INSPIRE obscured by clouds of inter-organizational cooperation with geoICT?

Walter T. de Vries

Abstract

The INSPIRE Directive, a European Union Directive to promote change in the use and re-use of geospatial information in all European member states, is indirectly and implicitly assuming new forms of cooperation between public authorities, and assuming non-problematic networking and cooperation between public authorities. Empirical evidence from public administration science is however showing that cooperation is a frequently researched and loaded term and that changing existing forms, or introducing new forms of public sector cooperation, has often proven to be problematic. This article investigates for three cases in the Netherlands how political-organizational motives may play a role in the cooperation with geographic information and communication technology (geoICT). In the analysis, the assumption is that individual organizations operate in a dynamic arena of interests and influences, which have an impact in decisions and behaviour within the cooperation. The analysis itself applies an analytical approach, whereby for each case a selected set of political-organizational notions are compared. These notions include: authority, interest, command, control and coordination. The cases chosen are different in the degree to which INSPIRE objectives play a direct role, or a less direct role. The data was collected through qualitative research techniques. The investigation shows that the political-organizational context in which INSPIRE needs to be adopted has a direct impact on the degree of its acceptance. Common in the cases is the increase of operational agreements, which trigger an increase of alternative structures. These alternatives are legitimized by other policies and directives. The consequence for INSPIRE implementation is that if these political-organizational motives are not taken into account appropriately, the unintended

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DOI: 10.2902/1725-0463.2009.04.art7
and often hidden counter-effects may hamper the overall implementation of the INSPIRE Directive. A possible next phase of the research would need to validate the results by investigating the cases more longitudinally, and by comparing with other cases, both in the Netherlands and Europe.

**Keywords:** inter-organizational cooperation, geoICT, governance, G2G

1. **INTRODUCTION**

Why is it that some projects, systems and/or regulations seem to fail, while others seem to succeed, even when the designs for both are similar or practically the same? Is it because of something that we overlooked in the process, even if we could have known it, or is it because something was hidden or we didn’t want to see it, or is it because originally we didn’t look in the proper way? We should pose these questions when evaluating if a particular agent of change is, was or will be successful in different organizational and political contexts in which the change is anticipated. In this article a European Union promoted change in the use and re-use of geospatial information, INSPIRE, is compared to the actual implemented change within organizations in the Netherlands. The instrument of this change, the INSPIRE Directive (European Commission, 2007), requires every member country to comply to harmonised rules of production, use, and re-use of spatial information and spatial information technology in the public sector. For simplicity, the “production, use, and re-use of spatial information and spatial information technology” will be equated with geo-information information and communication technology, “geoICT”, so INSPIRE is considered a Directive to harmonize geoICT in the public sector. Despite this principal objective, INSPIRE aims, indirectly and implicitly, at new forms of cooperation between public authorities, and is thereby implicitly assuming that national contact points or authorities can steer INSPIRE implementation through non-problematic networking and effective cooperation between public authorities at all sub-national levels. Cooperation is however a frequently researched and loaded term in public administration science, and empirical evidence from that domain is showing that changing existing forms or introducing new forms of public sector cooperation has often proven to be problematic (Kumar and van Dissel, 1996). This is not necessarily because good intentions and agreements on objectives are not reached, but because public sector cooperation is often burdened with organizational and political motives, such as legitimacy, accountability, short term priorities and public image, which may counteract the cooperation structures and related technologies. Such motives are insufficiently known or insufficiently anticipated, because they originate from another field than INSPIRE, namely that of (inter-) organizational politics. Hence, the willingness and readiness to adapt to the INSPIRE agent of change may be obscured by these local and individual political-organizational clouds.
A number of prior considerations and articles in the Directive may reflect certain cooperation assumptions. Table 1 shows a number of such assumptions, which may obviously be debated, but the debate is useful to identify certain ambiguities.

**Table 1. INSPIRE articles and related political-organizational assumptions**

<table>
<thead>
<tr>
<th>Considerations / Article</th>
<th>Implicit assumptions of INSPIRE implementation</th>
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<tbody>
<tr>
<td>Consideration (12)</td>
<td>The public task is monolithic, and not debated. The public authority is independent from other public authorities, and is free to decide to cooperate if it is in their performance interest. Moreover, citizens know exactly what to expect from the public authority.</td>
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<tr>
<td>Directive should apply to spatial data held by or on behalf of public authorities in the performance of their public tasks</td>
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<td>Art. 4.6</td>
<td>The lowest level of government is seamlessly related to higher levels of government, and cooperation between the different levels is not debated.</td>
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<tr>
<td>Directive shall cover spatial data sets held by or on behalf of a public authority operating at the lowest level of government</td>
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<tr>
<td>Art. 7.1</td>
<td>The willingness of integration of different agencies is not debated, and if agreed is non-problematic, and value-free.</td>
</tr>
<tr>
<td>Where organizations have adopted relevant standards to ensure interoperability or harmonization of spatial data sets and services, the standards shall be integrated</td>
<td></td>
</tr>
<tr>
<td>Art. 18</td>
<td>The control and command across levels of government is not debated. Different levels of government are directly controlled through higher levels of government, which constitute formal cooperation structures. Horizontal relations or cooperation structures do not exist or can be steered and controlled through higher levels of government.</td>
</tr>
<tr>
<td>Member States shall ensure that appropriate structures and mechanisms are designated for coordinating, across the different levels of government</td>
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1 In addition, one could debate the term “public authority” and the extent to which this applies. In the Netherlands there are for example 1500 public sector organizations (Ministries, provinces, municipalities, water boards, etc.), but there are between 5000 and 10,000 (dependent on definition of “public”) organizations with public goal. Yet, the Directive follows the definitions followed in earlier Directives, such as the Public sector information Directive.
The assumptions do not exactly quote or refer to particular statements in INSPIRE related documents, but can be considered part of a critical evaluation from another perspective, namely the political-organizational one. It is obvious that some of the assumptions are not consistent. In order to investigate the potential range of political-organizational difficulties and counter effects when implementing the INSPIRE Directive, this article investigates if and how political-organizational motives may play a role. In this analysis, the assumption is that individual organizations operate in a dynamic arena of interests and influences, which have an impact in decisions and behaviour within the cooperation, following Bekkers (2007). Similarly, Ciborra and Hanseth (1998) and Orlikowski and Robey (1991) argue that the dynamics of implementation of ICT emerges and results out of a socio-organizational process of change. If this influence of the contact is so crucial, than any external instrument for change may be largely affected by this. This brings the main question: How visible is INSPIRE given all the other current public sector cooperation efforts with geoICT? Are all aspects as non-problematic as the assumptions of Table 1? Or are some aspects only occasionally visible, yet obscured by clouds, clouds being in this case local or contextual political-organizational motives, which outweigh the INSPIRE objectives because of individual organizations having to meet or match local interests, motivations or stakes? In this scenario, INSPIRE could only be partially implemented. Or, are the INSPIRE objectives completely invisible, meaning that empirical data is showing no evidence of INSPIRE objectives being met?

2. RESEARCH METHODOLOGY

2.1. Analytical framework

To evaluate political-organizational properties of geoICT cooperation, such a cooperation is considered a system of G2G (Government-to-Government) governance. Within such a system, changes in processes and decisions are determined by changing or emerging interests and governing rules. Such emerging interests and governing rules may be exogenous or endogenous. INSPIRE can be considered exogenous, because it was developed outside of the arrangements and understanding of existing cooperation. At the same time, it may be endogenous, because part of the agreement may be to contribute – and thereby aim to influence – INSPIRE rules and outcomes. The data exchange is assumed to be part of a set of formal and informal relations between two or more organizations, which is guided by a set of formal and informal agreements between organizations and between individuals working in these organizations, hence a system of governance. The agreements are assumed to be guided by resource dependencies, following Pfeffer and Salancik (1978). The most direct method for controlling dependence is to control the source of that dependence.
To investigate a difference between what should be (INSPIRE) and what is (empirical reality), one could take two different standpoints. Either, one could pose that INSPIRE is the prescribed objective, and that all that is different from the prescription is a barrier or obstacle which need to be removed or reduced, until reality meets design. Such a normative approach would then focus on how to design a removal of obstacle strategy, assuming that once the obstacles are removed the result would show the full objectives. Another approach, and this is the approach that is taken in this article, is to zoom in to existing practices and trying to unravel (i.e. theorize on) drivers for behaviour within such practices. This, more interpretative, approach aims primarily at understanding the interplay between policies and empirical realities. An analysis may then show that barriers or obstacles may turn out to be at both sides (policy and reality), and interfering in reality is considered a continuous, fluid process with sometimes unpredictable results. Only if one can understand this process better, one could formulate better implementation policies.

Given this fluid process, the research applies an analytical approach, whereby for different cases a selected set of political-organizational notions are compared. These notions include: authority, interest, command, control and coordination. The choice of these notions follows the classification of governance types of Bekkers (2007) and relation between structure and agency of Orlikowski (2000). Bekkers (2007) uses the above notions in distinguishing hierarchical and process management approaches. This approach is useful here also because INSPIRE assumes certain forms of hierarchical management, which may not be reflected in reality. In addition, Orlikowski (2000) recommends that unravelling the enactment of technologies can only be viewed by looking at recurrent social practices, meaning that for example notions of coordination of technology and authority structures must be seen in their social-organizational context.

### 2.2. Choice of cases

While the National INSPIRE implementation is being guided under the authority of the Ministry of Housing, Spatial Planning and Environment (“VROM” is the Dutch abbreviation), VROM is not the only institutional player in the field to implement European rules in the field of spatial information. The degree of proximity to the rule making and rule implementation of INSPIRE is thus a good indicator for case study selection, because one would expect to see the differences in effects of politicking and lobbying. The case selection followed the definition of case study research by Yin (2003), whereby a case-study inquiry “copes with a distinctive situation in which there will be many more variables of interest than data points” (Yin, 2003). The chosen cases included the cooperation of the National Cadastre with Municipalities, the cooperation guiding the National Height database, and a local cooperation for the purpose of managing transport
information and transport licenses. The cases are different in the degree to which INSPIRE objectives play a direct role, or a less direct role.

Table 2. Cases chosen and their relation and relevance to INSPIRE

<table>
<thead>
<tr>
<th>Case</th>
<th>Relation to INSPIRE</th>
<th>Other factors which may play a role</th>
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<tr>
<td>1. Cadastre-municipalities</td>
<td>The Dutch Cadastre is directly participating in the project teams and working groups to implement INSPIRE, and in the drafting teams, and is directly linked to VROM. One would thus expect a high compliance to INSPIRE strategies. Municipalities on the other hand are an indirect stakeholder, represented by different associations. Their influence may thus be fragmented.</td>
<td>There are 443 municipalities, different in size, political leadership and interests, and each having different capacities in geoICT. Harmonization among municipalities is guided through different fora, such as the association of municipalities, but also through inter-municipal discussion groups.</td>
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<tr>
<td>2. AHN – National Height System of the Netherlands – implemented by National Water Agency and local Water boards</td>
<td>Technology development was originally led by a central, national authority, close to rule making, and possibly therefore willing to comply to (supra)national regulations. Within the AHN cooperation there is a general aim to strive for base registration quality and authority, implying also aspiring for INSPIRE objectives (i.e. harmonisation of geoICT)</td>
<td>Provinces, as a regional authority, are assumed to play a coordinating role between local water boards and national ministries. Moreover, none of the public sector participants are hierarchically linked to the VROM Ministry.</td>
</tr>
<tr>
<td>3. Sabimos – Local dynamic public transport information system – under the authority of a regional government / cooperation of local authorities</td>
<td>There is no direct relation to INSPIRE related authorities, yet the actors require base topographic data, exchanged by different authorities.</td>
<td>Role and objectives of individual municipalities under the cooperation agreement may differ. As a result, the awareness of (supra)national rules, such as INSPIRE, may differ significantly.</td>
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2.3 Data collection

The collection of data involved the following activities:
- Exploration of documented and/or reported cases of geoICT cooperation in the Netherlands, through a selection of articles in professional journals, conference proceedings
Formulation of a descriptive summary of cases, based on characteristics of the cases, the degree of institutionalized cooperation, the degrees of “closeness” to INSPIRE, access to people working in these cases.

Conduct of a workshop with representatives from the cases, complemented by a small number of experienced people from the academia, local government, and representative bodies.

In-depth qualitative semi-structured interviews, followed by a qualitative analytical and discourse analysis.

3. RESULTS

Case 1.
The various data collecting techniques reveal that the National Cadastre has developed several entangled ICT related agreements with municipalities. Data on geometry of parcels are collected by the Cadastre and provided to municipalities. Data on people are collected by municipalities and shared with the Cadastre for the purpose of ownerships, heritance, etc. Data on buildings are the responsibility of municipalities, but collected by the Cadastre on behalf of the municipalities. Data on addresses are collected by municipalities, but managed by the Cadastre. Data on public rights need to be registered by municipalities, but are in fact registered in the Cadastre. This entangled set of relationships has made it confusing at times to understand who is acting on whose behalf, and who has ownership of whose geoICT. As geoICT technology has developed rapidly, there have been several rounds of internal ICT reform projects within the Cadastre, aimed at lowering cost and improving the ICT architecture. At the same time, within municipalities the number of individual geoICT departments and geoICT related projects has increased. This has led to various occasions where individual municipalities independently created and distributed geo-data, including parcel-related, independently from the Cadastre. Last but not least, while the cadastre maintains national coverage of parcel-based data, and maintains direct negotiation contacts on data exchange with the Association of municipalities for example, many municipalities have now joined up for an independent data network to assemble and distribute real estate information, called Dataland. The data at address level is largely complementary to the Cadastre database at parcel level, yet, one could question whether at some point this may develop into seriously competing datasets.

Case 2.
The collection and distribution of national height data of the Netherlands was initially organized through an agreement between three parties, namely the public water department (RWS) – under the ministry of housing, planning and environment, the union of water boards UWV(on behalf of the water boards), and the inter-provincial consultative body IPO (on behalf of the provinces). Through a first covenant (in 1997) between these parties, a steering committee was
established, which would be responsible for daily management. This steering committee consisted of representatives from all parties. The steering committee had the task to subcontract the height data acquisition. In the course of this process, the member parties started to realize that the actual work was largely managed by one party of the steering committee, namely the RWS. They had historically the staff capacity to carry out such projects.

In 2003, with the completion of the height data collection approaching a number of discussions started for a second, more accurate, round of data collection. New technologies of laser scanning could potentially derive much more dense and accurate height data, which triggered the interest among most participants. Discussions on the renewal of the covenant triggered however a more fundamental discussion on responsibilities and roles within the agreement. The role of RWS, being both manager and executor was challenged. One of the Water boards representatives argued:

At a certain point in time water boards were not always happy with the way the data were handled. The RWS were part in both the steering committee and the execution of data collection. They were both contractor and managing director. If data were delivered by an external party, they were also quality controller. They were auditing their own data quality (…) In summary, they had a certain interest in all aspects. In such circumstances, discussions at steering level are becoming complicated…We (as a steering committee) are not happy with the quality, yet the data collector is part of the decision on that.

The roles and the interests of the provinces were considered minimal. On top of that, the water boards wanted more influence in the technical processes of geo-data collection, or in other words, wanted to play their own geoICT card. As a result of these conflicts of interest, a new covenant was only signed in 2007, between the RWS and the water boards only. Provinces were left out of the steering committee, the chairman originated from the water boards, and procedures of subcontracting allowed excluding RWS as data collector.

Case 3.
The project of Sabimos was started rather coincidentally. The technical reconstruction of a regional bus station gave a local municipal representative the idea to use GPS for more efficient use of the public space needed for such a station. If buses were equipped with GPS, then the arrival and departure time could be better regulated. With this original idea of compact and dynamic bus stations in mind the technical system, based on integration of GIS road data, traffic control data and exact positioning of buses was developed under the authority of local governments - initially only one municipality, gradually several and finally the regional government. The information exchange is managed through a set of technical and management agreements between the
contributors. The current information systems incorporate real-time public transport data, which are collected in moving buses, and through various stationary collection points, such as bus stops, traffic lights, and strips below the asphalt. The regional government took up the responsibility for the overall project as they claimed authority over regional mobility and transportation. However, in the control of the data the functions of the traffic authority (the regional government) and the managers of the road (local government) are separated. As far as the data collection is concerned these autonomous authorities were maintained. The overall authority of the technical information system, not including the data, was subcontracted to a market party. Table 3 summarizes a number of general properties of the cases.

These properties were further investigated through the coding of in-depth interviews, using the analytical political-organizational concepts as mentioned above. NVIVO software supported this process, as it has the capability to query and link coded statements. This led to findings on authority, interest, command, control and coordination, which are summarized in Table 4. Pfeffer and Salancik, (1978) note that:

One is not always in a position to achieve control over dependence through acquisition and ownership, however. (...) There are many informal mechanisms and semiformal interorganizational linkages that can be employed to coordinate the respective interests of various social actors. Social coordination of interdependent actors is possible as a means for managing mutual interdependence. Behavior, in this instance, is not determined by hierarchical mandate but by agreements to behave in certain ways. Some of these agreements may be tacit, taking on characteristics of social norms. Other may be more or less explicit.

Most of the formal arrangements relating to authority could be verified through documents which were made accessible during the research. Perceived interests were largely extracted from individual responses, reactions, and expressed concerns and hopes. The command and control findings were largely extracted from responses which showed certain examples. Findings on coordination were extracted from responses relating to how people behaved during joint meetings and what type of rhetoric was frequently and consistently used in the development of the cooperation.
Table 3. General properties of the cases

<table>
<thead>
<tr>
<th>Properties</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology used</td>
<td>Spatial databases which can be integrated with GIS data and functionalities</td>
<td>Sophisticated Laser scanning data collection resulting in data for GIS</td>
<td>Integrated architecture of real-time GPS data collection, Management Information systems, public transport information systems and traffic control systems</td>
</tr>
<tr>
<td>History and results of cooperation</td>
<td>Cooperation is the result of an historical (some 150 years) sequence of land and cadastre laws, and local government laws; until recently, the National Cadastre had many individual agreements with each municipality.</td>
<td>A set of informal agreements led to two different covenants within ten years</td>
<td>A number of pilot projects led to the development under the authority of the regional government. Responsibilities were arranged through different levels of agreements</td>
</tr>
<tr>
<td>Key drivers observed and reported by respondents</td>
<td>Efficiency</td>
<td>Efficiency in information processes; basic registration.</td>
<td>Political objective of local and regional mobility</td>
</tr>
<tr>
<td>Perceived bottlenecks</td>
<td>How to deal with heterogeneity (in terms of ICT / municipality size / resources / political priorities) of municipalities + different roles of Cadastre in relation to municipalities.</td>
<td>Efficiency in information processes; basic registration</td>
<td>Integration with other political priorities in mobility domain (OV – card)</td>
</tr>
<tr>
<td>Direct effects observed in governance</td>
<td>Stronger role of Cadastre; counter movement of municipalities</td>
<td>Reinvention of relations of water boards with other water managers; declining role of provinces</td>
<td>Flexible yet reinforcing local authorities</td>
</tr>
</tbody>
</table>
A couple of comments can be made.

1) The historical trajectories of cooperation show on the one hand strong, controlling institutions, aiming for INSPIRE compliance and their implementing actors. This is strongest in the case 1, as exemplified by two quotes:

“In general we have a good relation. It is just...as soon as things start to get institutionalised...then all of a sudden there is a ministry popping up, like VROM. They make....just look at the authentic registrations ...they simply state the law...and somehow we have to comply. Cadastre does this, municipalities do this. And then, .you work together...communicate together...so that we can execute what we can do, and they execute what they can do...we prefer to leave the politics to VROM.”

“Municipalities and Cadastre...in our own discipline...there was always tension...and this originated from the past...even when they had the same professional background...it was the Cadastre who decided and the municipalities who had to follow...Well ...there has been quite some change recently...”

On the other hand, the flexible structures are less compliant with (supra-)national implementing rules and allow for much more flexibility. What both have however in common, is an increase in the variety of agreements at different levels of each of the contributing parties to the cooperation. Such agreements may consist of practical arrangements, or exchange of staff, but also of remuneration and exchange of money. An effect of this variety is the distributing of authority and responsibility. It opens opportunities to question the authority and design or even adopt alternative structures, and find legitimacy for this in the availability of other Directives.

2) This development is also reflected in the perceived interests. There is a particular need for autonomy, and for autonomous decisions. In relation to Case 3 it was frequently mentioned that despite supra-national regulations and implementation trajectories, local governments are increasingly involved in local principle-agent relationships (i.e. contracting authority vs. contractor relations):

The transporter is actually responsible for the ICT. It doesn’t really matter how he does it. You have a relation between the government and a private contracting party, a commercial party. They have to perform for a certain price and a certain quality...In such a scenario, transporter and contracting authority cannot just say “let's handle this together”, no, it's a hard
commercial agreement, you get a bonus if you do well, you get a penalty if you don’t

One could argue that such autonomy interests are in conflict with integration objectives. However, full integration of the public agencies was perhaps never a primary goal of INSPIRE or any other geoICT related policy, even though the key drivers for the cooperation (largely focusing on efficiency gains, and harmonizing of inter-agency operational work processes) seem to suggest so. It is probably the rhetoric of new public management, as also highlighted in Homburg (2004), that have an effect on the rhetoric at all levels within organizations. There is obviously the idea that an increase in inter-agency efficiency (between public agencies) also leads to an increase in integration of those public agencies. Against this point of view one could pose that the command, control and coordination is probably not so integrated. In fact, the heterogeneity of the cultures, capacities and historical backgrounds of larger sets of similar organizations (e.g. municipalities, water boards) leads central organizations to apply a strategy one-fits-all (be it with a few exceptions), which creates a counter-reaction. Alternative standards, structures are especially generated by consortia of smaller organizations, the water boards joining up in inter-agency water boards’ data warehouses, and municipalities in inter-agency municipal data warehouses.

3) The historical base out of which geoICT interest originated plays an important role in the uptake. In the Case 2 this was exemplified by the direct relation between GIS and opportunities for tax collection. A statement from the water boards:

*Water boards needed to make quite complex calculations for their water tax collection. Previously, this was always done manually. If we were to do this automatically, using a GIS, we needed the digital height data. So, I had a serious interest to participate in such a project.*

In addition, local interests and showcases to increase local legitimacy may also blur (supra-) national interests, as shown by the opportunism of some local government:

*“We get direct money from The Hague to execute regional traffic and transport policies. Of course there is a discussion, how far do these policies reach? (...) So, every time when there is a pilot...we come with our own ideas. To give you an example...pay-as-you-drive...is politically hot...where can they do a pilot...of course in our municipality...we always have some small road to try these things out.”*

Table 4 provides a summary of the overall analysis.
Table 4. Summary of political-organizational properties per case

<table>
<thead>
<tr>
<th>Analytical concepts</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of formal arrangements / authority</strong></td>
<td>Law(s), in particular those related to authentic/base registrations; yet, the authority is under different ministries; geoICT guided by few Directives</td>
<td>Covenant; authority under different ministries and Directives</td>
<td>Layers of operational agreements; single authority, yet different Directives</td>
</tr>
<tr>
<td><strong>Perceived interests</strong></td>
<td>Use of ICT to maintain autonomy</td>
<td>ICT used to increase technical &amp; financial autonomy by lower government agencies</td>
<td>Project is used as a showcase of regional government to citizens and national government.</td>
</tr>
<tr>
<td><strong>Command &amp; control</strong></td>
<td>Top-down command and control perceived to maintain vested interests</td>
<td>De facto strong inter-agency dependency relations</td>
<td>Local control of regional government, with principle-agent relations towards implementing agencies</td>
</tr>
<tr>
<td><strong>Coordination</strong></td>
<td>Efficiency driven, following operational business objectives of maximizing output for minimal input, and partly INSPIRE exchange objectives</td>
<td>Driven by national public sector downsizing objectives, and by technical expertise (data accuracy needs)</td>
<td>Largely driven by the management information needed on regional mobility to maintain or change local transport authorization</td>
</tr>
</tbody>
</table>

4. DISCUSSION

When reflecting on the assumptions of Table 1, and relating this to the findings as given in Table 3 and Table 4, one could find reasonable evidence against the assumptions mentioned in Table 1.

*The independence of the public task and the public authorities*

The historically prominent roles of the Cadastre and National water agencies – directly under a national ministry and closer to the INSPIRE preparation and implementation drafting teams - have generated a number of caved-in tactics and expectations in the geoICT domain. Technical expertise vested in certain organizations, has led to a de facto dominating role in any cooperation that involved geoICT. This follows from what both institutional theory and resource
dependency theory would predict, namely a fairly static power structure within cooperation in relation to technology.

The increase in establishing principle-agent relations over top-down structures shows that technological developments in ICT and gradual adoption by various organizations of this technology seem to have changed this power structure, or at least the perception of power. The creation of the renewed AHN covenant specifically used the rhetoric of 2.0 (“two point zero”), to imply technical changes, while the major change as compared to version 1.0, was essentially in the management and control or the agreement, because the steering committee did not have any influence on the technological development. In other words, the new geoICT was used to justify certain changes in inter-organizational management. Technology acted as an agent of change in the operation and the cooperation of a public authority.

**Barriers to network, and willingness to cooperate among different public authorities**

An important element seems to be the image that is being sent out when cooperating. What seems crucial in any perceived success of the cooperation is a common view on how the technology is used to communicate with those external parties on which it depends. Within Sabimos the perception that the technology improved the image by which each of the parties were assessed, also led to the belief of funders and constituencies that this was a good thing to do. In the other cases, the specific use of the technology and the models was much more debated, in view of the explanation that each party had to do towards their constituencies. In all cases, however, the organizational-political rationality (i.e. increase of power, legitimacy, autonomy) seems to prevail over the informational rationality (as for example reduction of redundancy, integration of systems, etc.). The willingness to cooperate is thus strongly related to these political-organizational factors.

**Cooperation between lowest levels of government to higher levels of government**

Local government agencies (both municipalities and water boards) are experiencing a stressful load of having to implement many national and supranational policies. For those with smaller organizational capacities this means having to prioritize task execution. For larger ones, local capacity is utilized to influence the outcome of the national regulations, or even to derive alternative standardization structures. The article of Coumans (2007) describes such an alternative standard. Given this heterogeneity among lower tiers of government priorities, harmonization of geoICT may face different types of counter-reactions and compliance. If this is responded to by new instruments of compliance it may be perceived as a tool to centralize certain authorities which were previously decentralised.
The values and vested interests of different agencies when integrating

The implementation of INSPIRE does not come without certain vested interests in the geoICT solutions used. Most of decisions on cooperation and integration are made through professional and institutionalized associations and representative structures. The legitimacy of such structures is at stake if such decisions are not met by their constituencies. It is at the same time observed that many (new) GIS operators and technologists do not feel sufficiently represented in these structures. One could therefore conclude that the rationality of the technological decisions thus reflect and reinforce existing power relations.

The control and command across levels of government and the horizontal relations or cooperation structures

It is no surprise that flexibility in recently started G2G relationships shows more examples of flexible solutions and decisions than longer established and fully regulated G2G processes. One is seeking the solution of compromise, to accommodate for the number of unknowns in the relationship. This compromise may not be the most optimal technical solution, but it is the most politically viable solution. The cases whereby more regulations exist, confirm this finding. They show what is referred to in literature as the “reinforcement hypothesis” (Bekkers and Homburg, 2005), ICT tending to extend and reinforce prevailing biases of governmental structures and political processes.

5. CONCLUSIONS

The analytical findings show that in all cases political-organizational factors influence the practice of cooperation with geo-information. Such factors find their root in historical practices which were institutionalised, and legacy systems and standards which have been dominating. Such findings are partly in accordance to what van Loenen and de Jong (2007) found on the role of institutions. Added to these findings is that the counter effects include resistance to what is perceived as top-down steered standards, and the construction of local alternative standards. The reasons for the emergence of these counter effects can be sought in the increasing needs for autonomous decisions at the local level, which arise out of increasing influence of constituencies. There seems to be a cyclic process ongoing with regards to the acceptance or adherence of standards: A provisional hypothesis, when looking at the overall governance of geoICT, is that harmonization processes, such as INSPIRE, cause a (chronological) sequence of:

1. Centralization of standards, formalization of data regulations, grouping of authorities or even centralizing authorities.
2. Decentralization (opposition to standards, alternative standards, autonomous solutions, flexible solutions) and
3. **Re-centralization** (new associations, new maneuvering). Inter-agency cooperation changes from reciprocity relations to more top-down / principle-agent relations

In addition, the perceived complexity regarding supra-national standards which do not directly relate to local objectives may be a reason why in particular local organizations are hesitant to comply. The consequence is that if these political-organizational motives are not taken into account appropriately, the unintended and often hidden counter-effects may overall hamper the implementation of the INSPIRE Directive.

Concluding, are there any clouds that we don’t see, or that we try to see with the wrong glasses? Yes. These clouds are: (local) policy motives, local politics and local interests, and local alternatives to national and supranational programs, regulations and designs. The obscuring process is done through lobbying, organizational maneuvering, opportunism and generation of alternatives. Parts of the clouds are also consisting of money/financial limitations of local/individual organizations, which may lead them to opt for other - perhaps suboptimal – solutions and technologies, yet solutions and technologies that fit the local organization. Central guidance will then not be preferred by the organization, since they heavily depend on other sources and interests. The aspects of INSPIRE which are obscured are the assumptions that all organizations are a priori willing to cooperate once they understand the benefits of cooperation. Also the assumption that they would voluntarily take action to cooperate once a -what is felt as a top-down- regulatory and implementation mechanism has been installed. Evidence shows that the drivers for action are not necessarily generated by the act of regulation and direction, but more so by the protecting or generating of certain interests, or by the need to minimize certain internal costs.

To generalize these results it may be necessary to validate them further with other cases and more longitudinal qualitative research, more quantitative measurement of opinions, and theory building based on both types of research. Bekkers and Homburg (2005) have advocated resource dependency theory and information ecology theory as suitable frameworks for further research if the organizational and political motives that play a major role in the socio-technical shaping, as in the cases above. In addition, one could think of using transaction cost / institutional theory as candidate frameworks to explain the dynamic behavior and the degree of redundant activities that occur as a result of counter-activities. To evaluate whether the results are typical only for the Netherlands, and reflect the particular set of relationships among institutions in this country, or the Netherlands’ approach to introducing INSPIRE, one would need to take a similar research approach for similar cases in other European countries.
REFERENCES


