

Networks of SLGOs: from systems interoperability to organizational cooperability

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Abstract: E-Government doesn't concern only technological innovation in Public Administration, but most of all organizational innovation through the adoption of organizational models enabled by the use of ICTs. One model of this kind, that in countries characterized by a high number of Small Local Government Organizations (SLGOs) can be adopted also to reduce the administrative fragmentation, is inter-organizational cooperation among SLGOs. This is the model the Italian National Center for Information Technology in Public Administration (CNIPA) adopted in the action plan to promote E-Government in Local Public Administration in Italy. However, inter-organizational cooperation requires the partners to interoperate, at least in the areas which are the object of the cooperation. One possibility which guarantees interoperability of different organizations consists in the adoption of a shared cooperative environment. Depending on how binding are the conditions which define it, the cooperative environment can determine different levels of interoperability, up to organizational interoperability (cooperability). In the case of cooperation among organizations which can be heterogeneous, one of the conditions defining the cooperative environment is the sharing of an "enterprise model" for the cooperation. In the paper we describe some of the conditions that define a cooperative environment and introduce a system for the description and the classification of different forms of intercommunal cooperation for services provision.

Keywords: intercommunal cooperation, interoperability, Small Local Government Organizations, E-Government, Networked Government

1. Intercommunal Cooperation

The process of implementation of the Information Society, which has been going on for some years in the countries of the European Union, is strongly constrained by the high administrative fragmentation characterizing many countries. Figure 1 shows the articulation of Local Public Administration in the countries of the Europe of the 15, taking into consideration the three levels in which it articulates:

Table 1: Local public administrations in the Europe of the 15

| Countries | First level (communes) | Second level (counties) | Third level (regions) |
|---------------------------------|------------------------|-------------------------|-----------------------|
| Germany | 13.854 | 323 | 16 * |
| Belgium | 589 | 10 | 6* |
| Austria | 2.359 | | 9* |
| Spain | 8.106 | 50 | 17 |
| France | 36.568 | 96 | 22 |
| Ireland | 85 | 29 | 8 |
| Italy | 8.100 | 103 | 20 |
| Denmark | 275 | 14 | |
| Greece | 1.031 | 50 | |
| Nederland | 467 | 12 | |
| United Kingdom | 434 | 36 | |
| Sweden | 289 | 21 | |
| Portugal | 278 | | |
| Finland | 432 | | |
| Luxemburg | 118 | | |
| TOTAL | 72.985 | 744 | 98 |
| * federal states (not included) | | | |

The organizations of the Local Public Administration are often Small Local Government Organizations (SLGOs), for which it is particularly difficult to manage the processes of technological and organizational innovation, as those required for the implementation of E-Government. One of the solutions more often adopted in different countries of the European Union in order to reduce the administrative fragmentation is the promotion of forms of intercommunal cooperation (CCRE 2005). The model of intercommunal cooperation is based on the implementation of systems for the sharing of resources (financial resources, infrastructures, information, knowledge, competencies) for joint decision making and/or for services provision.

Though this solution to the problem of administrative fragmentation has been largely adopted for a long time in some countries (IReR 2002), the progressive development of E-Government systems can further promote the diffusion of the model of intercommunal cooperation. First of all, sharing resources and competencies is one of the possibilities for SLGOs to manage the complex processes of technological and organizational innovation which are required for the implementation of E-Government systems (as an instance, this is the solution adopted in the action plan to promote E-Government in Local Public Administration in Italy (CNIPA 2005)). Secondly, the availability of ICTs, as communication and coordination technologies, can enable and in some cases simplify the complexity of the management of a system of cooperating partners, making the intercommunal cooperation model easier to implement also for SLGOs. The availability of ICTs in SLGOs is mainly determined by the investments for the promotion of technological innovation provided in the different national action plans for E-Government. From this point of view, the model of intercommunal cooperation is related to E-Government in at least two different ways. On the one hand, the spreading of this organizational model can be supported by the need of implementing E-Government systems in the Local Public Administration; on the other hand, the implementation of E-Government systems can support SLGOs in developing forms of intercommunal cooperation.

The SLGOs taking part in an intercommunal cooperation can be highly heterogeneous, for instance as regards their dimensions, organizational culture and competence in the use of ICTs; besides, due to the spreading of the public-private partnerships, typical of Networked Government (Gujarro 2003), the cooperating organizations could differ also as regards their legal status. From this point of view, sharing the resources in an intercommunal cooperation causes problems of interoperability, as it is usually the case in every form of interorganizational cooperation. However, in this case the problem of interoperability is further complicated by two elements:

- ✗ an intercommunal cooperation is a system of cooperating organizations. Each component of this system is, in its turn, a system of elements (information, infrastructures, persons) which must interoperate; the kind of interoperability which must be guaranteed in an intercommunal cooperation is therefore a form of system of systems interoperability (AA.VV. 2004);
- ✗ since this cooperation aims at sharing all the resources and not only information, the kind of interoperability necessary to an intercommunal cooperation cannot be reduced to the simple interoperability of the systems of data processing and exchange.

The aim of this paper is pointing out some elements which characterize interoperability in intercommunal cooperation. In particular, we will point out the elements which define some conditions for organizational interoperability, or cooperability (Gompert and Nerlich 2002). Among the conditions of cooperability pointed out, the one concerning the availability of a shared system for the description of different forms of intercommunal cooperation is especially relevant. The last part of this paper defines a system which allows to describe an intercommunal cooperation in a standardized way; this allows to compare different forms of intercommunal cooperation, also taking into consideration the possibility of the reuse of organizational solutions which proved particularly efficient and effective.

2. Cooperative environment

The most common approaches to interoperability can be schematically reduced to two general models (AA.VV 2004):

- ✍ initiatives that tend to focus on developing practices that improve interoperability in terms of requirements improvement and definitions of standards;
- ✍ initiatives that tend to focus on developing models of interoperability.

However, both kinds of approach tend to stress particular aspects of interoperability, whereas the problem of interoperability requires a multi-dimensional approach instead, fitted to integrate technological, managerial, political, strategical and, more generally, cultural aspects. These aspects of interoperability cannot be simply reduced to the definition of appropriate standards to which the partners must adhere. Besides, in the case of intercommunal cooperation, interoperability concerns systems whose behaviour is not always predictable, due to facts such as:

- ✍ the growing demand of quality in the supplied services from the users, which makes continuous adaptations in the ways of production and supplying of services necessary;
- ✍ the need of continuous negotiation among the partners in the definition of both the policies and their implementation;
- ✍ the potential scarce reliability of the partners, and the consequent need to define forms of governance of the collaboration which can strengthen mutual trust.

The most significant implication of these facts, is that no overall set of agreements can be reached; nevertheless, in order to guarantee the cooperation, each system must be put in a position to interoperate with the others.

Since interorganizational cooperation cannot rely only on the adhesion to predefined standards, the problem can be tackled through the definition of a cooperative environment which can be shared by all the partners (Castelnovo and Simonetta 2005a; Castelnovo, Ferrari, Carminati and Simonetta 2005). In the definition of a cooperative environment all the dimensions which characterize the problem of interoperability can be taken into consideration, both those which can be managed through the adhesion to predefined standards, and those which can be managed through shared models co-evolving with the evolution of the cooperation among the partners.

The conditions defining a cooperative environment can be different, as shown in Table 2.

Table 2: Conditions for interoperability

| | |
|---------------------------------|--|
| Technological interoperability | conditions concerning the sharing of infrastructures (virtual or physical) for the network communication |
| | conditions defining the standards for communication and for systems interoperability |
| | conditions for the definition and the sharing of security policies for the access to information resources and for their use |
| Operational interoperability | conditions concerning the standardization of the processes |
| | conditions concerning the definition of the operational standards |
| | conditions for the sharing of the resources (physical resources, information and knowledge) within the network |
| | conditions for the monitoring of the activity of the members of the association |
| Organizational interoperability | conditions concerning the creation of shared managerial styles |
| | conditions for the creation of a shared organizational culture |
| | conditions concerning the definition of a shared system of values |
| | conditions for the definition of shared strategies and policies |
| Regulative interoperability | conditions concerning the adoption of a uniform and standardized language for process description; |
| | conditions concerning the definition of a shared organizational ontology and a shared terminology; |
| | conditions concerning the definition of a shared enterprise model |

Depending on their more or less restrictive character, the conditions characterizing a cooperative environment for intercommunal cooperation lead to more or less strict forms of partnership among SLGOs (similar to the integration levels described in (AA.VV 1998) and (Clark and Jones 1999)), up to the definition of an Integrated System of Local Government (ISLG), as described in (Castelnovo and Simonetta 2005a). Although an integrated system is sometimes considered to be more tightly coupled than a system of interoperable components, it is useful to stress that the distinction between systems integration and systems interoperability is a question of perspective. What is seen from outside as the result of the integration of different organizations, from the point of view of the partners can simply be a system of independent and strictly interoperable organizations (AA.VV. 2004).

3. A model for the description of different forms of intercommunal cooperation

Among all the constituent conditions of a cooperative environment, those concerning regulative interoperability deserve special consideration. The availability of shared ontologies and shared terminologies is the basis of the possibility itself of using standards in order to guarantee interoperability. As a matter of fact, if each organization interpreted in an even slightly different way concepts and terms included in the definition of a standard, the very possibility of interoperating on the basis of that standard would result extremely reduced (AA.VV. 2004). The same problems of vagueness and of potential ambiguity occur also at the level of the description of an intercommunal cooperation, with respect to:

- ✍ the definition of the goals of the cooperation
- ✍ the definition of the functions assigned to the partnership
- ✍ the definition of the levels of responsibility
- ✍ the definition of the relations between the intercommunal cooperation and the SLGOs which are part of it
- ✍ the definition of the conditions for the attribution and the management of the resources necessary for the functioning of the cooperation.

All these elements can be considered as some of the elements which characterize the enterprise model on which an intercommunal cooperation is based. All organizations, of whatever type, follow a "life cycle" from their initial concept through a series of stages or phases comprising their development, design, construction, operation and maintenance, refurbishment or obsolescence, and eventually to their final disposal. In the case of an inter-organizational cooperation the early phase of its definition is crucial, as it is in this phase that the conditions to join the partnership are defined, together with the opportunities the cooperation offers to the potential partners. From this point of view, in the definition of the enterprise model for an intercommunal cooperation, the possibility of referring to a shared framework which defines the elements characterizing the collaboration is fundamental. The availability of such a framework allows each SLGO potentially interested in the cooperation to evaluate the constraints and the opportunities it offers and, possibly, to share them joining the intercommunal cooperation with full awareness.

In this section we introduce a system to describe in a uniform way different forms of intercommunal cooperation. The system defines a set of attributes which allow to describe an intercommunal cooperation since the phase of its definition. The values assigned to the attributes are the result of a negotiation among the partners and bind, in the subsequent phases of the life cycle of the intercommunal cooperation, the choice among different possibilities for implementing the cooperation. The system for the description of the partnership can be considered as one of the constituent elements of the cooperative environment for intercommunal cooperation. The result of its application in the phase of definition of the cooperation binds other aspects of the cooperative environment, both of technological type (in the definition of the levels of information systems interoperability), and of operational and organizational type (in the definition of the levels of organizational interoperability, up to inter-organizational integration).

The model we suggest is based on a systematic analysis of the phenomenon of intercommunal cooperation in Lombardy (IReR 2002), one of the most densely-populated and economically advanced Italian regions. It is therefore a model with a solid empirical basis and which can be further extended through the addition of new attributes and be integrated within the definition of other phases of the life cycle of an intercommunal cooperation.

The attributes taken into consideration in the model are related to processes which characterize the definition and the functioning of an intercommunal cooperation, whereas the values associated to them represent the variety of the associative solutions which are the result of such processes. The basic processes taken into consideration are:

- ✍ processes of structuring: these are processes aiming at the definition and maintenance of the relations between the partners, the definition of the operational rules of the partnership and the definition of the organizational architecture of the intercommunal cooperation;
- ✍ processes of selection of the fields of activity: these are processes concerning the identification of the administrative responsibilities assigned to the intercommunal cooperation by its members.

3.1 Structuring of the intercommunal cooperation

The processes of structuring of an intercommunal cooperation for services provision, concern the definition of rules and of relations among the partners (institutional structuring) and the definition of organizational processes (organizational structuring).

3.1.1 Institutional structuring

As regards the institutional structuring, an intercommunal cooperation for services provision can take one of the following forms:

- ✍ integrating form: a new institution is created, different from those involved in the associative process and qualifiable as local public institution; as regards its operational rules and governance, the new institution is similar to a local government authority;
- ✍ company form: a new organization is created, different from those involved in the associative process and which cannot be qualified as a government institution. The new organization regulates its activity following two principles. First of all, its autonomy from the institutions which created it, though these institutions nominate their delegates in its organs of government. Secondly, the activity of the new organization is based on the balance between costs and profits. The profits are obtained exclusively from the delivery of services and not from direct resort to taxation;
- ✍ coordinative form: the members of the association cooperate on the basis of agreements that define how the coordinated activities must be performed, without the creation of a new institution. This form of cooperation is analogous to the one defining virtual organizations.

The three associative forms can be the result of voluntary or compulsory processes, with relation to national or regional laws. Intercommunal cooperations of different institutional forms can combine determining more complex forms of cooperation.

3.1.2 Control

As for the operational rules, different intercommunal cooperations can differ as regards the degree of autonomy which the single institutions of the association have with relation to the flows of resources and the management of the cooperation. In an intercommunal cooperation two cases can occur:

- ✍ direct control: the decisions are taken by the organs of government of the association. However, they are directly controlled, for each decision, by the competent organs of the administrations involved in the cooperation;

- ✗ indirect control: the members of the organs of government of the association are nominated by the competent organs of the administrations involved in the cooperation; however, during their mandate, they maintain autonomy in their choices.

3.1.3 Levels of responsibility

As for the process of organizational structuring, intercommunal cooperations for services provision can differ on the basis of the relations among the association itself and the member administrations as regards:

- ✗ the attribution of the responsibility concerning the processes for the supplying of the services which are the object of the cooperation. Two cases can occur: the responsibility can be given to a center which is unique for the association (single responsibility) and which can be an organizational unit chosen among the ones which form the association. On the other hand, the production and delivery of the service can be carried out, in a coordinated way, by many organizational units within the association;
- ✗ the attribution of the responsibility concerning the management of the resources assigned to the association for the supplying of the services which are the object of the cooperation. In the case there is a single center of responsibility, the management of the resources can be centralized; on the contrary, it can be delegated if each member of the cooperation is responsible for the management of its own resources.
- ✗ the attribution of the responsibility concerning the definition of rules and procedures for carrying out the activities. These rules and procedures can be shared by all the members of the association; or each organization of the association can make an autonomous choice.

The combination of all these criteria leads to a range of possible organizational arrangements, ranging from a completely centralized to a totally distributed solution, including a set of intermediate cases characterized by different coordination needs and interoperability constraints.

One completely centralized solution is, for instance, the case of an intercommunal cooperation whose members delegate the provision of a service to one of the members of the association. In this case, the responsibility of the whole process is given to the delegated member: it puts at the association's disposal its own resources, for whose management it keeps maintaining the responsibility. Besides, in the production and delivery of the services that are object of the cooperation the delegated member follows its own operational rules and procedures.

One completely distributed solution occurs, for instance, when the intercommunal cooperation is defined only formally (through a process of institutional structuring) in order to get special forms of loan or to make some bland form of coordinated purchase. In this case there is no centralization of responsibilities as regards the processes which are the object of cooperation. Besides, each member of the cooperation will use its own resources managing them directly and independently through the application of its own operational rules and procedures.

3.2 Selection of the fields of activity

The selection of the fields of activity is a constituent process of the intercommunal cooperation which aims at defining the system of the competencies to be transferred to the association by its members. This process is related to the definition of the public value which the cooperation intends to create for its environment.

Defining the concept of public value is a complex operation and, whatever definition it may have, it can be determined and evaluated referring to categories such as (Minelli, Rebora, Turri 2002; Irer 2002; Agranoff 2003):

- ✗ efficiency, intended as the relation between the services offered and the resources used;
- ✗ quality, intended as technical value of the services offered and of the related modality of access to the services;

- ✍ effects, intended as the consequences of the services reaching the economical and social context;
- ✍ fairness, intended as the balanced satisfaction of all the interests at stake;
- ✍ development of the resources, intended as the overall improvement of the system;
- ✍ communication and image, intended as the capacity of communicating directions, policies and objectives and to present a positive image of the services.

In a wider sense the system of the competences in an intercommunal cooperation is made of both the competencies directly assigned by the partners, and those carried out in order to guarantee the functioning of the cooperation itself. The definition of the system of the competencies of an intercommunal cooperation is a precondition to the activation of strategical and operational cycles of action and can be described referring to:

- ✍ fields of intervention (related to the economical and social environment);
- ✍ degree of generality of the association;
- ✍ typology of activities.

3.2.1 Fields of intervention

The fields of intervention are the subjects on which the association defines the intervention policies which affect both the fulfilment of the needs of the local community, and the needs of the members of the cooperation. Some examples of the fields of intervention of the first type (principal sectors) are: environment, territory, economical activities, social needs, instruction, culture, infrastructures, public buildings. Some examples of the fields of intervention of the second type (secondary sectors) are: personnel, information, equipment, organization.

3.2.2 Degree of generality

The degree of generality of the cooperation concerns the wideness of the responsibilities assigned to the association. We can define four models of wideness of the responsibilities assigned arranging them in a decreasing degree of complexity:

- ✍ field of exercise of a whole administrative function (for instance, personal social services provision)
- ✍ field of the delivery of a service within an administrative function (for instance, home help service as part of the function personal social services provision);
- ✍ field of the realization of a task associated with a service (for instance, meal home delivery as part of the home help service) ;
- ✍ field of realization of an intermediate result (for instance, meal preparation and home delivery, as part of the task meal home delivery).

Assigning the cooperation a field of responsibilities belonging to a higher level of complexity, involves assigning it the fields of the lower levels, too. If a function is assigned, for instance, services, tasks and intermediate results are assigned as well.

3.2.3 Typology of the activities

The activities performed by an intercommunal cooperation can be of the following typologies:

- ✍ regulations of the behaviours: definition of limitations for individual and collective action (regulation activities); expression of a judgement about the legitimacy of the behaviours (authorization activities); sanctions against behaviours not complying with the rules (sanctionary activities);
- ✍ certification of reliability (certification activities);
- ✍ fulfilment of the needs.

3.2.4 Environment

The specific environment of an intercommunal cooperation includes:

- ✍ the institutions which contributed to create it (specific constituent environment);
- ✍ the territory on which the local policies have an effect; territoriality is, in its turn, one of the elements defining an intercommunal cooperation. The concept of territory must be intended in a broad sense, that is to say it must include characteristics of the population, of the economical activities, of the social life. All these, in fact, are the beneficiaries of the administrative action (economical, social and territorial environment);
- ✍ public and private institutions (sociopolitical environment) which collaborate directly with the intercommunal cooperation in carrying out its interventions, or indirectly, influencing the operation of the association (for example, institutions of a higher institutional level that define incentive policies).

The process of selection of the fields of activity of an intercommunal cooperation shows an interdependence relation with the processes which characterize its specific environment. This interdependence determines:

- ✍ a contribution of the environmental processes to the specification of the system of responsibilities of the association and, subsequently, to its evolution. That is to say, an intercommunal cooperation evolves through the interaction with the environment in which it operates;
- ✍ a contribution of the processes of selection of the fields of activity of the cooperation to the specific environment in which it operates. That is to say, the activity of the intercommunal cooperation in specific fields determines the evolution of the environment that evolves in strict dependence on the choices of the fields of action of the cooperation.

4. Conclusions

The system of attributes presented for the description of an intercommunal cooperation for services provision can be summarized as shown in Figure 1.

The model can be considered as one of the elements defining the cooperative environment on which an intercommunal cooperation is based and can be used mainly for two purposes:

- ✍ the description of an intercommunal cooperation in its definition phase;
- ✍ the classification and the comparison among different types of intercommunal cooperations activated by associations of SLGOs.

The definition phase of an intercommunal cooperation must make the constraints and the opportunities which can be offered by the environment clear, evaluate which services it will be useful to deliver in an associated way and which is the best legal and organizational structure for the association. From this point of view, designing an intercommunal cooperation can be considered as an activity which fixes values for a set of attributes such as those described in section 3. Used in the study of feasibility, the system of classification of Figure 1 determines a standard methodology to design an intercommunal cooperation and to evaluate the consistency of the project choices that have been made. Moreover, by making such choices explicit, the system allows a full evaluation of the organizational and infrastructural conditions which must be satisfied to carry out the project.

The evaluation of the project choices concerns particularly:

- ✍ the definition of the contents of the cooperation, that is the identification of those services that, managed in an associated way, could generate more value for the environment in which the cooperation will operate (selection of the field of intervention, of the kind of activity and of the degree of generality);

- ✍ the identification of a legal form able to guarantee the right form of governance of the cooperation, with relation to the environmental constraints and opportunities and to the types of the services object of the cooperation (definition of the institutional form and of the methods of control);
- ✍ the definition of the different levels of responsibility in the production and delivery of the services object of the cooperation (organizational structure).

Besides, in the description of an intercommunal cooperation, the system of attributes we have presented can be useful also in classifying and comparing different kinds of intercommunal cooperation for services provision. As a matter of fact, if it is used as a shared description tool, this model allows to describe the characteristics of different experiences of intercommunal cooperation in an homogeneous way. The comparison among different experiences allows the possibilities of reusing a solution, particularly in contexts that are similar with respect to the system of constraints/opportunities determined by the environment.

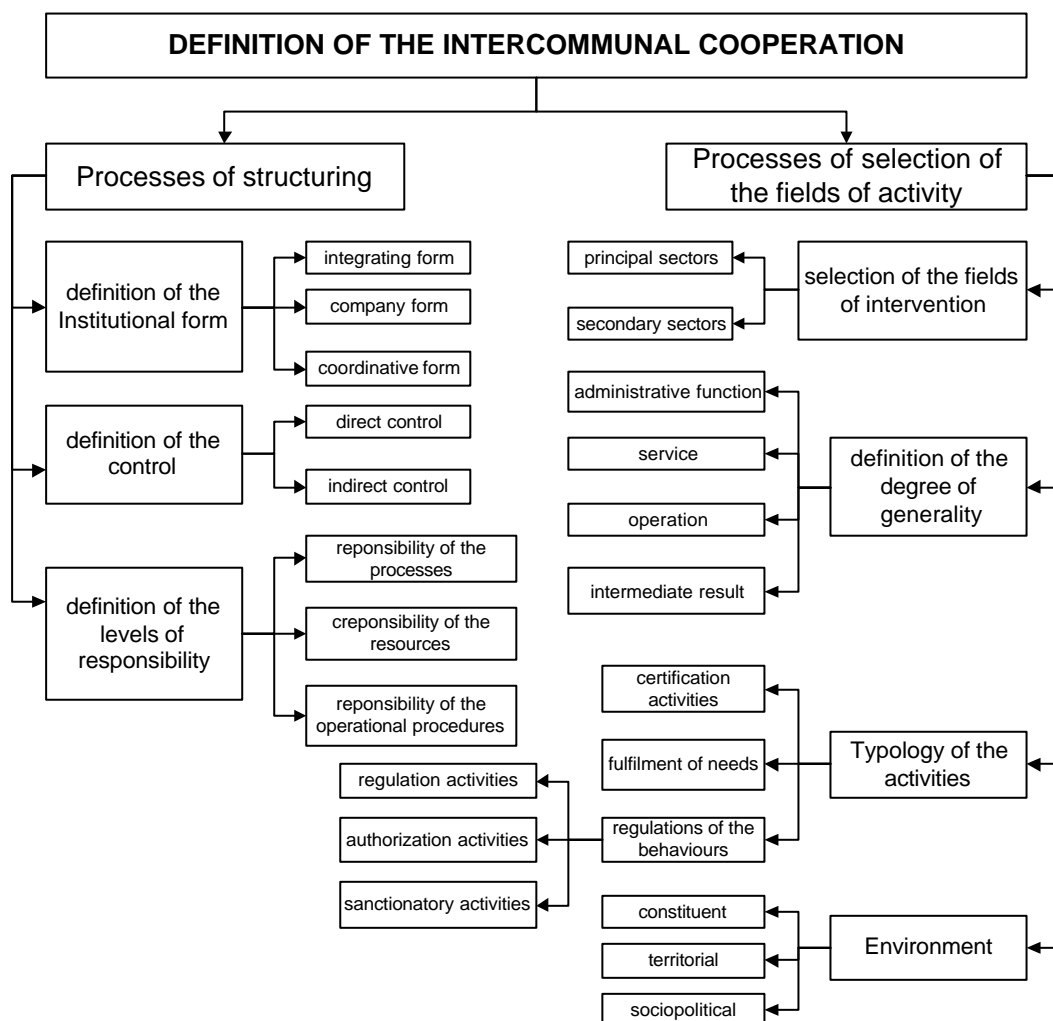


Figure 1: System for the description of intercommunal cooperations for services provision

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