

# Interconnections and political capital in a territorial development system

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*DRAFT*

*Summary. This paper proposes a frame for studying the interconnections that emerge within a policy network built to define and implement a territorial development strategy. Such a process includes diverging interests, conflicts and alliances that may result from the combination of multiple actors in a shared project. The relationship structure between the various actors defines their potential political capital (a specific form of social capital) within the institutional framework that organizes their interactions. An analysis of the graph of interconnections that characterize the regional development program for Picardy (France) highlights salient elements of this structure as the base of a formation processes for coalitions, enabling some actors to accumulate political capital in order to promote their interests.*

Research into territorial development converges towards the idea that the density of relationships that characterize the territory is a decisive factor (Amin and Thrift 1995; Cooke and Morgan 1998; Ansell 2000; Callois 2007). Indeed, territorial dynamics imply interaction between several public and private agents within a particular institutional framework. These dynamics can thus be understood in terms of co-construction (Kooiman 2008), involving a large number of participants (local authorities, firms, public agencies, professional bodies, associations, unions, training institutes, etc.). The challenge is to organize a dynamic context that enables multiple actors to agree to shared objectives and to make rules (Rey-Valette *et al.* 2008), with a view to building a relatively coherent collective action. Taiclet (2007) highlights the importance of compromise in this multi-level, multi-pole coordination process. Salais and Storper (1993) speak of “situated action”, referring to the various forces that confront one another and contribute to the drafting and implementation of political aims.

In fact, subsystems of interest intermediation must be set up for a territorial development project to be operational, and these subsystems include power relationships and complex links that can unite or separate actors, depending on their interests. The resulting bargaining games encourage actors to become involved in the process both upstream (in defining rules and orientations) and downstream (in applying these rules and orientations), to ensure that the outcome suits their objectives (Klijn 1997). Their power of influence is determined by the resources they directly control, as well as the relationships they can mobilize and the alliances they can form. This gives rise to the problem of interconnections between stakeholders, which determine their ability to intervene in such institutionalized processes in order to influence collective decisions in their favor. Studying their positioning and the structure of their links enables us to assess their power of influence within these subsystems and to detect the strategies used.

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The present paper offers an exploratory approach to interconnections between the public and private actors that characterize the regional economic development program (SRDE – *Schéma Régional de Développement Economique*) of the Picardy region in France. In the next section, we present the concept of political capital, a particular form of social capital, and the institutional characteristics of relationships that influence the formation of such capital within policy networks. Then, we address the interconnections observed within the Picardy SRDE, based on a graph structural analysis. Their asymmetrical nature is highlighted, as well as the positioning of agents, indicating strategies for accumulating political capital. Lastly, we look at the conclusions, limitations and paths for future research.

## **Subsystems of interest intermediation and political capital formation**

*From social capital...*

Following the proposals of Polanyi (1957), who asserted that the economy, embedded in economic and non-economic institutions, is an “instituted process”, Granovetter (1985, 1990) describes how a set of social, political and cultural rules penetrate the spheres of production and trade. This interdependence of social and economic factors is the basis for *reciprocity*, i.e. the principle of symmetry in social relationships that enables each individual to be both a receiver and a giver in exchanges.<sup>1</sup> The activity of an agent thus integrates relational dimensions whose origin must be sought in the social context and which can have a decisive influence on the agent’s economic activity. Within a firm, these reticular relationships are a crucial resource (Chisholm and Nielsen 2009) that can be used for economic purposes (Baron and Markman 2000; Biggart and Castanias 2001; Portes 1998), facilitating knowledge creation and transfer (Weber and Weber 2010).

The abundant literature on social capital explores this link (Bourdieu 1980; Lin 1982; Coleman 1988 and 1990; Burt 1992, 1995 and 1997; Putnam, 1993, 1995, 2000 and 2002). As a facilitator for coordination and cooperation aimed at mutual profit (Putnam 1993), social capital can be appropriated and transformed to a certain degree, acting as both a substitute and a complement to other forms of capital (Bourdieu 1980). Via the intermediary of social capital, actors gain direct access to economic resources. For Coleman (1988), social capital exists in the structure of relationships between and among actors; it is not housed within the actors themselves or in the physical means of production.<sup>2</sup> In this respect, the concept of social capital covers the structure and content of social relations (Adler and Kwon, 2002), as well as all the resources that can be mobilized by these relations (Fukuyama, 1999).

Several propositions have been formulated, criticizing the conceptual vagueness, usefulness, or even relevance, of this concept (for an overview, see Beugelsdijk 2009). According to this criticism, social capital, with no uniform definition of its signification or characteristics,<sup>3</sup> is more a generic troublemaker that leads to circular reasoning (Sobel, 2002) than an actual analytical category. Sobel also expressed doubts about its beneficial effect for the community

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<sup>1</sup> This view differs from that of Polanyi, who notes three kinds of economic integration: market exchange, redistribution and reciprocity. Following Cordonnier (1997), we consider reciprocity to be a necessary condition, including for simple and non-repeated exchanges.

<sup>2</sup> Nevertheless, one might suppose that there is a link between the resources that an actor controls autonomously (“his” technologies, equipment, financial capital, etc.) and his capacity to enter into relations with other actors and to trigger behaviour that is favourable towards him (and thus to create social capital).

<sup>3</sup> On this topic, refer to the contributions gathered in Dasgupta and Serageldin (1999).

in the broad sense. In the theoretical framework proposed by Olson (1965), social capital could be the fertile ground of “bandits” that impose their own selfish interests on the majority of citizens. Moreover, phenomena of locking in inefficient interactions may hamper efforts to obtain better performances. In addition, while the resources mobilized via social networks may be valuable in a given context, they can also thwart action in a different context. Lastly, a single relational structure may favor the completion of some actions, while making others more difficult to accomplish. We can thus speak of the opportunity cost of social capital, as the constraints and benefits attributed to it go hand in hand.

*...to political capital*

Some contributions criticize Putnam for underestimating the role of the state, the government and, more generally, institutions in the formation of social capital (Evans 1996; Brehm and Rahn 1997; Maloney *et al.* 2000; Lowndes and Wilson 2001; Sobel 2002).

Note that Bourdieu (1980) highlights the affiliation with certain institutions that confer “institutionalized cultural capital”. Collier (1998) proposes distinguishing between “government” social capital and “civil” social capital. The former refers to the institutions (mainly formal) set up by the government and intended to materialize goals that would be impossible to attain via the market. The latter concerns the institutions of civil society, in which informal rules are predominant. Collier adds that civil social capital and government social capital may be substitutable and complementary. Thus, Knack (1999) studies the role played by social capital in growth, adopting the categories proposed by Collier, while other contributions look into the relationship between social capital and the quality of institutions (Brunetti, Kisunko and Weder 1997), the characteristics of the political system (Alesina and Rodrik 1994) or political instability (Isham, Kaufmann and Pritchett 1997).

Moreover, works on the *non-market* (Baron 1995a and 1995b), while fitting within different theoretical perspectives (Boddewyn 2003), highlight the interactions and interdependence between the public and private spheres. For a long period, these two spheres were assumed to be autonomous and characterized by different – or even diametrically opposed – rationales, but they are now viewed as being interconnected via complex links that both influence actors’ strategies and are the object of the said strategies.

Within the framework of territorial development policies, subsystems of interest intermediation are built to provide a certain degree of convergence in objectives. These are policy networks that organize the interactions between public and private actors (Rhodes 1981 and 1986; Wilks and Wright 1987; Rhodes and Marsh 1990; Kickert *et al.* 1997). These networks are relatively stable and lasting thanks to their institutional characteristics (*inter alia*, procedures for decision-making and working in concert, resources allocated to the network, organizational forms and rules that govern the interactions of stakeholders). In our view, these formal institutional systems have an influence on the formation of social capital, or even make up the framework for the formation of a special kind of social capital that we will call *political capital*.

We define political capital as the capacity to influence and mobilize the stakeholders involved in a specific field (or *issue area*, to use Brewer’s term) of social life, with a view to setting the orientations for public policy covering this issue area. Depending on their interactions, public and private actors may (or may not) have the political leverage to potentially influence collective decisions and orientations. Following the path laid out by Pfeffer and Salancik (1978), we can consider private actors to be frequently dependent on public actors that provide certain resources needed by the private actors to achieve their objectives. Several

aspects of private actors' activity are negotiated with public agencies, whose action is a major source of potential gains or losses. At the same time, through these interactions, public actors obtain strategic information, or can in turn influence individual strategies, which is a necessary condition for implementing effective policies.

This interdependence is a source of strategic uncertainty. It triggers domination behavior on the one hand, in order to constrain holders of crucial resources, while on the other hand, it leads to behavior aimed at stabilizing the environment by forming lasting relations. Several aspects of this process have been studied in research into economic agents' political strategies (Baron 1995 and 2001; Baysinger 1984; Boddewyn 1988; Boddewyn and Brewer 1994; Hillman and Hitt 1999), which cover all activities undertaken with the intent to orient, affect or influence public action (Epstein 1969; Yoffie 1988), and more generally, to develop and use the power of influence to obtain an advantage in a situation of diverging interests (Mahon 1993). These strategies may be interpreted as a manifestation of a desire to accumulate political capital with an impact on the possibility to weigh in on the allocation of resources managed by public authorities and on the outcome of decision making that affect particular fields. Depending on their means, organizational capacities and competence, actors will thus endeavor to affect these interdependences (Brewer 1992), by targeting access to institutional resources (Oberman 1993; Dahan 2001), which cover notably implementation of institutional systems and their output (i.e. resource allocation, setting of rules and standards, etc.).

The numerous ways to build up political capital ultimately come down to the possibility to intervene in systems of institutionalized action that bring together public and private actors (Rizopoulos and Sergakis 2010). Local policy networks are such idiosyncratic systems that, depending on their structural characteristics and the position of actors within them, imply differentiation in terms of the possibilities for political capital accumulation.

Thus, whether these networks are open or closed defines the relative pluralism of actors with power to influence, as well as the type of links – strong or weak – that bind these actors. In the perspective of Bourdieu and Coleman, closed networks chiefly ensure the effectiveness of social (political) capital. These authors insist on the importance of strong, repetitive links, either due to awareness of belonging to a group (Bourdieu), or because a closed network maintains shared confidence and norms (Coleman). Conversely, Burt and Granovetter emphasize the bridges and juncture points in the transmission of information and flow of influence. Therefore, these two authors consider open networks to be more favorable to social (political) capital accumulation.<sup>4</sup> Within a closed policy network, strong links imply processes of convergence between actors and irreversibility (Callon 1991). Within an open network, weak links between a larger number of participants, combined with a limited degree of interdependence, yield an abundance of information but also include structural holes that may have an undetermined impact on political capital accumulation.

As for the position of actors within policy networks, it is determined by the resources they control directly (i.e. financial, technological or productive power) and indirectly (i.e. density of links with other actors, centrality, and whether or not they are caught in structural holes). This position will be more favorable when autonomously-held resources are substantial and contacts are numerous and not interconnected. Their political capital is thus proportional to

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<sup>4</sup> The effectiveness of closed and open networks is contingent, and their respective advantages depend on which problems need to be resolved (see also Lin 2001). Thus, closed networks would be more efficient when the purpose is to preserve resources, whereas open networks would offer greater possibilities for seeking and acquiring new resources.

the number of links and structural holes in their relational environment (see also Mercklé 2004).<sup>5</sup>

In the second section of the paper, we will characterize the policy network aimed at accelerating economic development in the French region of Picardy, and examine the interconnections among the actors involved.

## **Characteristics of the policy network and data building**

Partnerships between public actors and civil society in the large sense are a new characteristic of many national and regional development policies in Europe. The SRDE (*Schéma Régional de Développement Economique*) in France, instituted by the Law of 13 August 2004 on local-level freedoms and responsibilities, fits in this context. The SRDEs are based on a delegation of power to the regions, during an experimental five-year basis, in order to draw up a plan for coordinating economic development policies. They set up new methods for public-private partnerships and their main objectives are notably to create an environment conducive to competitiveness and the development of businesses, while taking into account the specific features of small and medium-sized enterprises (SMEs).

The implementation of the Picardy SRDE resulted from a consultation process that began on 7 February 2006, grouping together firms, State institutions, professional bodies, civil life associations and representatives of the local government. In order to favor working in a group, 17 thematic committees were announced, 15 of which were actually created (see Appendix 1), while 16 roundtables and debates were organized across the region. To encourage participation by those who were unable to attend the debates, an Internet forum was also created to gather comments and suggestions.

Involvement in the thematic committees sustains mutual recognition and legitimacy and, despite the lack of formal decision-making, participants have the possibility to secure that their interests will be taken into account. The fact that all the major local players – at the exception of trade-unions – actively participate in these committees underlines the importance they attribute to the SRDE.

Given these characteristics, the Picardy SRDE is typically an open policy network with weak links, which are particularly conducive to the formation of coalitions based on certain interests and objectives. This open aspect may evolve, however, depending on the actors' involvement and the links formed among them. Indeed, dense interaction of core participants may lead to the exclusion or gradual isolation of peripheral actors

An analysis the Picardy SRDE network opens up the possibility of apprehending the structural characteristics of this links and obtaining an initial assessment of the stakeholders' political capital. In other words, the density and shape of interconnections within this policy network reflect the actors' ability to capitalize on strategic resources and to influence collective action.

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<sup>5</sup> According to Burt (1992), an actor's strategy must consist of minimising the connections among his relationships, in order to maximise the structural holes around it. However, one may doubt an actor's ability to have an exact idea of structural holes and capacity to "manipulate" them, as this would imply an assumption of substantive rationality. An actor may, in the best of cases, endeavour to influence the formation of structural holes around him depending on his *perception* of the links between actors inside the network.

## *Methodology*

The mathematical properties of graphs enable representation of the structure of connections for a complex network. Various methods, such as the building of networks of acquaintances or “communities of interest” (Paolillo *et al.* 2006), may be used. Moreno (1933) introduced the concept of a star to designate the persons with the most relationships in a social network, using the example of a node and its connecting lines. We argue that a star structure suggests political capital built up within the SRDE policy network and translates actors’ ability to influence decisions regarding the issue-area in question.

Apart from the star structure, several other indicators round out the assessment of the stakeholders’ political capital:

- *Density* which indicates the quantity of links within a network and defines its cohesiveness. According to Scott (2000), this measure can also be used in an ego-centered analysis, which consists of measuring the density of links around a node.
- *Betweenness centrality* which is linked to the concept of structural hole, i.e. a void between two non-redundant nodes (Burt 1992).
- *Closeness centrality* (Freeman 1979) and ego-centered centrality (Everett and Borgatti 2005) enable a topography of agents within the network based on their levels of influence.
- The *clustering coefficient* which corresponds to the line between two vertices linked to the same node, expressed by the ratio of the number of triads to the maximum number of triads in the network.

Our approach consists of assessing the importance of interconnections between actors, based on the frequency of their encounters inside the thematic committees of the Picardy SRDE. Obviously, this is only a partial proxy which may elude other types of formal or informal relations linking actors. What is more, participating in the same committee does not necessarily imply shared goals or, conversely, conflict of interests. Meanwhile, the objective of the paper is just to identify the links which could indicate coalition formation processes enabling political capital to be accumulated, not to reveal effective actors’ coalitions. In this sense, we consider as plausible that frequent encounters reflect multiplex relations and the interconnections of the groups involved via the individuals representing them.

## *Building data*

In an initial stage, we built a database taking account of participants that took part in at least one thematic committee, based on the minutes of the said committee meetings. This ultimately corresponds to a population of 218 individuals (n=218), representing actors with specific characteristics (i.e. sector of activity, public or private; union; association, etc.).

Next, we made an ad hoc breakdown of SRDE participants into four major *statuses*: public, private, unions and associations. We then examined these four statuses to define 13 *groups* of actors, given notably the formal goals laid out in either their articles of association, or in the working documents describing their missions.

- *Public*. Pu1: State representatives; Pu2: local authorities; Pu3: consular chambers; Pu4: foreign trade agency; Pu5: scientific research and universities
- *Private (firms)*. Pr1: primary sector; Pr2: secondary sector; Pr3: tertiary sector
- *Unions*. Un1: employers’ unions; Un2: labor unions

➤ *Associations.* As1: associations for job training and reinsertion, professional associations and assessment institutes; As2: associations for financing, creating, purchasing or selling businesses, as well as economic development structures; As3: innovation, technological research, school/company interface.

Two groups, Pr1 and Un2, had no representatives in our sample. In fact, the primary sector (i.e. farming) and labor unions do not take part in this policy network. Given the importance of the SRDE, this fact prompts us to wonder whether all interests are fairly represented in such a set-up. We therefore have 11 groups of actual actors.

**Table 1. Groups of actors and their respective populations**

<i>S1 (public sector) →</i> <i>5 groups</i>	<i>S2 (private sector) →</i> <i>3 groups</i>	<i>S3 (unions) → 2</i> <i>groups</i>	<i>S4 (associations) →</i> <i>3 groups</i>
<u>Pu1</u> : <b>17</b>	<u>Pr1</u> : <b>0</b>	<u>Un1</u> : <b>10</b>	<u>As1</u> : <b>11</b>
<u>Pu2</u> : <b>40</b>	<u>Pr2</u> : <b>33</b>	<u>Un2</u> : <b>0</b>	<u>As2</u> : <b>21</b>
<u>Pu3</u> : <b>45</b>	<u>Pr3</u> : <b>22</b>		<u>As3</u> : <b>22</b>
<u>Pu4</u> : <b>11</b>			
<u>Pu5</u> : <b>20</b>			

Using the SPAD data treatment software (version 7.3), we processed the data collected, which were then laid out in a Burt Table.<sup>6</sup> Next, we carried out a Multiple Correspondence Analysis (MCA) by projecting the coordinates of various modalities, which enabled us to position the individuals representing various actors (mixed classification). The variables represent the identified the 13 “committees” and “statuses” (Cx, S1, S2, S3 and S4) and the active modalities represent the 22 “committees” and “groups” (C1...C9; Pu1...Pu5; Pr1...Pr3; Un1, Un2; As1...As3). The trajectories of these modalities give an initial insight of interconnections among groups of actors characterizing the SRDE policy network.

This projection method divides the plane into two opposite half-planes, and enables observation of the variables that have different and those that have atypical characteristics. The projections are made based on criteria of resemblance and dissemblance between individuals, following the codification of the database (i.e. the individuals that are part of a particular committee and have a particular status). The axes on Chart 1 (left/right: private/public, and up/down: political/economic) are defined compared to the highest relative contribution of the variables and modalities. For instance, committee C2 makes a high positive contribution on axis 1, as does the As2 group, which is the opposite of Pu5.

### **Issue area classes within the Picardy SRDE**

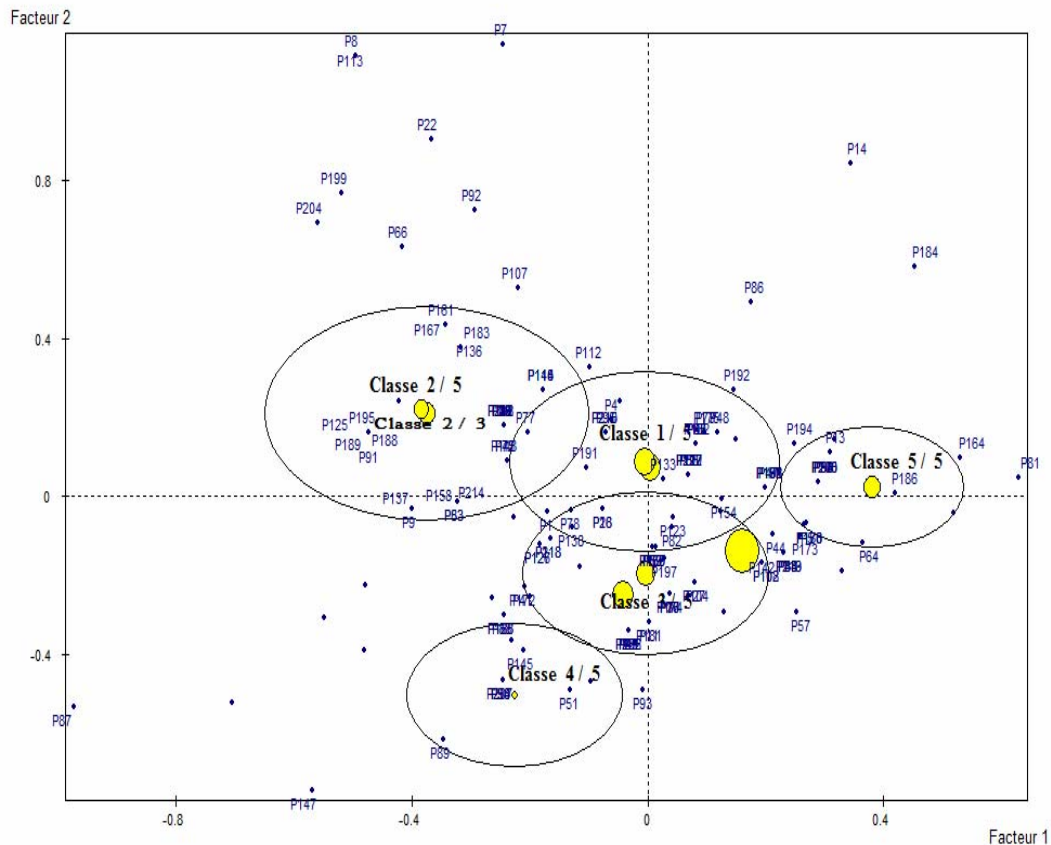
An analysis of the data highlights five issue area classes with specific characteristics. These are made up of different representatives of the groups defined above, who create links within the committees concerned, with differentiated frequencies of participation.

<sup>6</sup> To build this table, the qualitative variables are divided by the number of modalities. The table includes as many columns as modalities and as many rows as individuals. It is made up of elementary contingency tables between all variables, taken two by two.

The average profile of actors in the SRDE is distinguished by participating in a single thematic committee, having a single status. Indeed, of the 218 actors, 197 participated in a single committee, and only 15 actors held multiple statuses, belonging to at least two different sectors of activity (S1, S2, S3 or S4).

We note that the individuals in class 1 are the closest to the average profile of actors in our database. Some actors belong to two classes at the same time, as we can see for issue area classes 1 and 3.

**Chart 1. Issue area classes in the Picardy SRDE**



**Class 1 - Innovation and Exports “IE” [C3 + C8 + Pu4 + Pr2]:** *Committee on the international dimension of economic action + Committee on plastics and composite materials + Foreign trade agency + Secondary sector.*

Class 1 appears to show a convergence of the groups involved towards problems and actions related to promoting Picardy firms abroad and shifting from traditional mechanical industries to composite materials activities. The connections between groups Pu4 and Pr2 would be an illustration of public/private cooperation in this field.

Advisors for foreign trade, as well as members of consular chambers (chambers of commerce & industry, crafts & trades, or agriculture), are mandated by the State and regional authorities to implement public policies in the field of economic development. Made up of public institutions with a unique status (i.e., presided by elected officials), the chambers of commerce and industry, as well as chambers representing craft and trades, are crucial partners for the development of small and medium-sized enterprises, trade, crafts businesses and



services. Their main mission is to represent a specific category of economic actors when dealing with public officials, to carry out public service missions (give access to – partially public – financing, supporting the development of firms, participating in training, etc.).

Advisors for foreign trade are organized into a non-profit association under the Law of 1901, but the members are executives or managers of private firms and are appointed for three-year terms by a decree from the Prime Minister, following nominations from the minister in charge of foreign trade. These advisors are mainly tasked with aiding SMEs in their international development within a framework of sponsorships. They also provide advice to public officials. While these participants are working on a volunteer basis, the question of their objectivity can nevertheless be raised, as they are both “judge and jury”.

**Class 2 – Employment and integration “EI” [C1 + C7 + C8 + Pu5 + Pr2 + As1]:** *Committee on construction, jobs and professional integration + Committee on health + Committee on plastics and composite materials + Public institution for scientific research + Secondary sector + Integration and professional qualifications; groups of professionals; observatory and assessment centre.*

In Class 2, we note that a larger number of individuals took part in committee C1 than in the other committees. This is probably due to the weight of the construction sector as a provider of jobs and professional integration in Picardy, which is one of the targets of the SRDE. In 2008, the construction sector recruited 8,117 workers in Picardy, 4,738 of whom had never worked in this sector before (source: UCF and CCCA-BTP, 2008).

It appears plausible to consider that the actors taking part in this thematic class have converging objectives. With regard to C1 and As1, their objective would be employment, integration and professional qualification. C8 and Pu5 would contribute to the same objective within the construction sector in order to make it more competitive via innovation. At the same time, problems related to the high physical strain of these jobs (C7) are a source of concern for group Pu5.

**Class 3 – Economic policy and territorial development “EP-TD” [C3 + C5 + C8 + C9 + Pu2]:** *Committee on the international dimension of economic action + Committee on logistics and transport + Committee on plastics and composite materials + Committee on business services and outsourcing + Local authorities.*

There appears to be a certain coherence to this class in terms of the objectives announced by the various groups present, aimed at developing the region. The local authorities’ priorities include favoring the activity of firms in the region, whereas firms seek to sell their products on the domestic and export markets. Thus, economic action works towards this, while logistics and transport are major supports.

We can consider that C3 + C5 work to increase the exports of firms in the region. C8 + C9 + Pu2 aid in establishing economic policy aimed at the region’s attractiveness via the competitiveness of local firms.

We note that no actor in this class is part of status S4 (As1...As3), and few are members of status S2 (Pr1...Pr3). In other words, firms, consular chambers, professional associations and civil society seem to show little concern about regional development policies.

**Class 4 – Technology transfer and corporate research partnership “TT-CRP” [C4 + As3]:** *Committee to promote research and innovation + Innovation and technological research; school/company interface.*

This thematic class is decisively focused on creating value through innovation, which is at the heart of the SRDE system. R&D, protecting R&D results via intellectual property rights,

technology transfer and partnerships between scientific teams and firms are considered to be sources of competitiveness.

Representatives of As3 group working inside the C4 committee target these objectives. However, once again, we could wonder about the absence of private firms (Pr1...Pr3), or even representatives from group Pu3 (consular chambers)..

**Class 5 – Creation, purchasing and selling of firms “CBSF” [C2 + C6 + Pu3 + As2]:** *Committee on the creation, purchasing and selling of firms + Committee on very small enterprises and trade + Chamber of commerce + Financing, creation, purchasing and selling of firms; Economic development.*

Like the previous class, Class 5 follows the same rationale, with the entities present sharing common goals. Group As2, committees C2 and C6 and the unique status of group Pu3 appear to indicate a confluence of interests on questions involving support for entrepreneurial activity via programs to support entrepreneurial activity.

The phenomena of creating, purchasing and selling firms are important factors for regional economic strength. Faced with the acceleration of business owners retiring, the challenges of selling/purchasing firms are taken into account in the drafting of the SRDE in order to foster new business creation, but also to safeguard, develop and transform existing firms.

The sale of a firm is a complex and generally lengthy process, so a network is set up to facilitate the exchange of information, access to the various forms of aid for those selling or purchasing a firm, and bank guarantees for acquirers.

## **Interconnections and political capital**

Using the same database [individuals (Px): n=218; variables: v=2, committees (Cx), and statuses (Sy); modalities: m=22 (C1...C9; Pu1...Pu5; Pr1, Pr2, Pr3; Un1, Un2, As1, As2, As3)], we have created a complete disjunctive table (see Appendix 2).<sup>7</sup> Our objective is to determine the structural features of the SRDE network and to identify influential actors within it that may have substantial political capital.<sup>8</sup>

We used the SocNetV rev. 0.81 software,<sup>9</sup> which is a graphical application for social networks analysis and visualization. The program can also calculate network statistics and properties such as distances and centralities.

In an initial stage, we crossed actors (Px) and the committee variables (Cx). This enables us to assess the intensity of interconnections. As the actors were selected according to their participation in at least one committee, we would expect to see a graph with high density (Appendix 3).

Next, we crossed actors (Px) with all the modalities (m) to draw an interaction graph, in order to determine which actor has the most links to others, as well as to characterize the network (Appendix 4). The interaction graph (layered betweenness) shows several pieces of information. We note the presence of “bridgehead” leaders in the network. These share the

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<sup>7</sup> The table is built so that an “x” is indicated in the committee column if the agent (Px) participated in this committee. Likewise, an “x” is indicated in the status column if the agent is part of the sector of activity.

<sup>8</sup> A further analysis consists in picking out the various communities of interests emerging inside the network which is not developed in this paper.

<sup>9</sup> <http://socnetv.sourceforge.net/index.html>

characteristic of grouping together several nodes around them. They benefit from a central position, suggesting that they are intermediaries between different communities and that they are close to structural holes. For example, P87, representing two sectors of activity, interacts with several other actors, participating in seven out of nine committees. We can assume that this intense presence is motivated by the possibility of accumulating political capital (through legitimacy, knowledge of the network, etc.), thus being able to better defend his positions and those of his group.

The network of actors in the SRDE, representing 218 nodes and 25,690 links (lines), is fairly dense in terms of interconnections (density = 0.53321). To make the graphs easier to interpret, we have chosen not to show the values for the 218 nodes and to only use the remarkable values (max, min, average, fairly strong and strong) for each indicator calculated.

By calculating the closeness centrality, we can assess an actors' ability to reach or be reached by another actor.

**Table 2. Closeness centrality<sup>10</sup>**

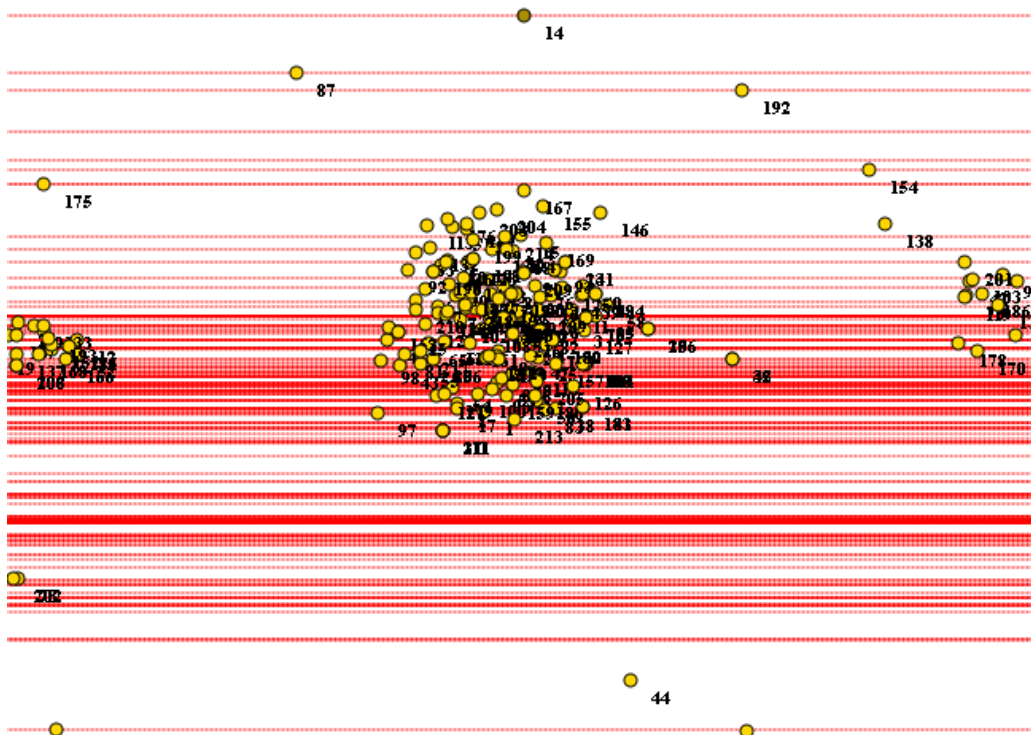
<b>Remarkable value</b>	<b>Node</b>	<b>CC</b> <i>CC range:</i> <i>0 &lt; C &lt; 0.00460829</i>	<b>CC'</b> <i>CC' range:</i> <i>0 &lt; C' &lt; 1</i>	<b>% CC</b>
<b>Average</b>	P11	0.00330033	0.716172	0.473006
<b>Max</b>	P14	0.00458716	0.995413	0.657435
<b>Fairly strong</b>	P18	0.00304878	0.661585	0.436953
<b>Min</b>	P92	0.00249377	0.541147	0.357408
<b>Strong</b>	P192	0.00448431	0.973094	0.642694

We note that *P14* is a central actor in this network, as it has the maximum value. Given that its overall closeness index is closer to 1 than 0, this means that it is a central node. Likewise, the other nodes with values close to the index for *P14* are also considered to be central nodes: *P87*, *P163*, *P154*, and *P192*.

Among these nodes, we note that P14 took part in only one committee (C3). However, this actor makes part of four different groups (Pu3, Pu4, Pr2 and Un1). This accumulation of functions enables him to reach other actors of this network through different channels. *P14* is a typical example of an actor that accumulates political capital thanks to his multi-positioning in the Picardy region.

<sup>10</sup> CC is the inverted sum of the distances of node u from all other nodes. CC' is the standardized CC.

**Figure 2. Linear view of the network's centrality**



We also observe that *P14* is the actor with the highest betweenness centrality (Table 3). However, as the relatively low average value of the betweenness centrality indicates, the graph is not very centralized overall and is more a circular shape than a star. This configuration is explained by the fact that 90% of the actors took part in just one committee.

Following *P14*, the structural position of *P192* shows also a high betweenness centrality. Both actors have virtually the same profile and attributes (C3, Pu3, Pu4, Pr2), with just one exception: *P192* does not represent an employers' union. We can thus formulate the hypothesis that for the Picardy SRDE policy network, the accumulation of political capital is linked to this type of profile, which notably combines the positions of chamber of commerce representative and advisor for foreign trade.

**Table 3. Betweenness centrality<sup>11</sup>**

Remarkable value	Node	<i>BC</i> <i>BC range:</i> $0 < BC < 23436$	<i>BC'</i> <i>BC range:</i> $0 < BC' < 1$	% <i>BC</i>
Average	P11	9.80699	0.000418458	0.0898323
Max	P14	459.177	0.0195928	4.20607
Fairly strong	P18	169.1	0.00721542	1.54897
Min	P92	2.90988	0.000124163	0.0266546
Strong	P192	409.744	0.0174835	3.75327

<sup>11</sup> BC of a node *u* is the sum of  $\delta(s,t,u)$  for all *s,t* in *V*, where  $\delta(s,t,u)$  is the ratio of all geodesics between *s* and *t* which run through *u*.

It is worthwhile that the clustering coefficient shows a high stress index for *P14*, which corresponds to a high level of activity within the network (“overactivity”). Like *P14*, other actors have a high stress index (*P192* and *P44*).

**Table 4. Clustering coefficient<sup>12</sup>**

Remarkable value	Node	Stress			ClusterCoef CLC CLC range: $0 < C < 1$
		SC SC range: $0 < SC < 23436$	SC' SC' range: $0 < SC' < 1$	% SC	
<b>Average</b>	P11	585	0.0249616	0.0905141	0.486873
<b>Max</b>	P14	21748	0.927974	3.36496	0.270311
<b>Fairly strong</b>	P18	5726	0.244325	0.885955	0.252248
<b>Min</b>	P92	187	0.00797918	0.0289336	0.431373
<b>Strong</b>	P192	20089	0.857186	3.10827	0.27781

Indeed, *P44* has a profile similar to those of *P14* and *P192*. He participated in the same committee (C3) and benefited from a combination of statuses, both public and private (Pu2, Pu3 and Pr3). He also benefits from a territorial anchoring, like the two others, and manages an entity in charge of economic and social development. Finding *P14* and *P192* beside *P44* strengthens the results of the betweenness centrality analysis.

**Table 5. Stress index for agent P44**

Node	SC	SC'	% SC	CLC
44	9414	0.4017	1.4567	0.3483

## Conclusion, limitations and paths for future research

Our analysis of the structural characteristics of the Picardy SRDE policy network has identified interconnections that make up the fertile ground for political capital formation. We observed that the SRDE is a complex, multi-actor and multi-level network, but also an open one. This does not prevent some actors with specific profiles to hold a central position, enabling them to accumulate political capital that can be mobilized to give rise to confluences or to manage conflicts of interest.

These results open the path to a more detailed representation of the interactions between public and private actors in policy schemas aimed at territorial development. At the same time, this research reveals several difficulties and limitations, which also form paths for future research.

<sup>12</sup>  $SC(u)$  is the sum of  $\sigma(s,t,u)$ : the number of geodesics from  $s$  to  $t$  through  $u$ .

At first, there is a problematic aspect to working towards a shared territorial project, not just because of the possible divergence of interests and resulting conflicts, but also due to the relative ambiguity in the roles of the various stakeholders and a failure to decipher their hidden interests. Indeed, public-sector organizations are held to act in the general interest, but they may form specific objectives, aimed notably at ensuring their own existence and expansion (Rizopoulos and Kichou 2001). Private-sector organizations are supposed to follow a more individualistic rationale, aimed at meeting their own interests, but “enlightened” actors may incorporate the general interest into their strategies. Associations represent civil society, but are often very resource dependent that may have an influence on the definition of their objectives, etc.

Furthermore, some actors represent several interests simultaneously, which makes it difficult to draw a clear line between the public and private status, for instance. In addition to this ambiguity, there are often contradictory outside influences from the State, their partners or the general political and social context. For instance, public-sector organizations are more or less subject to oversight from authorities, who in turn acquire their legitimacy from the citizens or interest groups that elect them. They must therefore court the favorable opinion of those that give them power in order to win re-election. In addition, there is often a chasm between an organization’s interests and the strategies used to achieve its objectives.

Thus, it would appear necessary to carry out a more in-depth qualitative analysis to complement graphs structural analysis, in order to avoid the pitfalls of a biased view of actors and their interests.

Moreover, the structural analysis can be extended in several directions. Thus, the concept of key players (Borgatti 2006) enables identification of leaders that ensure a network’s cohesiveness, while adjacency matrices can reveal the degree of embeddedness of actors in the network and, based on the weight of nodes, can determine the type of links – strong or weak. It would also be possible to use connectivity algorithms to elaborate graphs of interaction, of linkages and of influence, enabling identification of coherent groups of actors involved in committees, i.e. sorts of “communities of interests” able to influence public decisions.

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## **APPENDIX 1. Data organization and codification**

### **Committees**

- C1: *Committee on construction, jobs and professional integration*
- C2: *Committee on the creation, transmission and purchasing of firms*
- C3: *Committee on the international dimension of economic action*
- C4: *Committee to promote research and innovation*
- C5: *Committee on logistics and transport*
- C6: *Committee on very small enterprises and trade*
- C7: *Committee on health*
- C8: *Committee on plastics and composite materials*
- C9: *Committee on business services and outsourcing*

### **Groups**

#### ***Public:***

- Pu1: State representative
- Pu2: Local government
- Pu3: Chamber of commerce
- Pu4: Foreign trade agency
- Pu5: University and scientific research

#### ***Private:***

- Pr1: Primary sector
- Pr2: Secondary sector
- Pr3: Tertiary sector

#### ***Union:***

- Sy1: Employers' association
- Sy2: Labor union

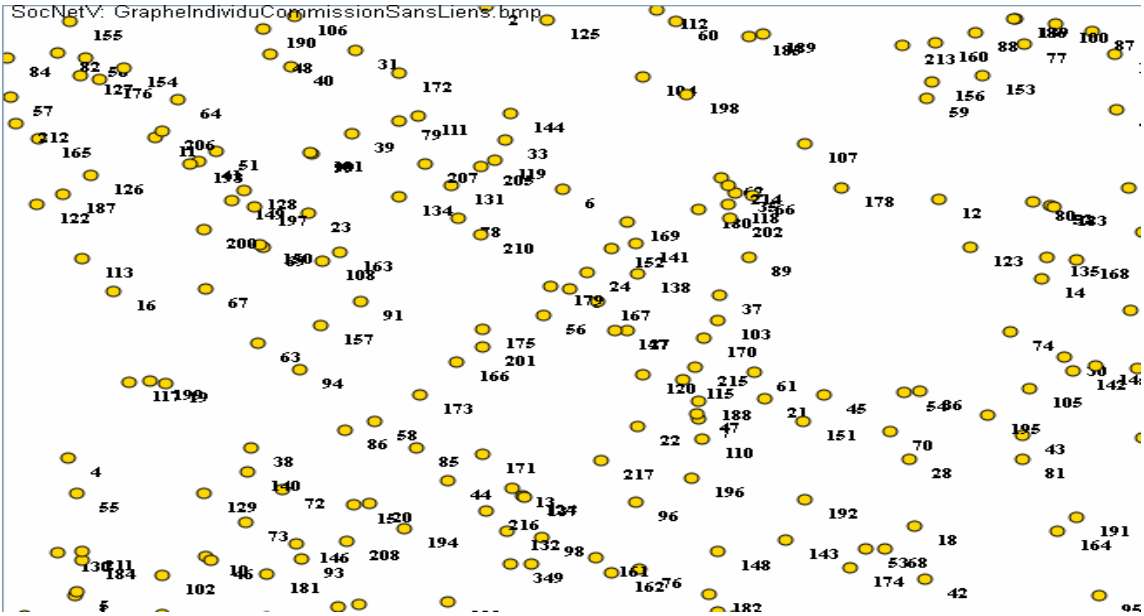
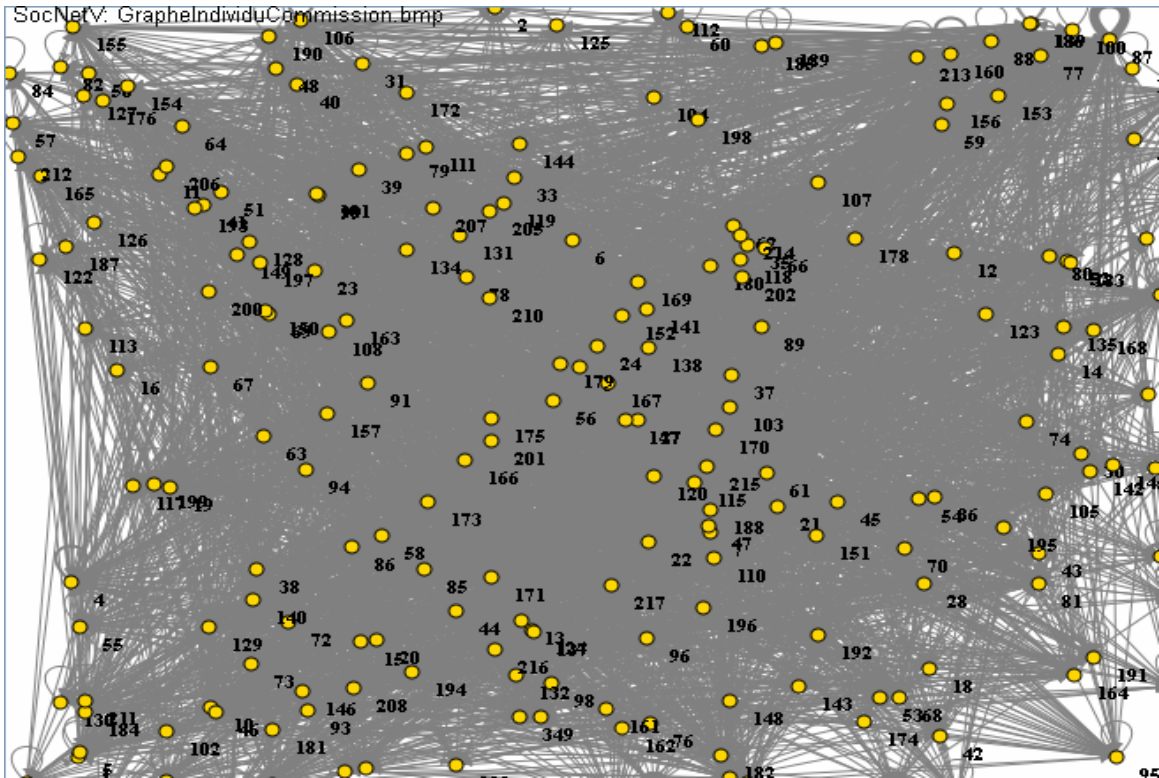
#### ***Association:***

- As1: Associations for job training and reinsertion, professional associations and assessment institutes.
- As2: Associations for financing, creating, purchasing or selling businesses, economic development.
- As3: Innovation, technological research, school/company interface.

## APPENDIX 2. Data table

N°	C1	C2	C3	C4	C5	S1	S2	S3	S4	S1					S2					S3		S4										
										Pu1	Pu2	Pu3	Pu4	Pu5	Pr1	Pr2	Pr3	Pr4	Pr5	Sy1	Sy2	As1	As2	As3								
P1						x																										
P2						x							x																			
P3						x								x																		
P4			x			x									x																	
P5		x				x										x																
P6			x			x										x																
P7	x	x																														
P8	x																															
P9						x																										
P10		x				x																										
P11					x	x										x																
P12		x				x																										
P13			x			x																										
P14			x			x	x	x	x																							
P15							x																									
P16							x																									
P17					x	x																										
P18					x		x	x	x																							
P19		x				x																										
P20						x																										
P21		x				x																										
P22	x		x				x	x																								
P23							x																									
P24			x			x																										
P25						x																										
P26					x	x																										
P27						x																										
P28		x																														
P29							x																									
P30						x																										

APPENDIX 3. Crossing actors' representatives (Px) and Committees (Cx)



**APPENDIX 4. Interaction graph (layered betweenness)**

