of the top contributors, whose contributions are focused on publishing news and information regarding trade fairs, seminars or other important events. In synthesis, NELLI shows a clear willingness to use the platform to initiate collaboration with their partners. The platform represents an adequate tool for NELLI to initiate collaboration with their partners.

BOND is the largest firm among those investigated in the qualitative study. Maybe due to a corresponding higher availability of resources, the team from BOND using LE2012 - managed by the Marketing Manager - involves several interns and young workers, who are more used to interact with internet-based technologies. Young employees from BOND enjoyed the benefits of exploiting several functionalities, and they performed among the top contributors. The influence of the platform on the development of relationships for BOND was shown by its positive vision regarding the advantages it can obtain from the platform usage. More specifically, BOND's perceived business value of the digital platform is not limited to the firm internationalization, but is also tied to the chance of creating synergies between suppliers and customers within the cluster, thus improving the internal integration.

The digital platform is considered by TERMI as a useful tool for coordinating with other firms, but as of today, its biggest part of the supply chain is outside of the cluster. As a consequence, its main coordination activities are still based on the traditional communication channels. Moreover, TERMI's online activities of logging in and posting messages do not represent actual contributions to the discussion, because in most cases TERMI's users merely "thanks" other users for their contributions and "likes" other's users messages.

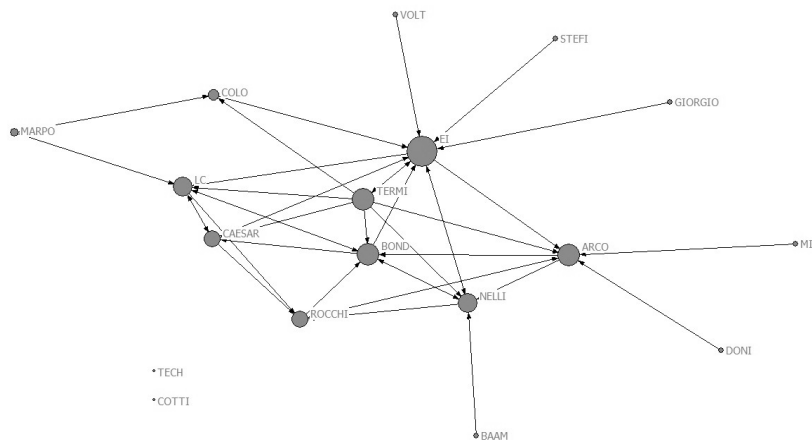


Figure 3. General online interaction network

COMPANY NAME	OutDegree	InDegree
TERMI	18	1
BOND	13	11
NELLI	11	21
EI*	5	67
ARCO	4	5
CAESAR	4	3
LC*	3	21
ROCCHI	2	4
MARPO	2	0
DONI	1	0
MIC	1	0
BAAM	1	0
COLO	1	2
VOLT	1	0
STEFI	1	0
GIORGIO	1	0
TECH	0	1
COTTI	0	1

* EI and LC are not firms of the cluster

Table 2. Degree centrality of general interaction network

Coordination occurs on the platform when firms start sharing information about their internal processes and their specific needs together. As a result of higher extent of knowledge sharing, firms started to gain more understanding about each other’s business and became equipped with sufficient information to foster actual collaboration as the eventual objective. The success of an inter-organizational digital platform does not only derive from its potential of enhancing competitive advantage, but also relates to its long-term sustainability.

Collaboration, in form of joint actions in the marketplace, is the core to meet the initial incentives of all the participating firms, generating benefits in the long term, which are otherwise hard to achieve by an individual firm. Figure 4 shows the interaction network on the digital platform, which resulted in subsequent joint actions. The number of nodes is smaller than in Figure 3, as some peripheral actors had not yet participated in the actual collaboration. However, most of the central actors in Figure 3 still retained their central position in the joint actions. Considering the degree centrality in Table 3, TERMI, NELLI, BOND are still the top-three companies with highest Out-Degrees; EI and NELLI are still among the most active initiators shown by the In-Degree values, but the activity of LC is significantly reduced in this network. Our qualitative findings corroborate this result since LC, the

university, could not take joint actions, such as joint tenders or joint activities on the market, with other firms in the cluster. Also similar with the general network, EI still tends to contribute more to the network by new initiations rather than reactions to others, while TERMI still behaves contrarily. In fact TERMI, one of the firms within the cluster, was interested to act jointly with other firms and showed this by proactively supporting other firms' comments. With high values in both In and Out-Degree, NELLI becomes even more central in this socialgram (Figure 4). Considering our qualitative findings, in this collaboration stage, firms having aligned cognitive understandings recognize the importance of exploiting business opportunities posted on the platform. Therefore sharing information on thematic groups or posting onto personal walls for each company changed the traditional way of communicating.

The availability of a wide range of information and knowledge, most of which deriving from central firms in the network, has positioned the cluster on better exploiting synergies deriving from shared opportunities. The most active firms started both to organize joint tenders on foreign markets and to prepare joint participation at trade fairs. Comparing across the two socialgrams in Figure 3 and 4, the consistency and nuances show the development and transformation from coordination to collaboration.

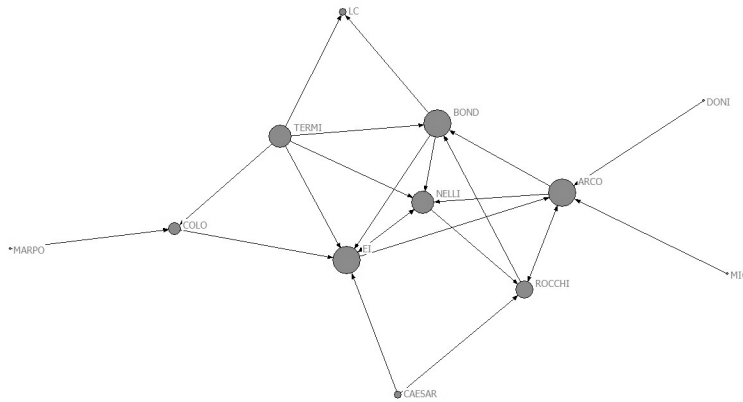


Figure 4. Online interaction network eliciting joint actions

COMPANY NAME	OutDegree	InDegree
TERMI	7	0
NELLI	7	6
BOND	6	3
CAESAR	3	0
EI*	3	17
ARCO	3	4
ROCCHI	2	3
MARPO	1	0
COLO	1	2
DONI	1	0
MIC	1	0
LC*	0	2

* EI and LC are not firms of the cluster

Table 3. Degree centrality of network eliciting joint actions

As an interesting results emerging from both interviews and SNA, we have identified two collective roles played by central actors in the network: activator (i.e. the most central business firms, such as NELLI, BOND and TERMI) and catalyser (i.e. the University and the Institution, such as LC and EI). Activators are the active participants in the business collaboration, while catalysers motivate and facilitate the interaction but do not participate in the actual business. Both roles are important actors on

the digital platform to push the evolution of network forward, from cooperation to coordination and eventually enabling the value-generating collaboration. To give an example, firms willing to jointly explore new markets enjoyed the opportunity deriving from a post by NELLI promoting their activities within the Balkan market. Without the platform, this opportunity will remain restricted to one firm only, who is perhaps unable to exploit the new market alone. On the other hand, catalysers can inform business actors about relevant opportunities and messages that stimulate participation and help to keep the discussion alive within LE2012.

5 Discussion, limitations and future research

This research provides contributions both to academia and practitioners. Due to its innovative field of application, i.e. digital platforms in a cluster of firms, theoretical contribution is expected given the integration of theories taken from cooperation, coordination and collaboration literature. Within the proposed framework a digital platform plays a pivotal role in leveraging cooperation outcomes from physical meetings as a way to facilitate coordination of firms for pursuing a common target. The collaboration of firms are shown by joint actions on the market, such as marketing campaigns, trade fairs, etc., which result from information and knowledge alignment during the usage of the digital platform. Based on the original research framework and our empirical findings, Figure 7 illustrates the role of the digital platform across the three stages of cooperation, coordination and collaboration. As presented within the original research framework, the alignment of incentives is reached throughout the participation to physical meetings where firms start to know themselves and share information about their processes. The alignment of cognitive understandings, resulting from coordination between firms, is the result of the influence of the platform on the development of relationships. Firms, by using the digital platform, start to organize around mutual needs and targets. Finally, having aligned physical and information processes for reaching common objectives, taking joint actions is the outcome of the collaboration stage.

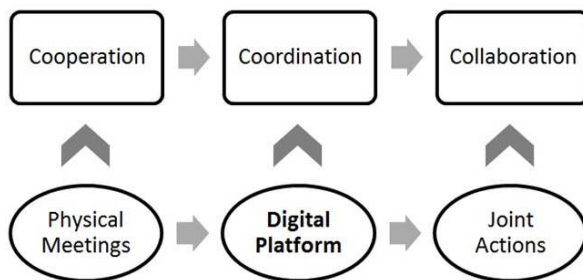


Figure 7. The role of digital platform in cooperation, coordination and collaboration

Moreover, methodological contribution is also expected given the innovative usage of a mixed method of SNA together with qualitative inquiries. The usage of SNA also provides practitioners an effective approach to assess strategically important networks, as well as to identify key actors to foster collaboration within a cluster of firms. This study has some limitations. Although we included all the 28 participating firms in SNA, we only conducted interviews in 6 of them; to develop the paper further, we would need to consider larger samples for the qualitative analysis, to enhance the generality and generalizability, as well as better orchestrating with the SNA results. On the other hand, although the SNA has included the whole network, we have only adopted simple analytics such as visualization and degree centrality; to deeper scrutinize the network dynamics and better explain the different emerging roles on the digital platform, more sophisticated approaches, e.g. structural holes, should be attempted in the future. On the selection of empirical case, the research considered only a

specific cluster; thus we call for future researches to consider and compare different clusters of firms using digital platforms. In addition, the present economic situation has influenced the usage of the digital platform by the firms in the cluster. Due to the crisis, many firms, especially small ones, have been focusing on reducing investments and resources. As a consequence, the so-called “secondary” activities, such as investment on IT tools, which do not directly generate monetary incomes, are not perceived important enough. In better economic conditions, the usage of the platform could probably be more active than the actual one.

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