

# Assessing the Quality of Collaboration in Netherlands SDI

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## SUMMARY

Collaboration between organisations is a critical success factor for effective SDIs. This study aims to assess the current state of the collaboration between organisations in the Netherlands SDI environment. The study uses a management approach, based on the INK (EFQM) management model. The study is case based. It focuses on three cases from the SDI practice: information about the living environment, water management and the emergency control room.

The study shows four main obstacles for effective collaboration:

- The absence of a shared view on the main problems in the chain
- Unclear outline and contents of chain processes (who serves who with what)
- Collaboration has to do with people, so those involved should be brought in contact and gain each other's confidence, on three levels: umbrella, organisation and operation
- The role of IT and standards as a stimulating or obstructing force is often underestimated.

The results of this study will be taken as a basis for further policy development in Netherlands SDI.

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## 1. INTRODUCTION

### 1.1 General introduction

Just as in the rest of the world, in The Netherlands through the ages geographic information (geo-information) has played important roles, ranging from military purposes to exploration purposes and from town mapping to treasure hunting. And geo-information is still playing an essential role.

Traditionally, all information systems were built separately as no useful exchange platform existed. Increasing computer power and computer networks have since the 1990's led to a lot of initiatives worldwide to improve the exchange of spatial information by establishing some kind of infrastructure; the so-called Spatial Data Infrastructure (SDI). SDI can generally be defined as the facilitation and coordination of the exchange and sharing of geo-information between stakeholders in the spatial data community (Rajabifard, 2002).

Due to the long time that no exchange systems for geo-information existed, geo-information 'silos' were established. Every organisation gathered his own information and used his own standardization. The minister of housing, environment and spatial planning is since long responsible for the coordination of geo-information in the Netherlands. Nonetheless, coordinating bodies like RAVI and the National Clearinghouse had limited power and worked on the basis of consensus. Within national government geo-information was not really managed up to now.

Stimulated among others by the emerging European guideline on Inspire, in June 2006 the minister installed the GI-council, aiming at a more coherent policy making on public sector geo-information. The GI-council consists of representatives on the highest policy level of central, regional and local public authorities. In spring 2007, Geonovum was founded as the operational NSDI coordinating body in the Netherlands.

The GI-council decided that as a starting point for their strategic policy making in the field of the Netherlands SDI, an assessment was necessary to define the scope of the field and to assess its current status.

Assessing Geo Information Infrastructures (SDIs) is a challenge because of its many, often intangible, definitions. Many definitions focus on the technical aspects of the NSDI like data, standards, networks and other components. In general there is less attention for the organizational aspects of an NSDI. However, the quality of collaboration is considered a critical success factor for SDIs. This leads to the thought that quality management methods that focus on all aspects of the organization of the NSDI might help in this assessment.

The Netherlands Cadastre, Land Registry and Mapping Agency (Kadaster) as many other organisations has positive experiences using a 'total quality management' model for internal assessments. This is used for getting a clear view of the state of the internal organisation, what is working well and what needs improvement. As the NSDI can be seen as a number of networks of collaborating organisations, it was assumed that a similar approach could work to assess the quality of collaboration. Kadaster offered the GI-council to aid them in their search for a clear starting point for their policy by means of such an assessment.

## **1.2 Popularity of Thinking in Chains and Networks**

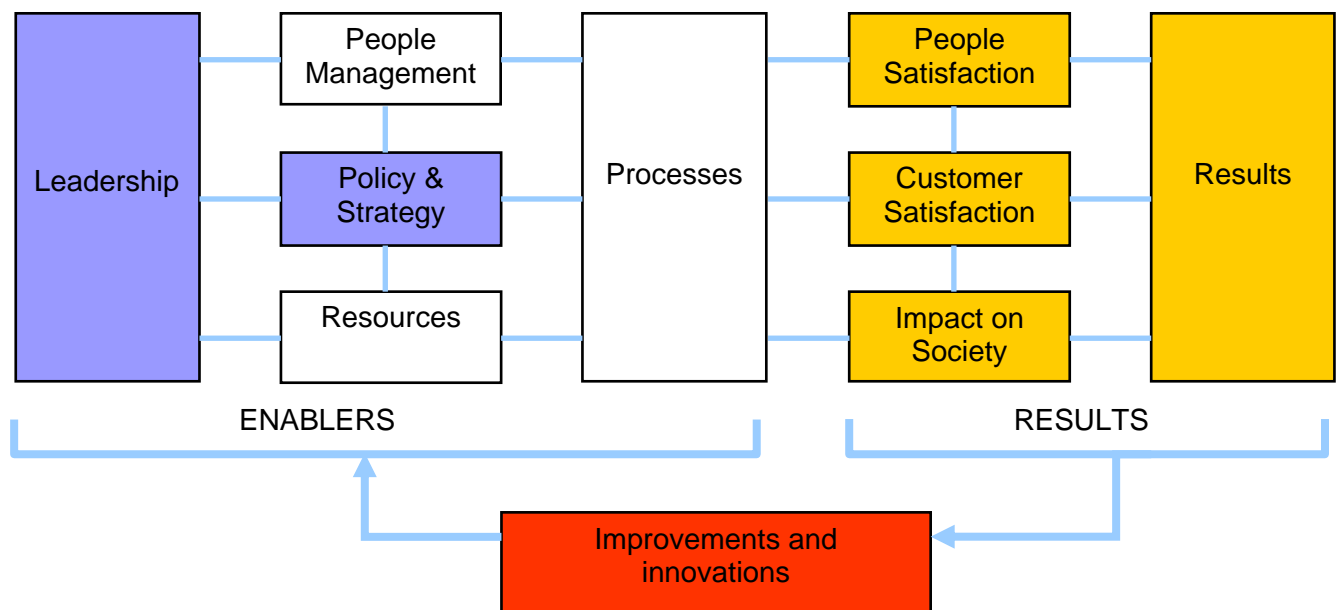
Thinking in chains and networks finds its origin in the management concept of the Japanese automotive sector in the last quarter of the 20th century. Instead of price-based procurement, Toyota and others decided to establish intensive partnerships with suppliers. At the same time, the number of suppliers was reduced. Partnering with these suppliers led to new products with the demands of the customer as a starting point.

In recent years many organisations in the public sector have embraced business principles similar to those of the private sector. Providing efficient and effective services to the customer, the patient, the student, the civilian etc. requires good collaboration with other organisations. The situation here might even be more complex because the problems in society (environmental issues, public security) go beyond the possibilities of single organisations, whereas these organisations traditionally focus on their own tasks and responsibilities.

The awareness of the importance of partnering shows from the popularity of this item in conferences and workshops and can be seen in several recent publications (GBPA, 2005; Havermans et.al., 2007).

## **1.3. Backgrounds INK Model**

The Netherlands INK management model is based on the European model EFQM. This model provides an evaluation framework for assessing an organisation's actions (enablers) and its achievements (results). On either side, both 'hard' aspects, such as performance measures and 'soft' aspects such as social coherence are taken into account. At present, the INK foundation is developing an extension to its model to be used for assessing quality of cooperation within networks of organizations (INK, 2006).



#### 1.4. Project Approach

The project uses a case-based approach, focusing on collaboration in practice. Three cases were selected from the full scope of NSDI applications: geo-information delivery in the private housing market, geo-information delivery for disaster management and geo-information delivery for water management. Each of the cases consisted of a cluster of about eight organisations who have to work together to deliver a product or service. The organisations participated voluntarily in the project and were willing to share their opinion on the pluses and minuses of the collaboration.

In the project an adapted form of the INK management model was used, focusing on the evaluation of network organisations; ‘the INK chain evaluation’. This approach leads to a common basis of understanding to find a common approach for the chain.

The method consisted of a number of components.

##### A. Identification of drivers for improving collaboration

Drivers for effective chain collaboration are identified from five perspectives: management, employees, customers, partners and general public. Participants were asked why collaboration within the chain is necessary from these perspectives.

##### B. Chain process description

Processes are in the heart of the INK-model, showing the importance of sharing a clear vision of the (chain) process in which partners are participating. Using a template for processes,

participants were asked to draw their own position in comparison to other stakeholders in the chain (without losing focus on the consumers of the chain).

### C. Typology of the chain

A clear view on the type of chain you are participating in is essential to formulate suitable measures. The INK approach distinguishes five chain types. A questionnaire is used to find the most fitting. The types are:

- Collaborative initiative. Organisations partner on a voluntary basis, charisma of initiators is crucial
- Project based collaboration. A contract with a fixed end date as base for collaboration
- Structural collaboration. Problem focused collaboration between organisations having equal powers
- Supply chain partnership. One dominant organisation gives directions, others search for maximal surplus (automotive branch as an example).
- Institutional Collaboration. Collaboration based on law or other institutional rules.
- Each of these types have different characteristics and require different approaches for improving effectiveness.

### D. State of play of individual organisations

A chain is as strong as its weakest link. The cooperative strength of the individual organisations was assessed using an abridged form of the regular INK-evaluation method.

### E. Analysis and suggestions for improvement

The outcomes of all previous diagnostics led to suggestions for improvement of collaboration in the cases. From the results of the three cases, a common view was extracted of the characteristics of collaboration within the Netherlands geo-information community as a whole and presented to the GI-council.

## **2. RESULTS CASE STUDIES**

### **2.1. Living Environment**

A citizen with a question about his living environment expects a correct and complete answer, preferably from one source. Currently citizens have to harvest their information from different sources. It may not be even clear whether the information is available at all. This chain of information needs to be more well-suited for the citizen.

This chain is focused on location based interoperability between different data providers.

The participants in this case study were the Ministry of Housing, Spatial Planning and Environment, province Zuid-Holland, municipality Rotterdam, Funda (a private webportal to houses for sale and rent), Kadaster and BO-EX housing cooperation (responsible for around 8000 houses for rent within the region of Utrecht).

The chain can be characterized as a cooperative initiative: participants share a common belief that service to citizens in this area can be improved.

For each of the INK-enablers a number of recommendations was proposed.

### Leadership

Leadership within this chain is a difficult process as it is mainly driven voluntarily. To get stakeholders involved, it is important to show them what is in it for them.

All stakeholders should agree on one organisation having a coordinating role. It is suggested that citizens themselves, by means of a consumer's organisation should be responsible for the chain. Also municipalities should have a central role in the collaboration process, as they often are the first portal for questions regarding the living environment. However, in the Netherlands it is difficult to make agreements with all municipalities as there are around 500 autonomous units.

### Strategy

The first step in the process has already been accomplished by the ministry of housing in the project 'Citizens panel E-strategy'. In this project an inventarisation was made on the needs and wishes of citizens within their living environment. The characteristics of the cooperative initiative require a pull strategy, not a formal approach. Evaluation within the process should be carried out by citizens and organisations that are directly involved, not top down.

### Employees

The cooperative initiative requires persons with a positive drive and open mind to give shape to the chain.

### Resources

Tools for data access should be simple to use and well integrated. Avoid dependency on a developer, use international standards.

For promotional resources it might be interesting to use:

- An interactive GEO-game
- Week of the GEO-data
- Directly involve citizens

### Process

A new process was designed for the collaboration chain, with the needs and wishes of citizens as a starting point, resulting in an integrated information portal.

## **2.2. Water Management**

Water management is the range of activities aiming at managing underground water and surface water as effectively as possible. One of the aims is flood prevention. Water boards and municipalities are responsible for operational water management and for the execution of policy that is defined by provinces and government at national level. Water management requires a variety of geo-information: altitude, robustness and lifespan of dikes, underground water levels and many other information sources. This case study focused on the cooperation in the design of the new version of the altitude model of the Netherlands (AHN), a typical

product development process.

The participants in this case study were RWS AGI (State Office for Public Works and Water Management), TNO DINO (data and information of the subsurface), Stichting GBKN-Zuid (Large Scale Base Map region South), Waterschap Peel en Maasvallei (waterboard region Peel en Maasvallei) and Kadaster. Currently, RWS AGI and the water boards are partners in AHN, other organisations are (potential) stakeholders.

The case study shows that in general there is not a great 'sense of urgency' for collaboration in this field. AHN can be characterised as structural collaboration, with some aspects of project-based collaboration.

Conclusions and recommendations by INK enablers are:

### Leadership

Interests of individual organisations are not always aligned with the interests of the chain process. Interests can be overruled by political priorities, often driven by issues in public opinion, such as climate change.

Not all stakeholders are involved in the highest level of decision making (e.g. waterboards are represented by a union of waterboards, this union can only advise waterboards, as they are independent). The AHN steering committee should focus on gaining confidence with potential new clients. A basis for this can be the GI-council or Geonovum.

### Strategy

A chain strategy should be developed with the following ingredients:

- Focus on processes
- Define results and risks (align risks with responsibilities)
- Align financial and HR policies within the chain
- Design transparent relationships between organisations on process level

Having a customer-focused strategy within the partnering organisations was found an important success factor.

### Employees

Stimulation of collaboration among colleagues within the individual organisations is also considered as an important success factor.

### Resources

New demands regarding the AHN may lead to a different finance structure.

Sharing knowledge within the chain should be part of knowledge management within the organisations.

## 2.3. Emergency Control Room

The emergency control room is the place where reports of calamities are handled for appropriate action by police, fire brigade and medical services. Within no-time a variety of location based data, derived from different resources, have to be available for use. Officially police, fire brigade and medical services have a control room of their own. Currently, a lot of initiatives take place to improve the collaboration on the regional level.

The participants in this case study were the emergency control room of police region Limburg Noord, municipality Ede, municipality Arnhem, Kadaster, GBKN (National Large Scale Base Map) and Dataland (portal for information on buildings and addresses).

There is no dominant collaboration type in this field. In some regions collaboration may be characterised as institutionalised or project-based, in other cases it is more like a collaborative initiative. Main driver for collaboration is the public opinion that institutions should cooperate well in case of emergencies.

### Leadership

There is no common vision on the functioning of a joint emergency control room. Despite efforts to tackle this problem on the national level, the collaboration still lacks clear leadership. It is recommended to make a good overview of on-going initiatives and to communicate positively (Be good and Tell it) in order to convince others to adopt good practices.

Besides that, a supported vision by the direction of the safety region is important. The partners within the emergency control rooms share a common view of "What does the client want?". Also the data suppliers share a common view on how to suit the needs of the partners. This can be organised in a suppliers board.

### Strategy

Due to the lack of management of the chain, the variety of strategies by the stakeholders is more frustrating than stimulating. Also the data providers have little focus on the client and on the availability of data.

### Employees

Focus on people and culture, based on value added from a customer perspective.

### Resources

At the moment the funding for improving collaboration seems to be lacking. There might however be sufficient funding on a macro level.

### Process

There should be a common view on the process of using geo-information in the emergency room. The use of geo-information should be part of the evaluation of calamities.



### **3. GENERAL CONCLUSIONS AND RECOMMENDATIONS**

#### **3.1. Conclusions for the NSDI**

There is not one 'geo-information chain'. The NSDI consists of a variety of chains and shows a variety of approaches to collaboration. The three chains analysed in this project showed very diverse results. Therefore it is difficult to say whether we created an integral view on the organisational aspects of the NSDI. Nonetheless, some general conclusions can be drawn, as presented below.

##### 1. Drivers for collaboration

The cases showed that the chains are often voluntary. There is no sense of urgency for collaboration. In many cases, improvements are driven by stakeholders (often as individual persons) with good ideas and not by necessity for the continuity of the organisation.

The case studies show that the political dimension is an important reason for collaboration. For example the discussion on climate change led to increased attention to the theme water management. The emergency control room received more attention due to the discussion on safety. Nevertheless, not always does this increase of political attention result in an increasing awareness of the geo-information chain.

From the living environment case comes forward that politics can also have negative impact on collaboration. After the installation of the new administration, the e-government project was cut back on finances and some parts may not be implemented.

##### 2. Chain process

In the case studies, the outline and contents of the chain (who serves who with what) are not clear. Process-based thinking and working is already complicated on the organisational level, as it impacts the way of managing the organisation. On chain level this is even more complicated. As hierarchy is lacking, the process identification is a hell of a job (what is the chain process, which services for which customers, how are things controlled, etc.). Nonetheless, this is key for improving collaboration. If key processes are not defined and if key drawbacks are not identified, the chain will continue to work on an ad-hoc basis.

##### 3. Leadership

A shared vision on the weak points in the chains is in most cases not present. A sense of urgency is missing. Often individual organisations have a problem to give up their autonomy within the chain.

##### 4. Chain strategy

The lack of a common vision and a clear definition of the chain process leads to uncertainty of the chain strategy. Ingredients of such a strategy are:

- Goals to be attained
- Risks and the spread of it

- Consequences for employees
- Financial aspects

### 5. Employees

Three different levels of action can be distinguished:

- People involved in the chain (colleagues of different organisations who have to work together)
- Leaders of individual organisations who have to stimulate, facilitate and evaluate collaboration
- Umbrella and political organisations who have to create a framework on which collaboration is built.

Combining actions on these levels is very complicated and can not be arranged by means of formal procedures.

Those directly involved have to know each other on all three levels, and discuss and come into agreement on what binds them and what bothers them within the chain. This aspect has been underlined in the workshop as participants generally were not cooperating with each other in their day-to-day work.

### 6. Resources

In all three cases the dominant role of ICT and standards becomes apparent. This needs to be dealt with in collaboration and can function as main driver for improved chain collaboration. It should however not be used to force organisations to cooperate, but as a means to discuss possibilities, limitations and consequences at all three levels (umbrella, organisation and process) of collaboration. Top-down imposing of standards might very well be a show stopper for effective collaboration.

## **3.2. Conclusions on the Approach of the Project**

Improving collaboration in chains depends on a large variety of factors, partly technical, financial and legislative.

Nonetheless, the most critical factors are the willingness and skills of the individuals. The network of the individual, the awareness of dependency on others and the awareness of being part of the whole. Problem in this project was that participants were not partners on a day-to-day basis. A second problem was that leaders of the participating organisations did not participate directly or indirectly.

Using the INK-model as approach was a success according to the participants. It created overview and possibilities to discuss with partners. Despite the big differences between the participating organisations, still possibilities for improving collaboration came into view. Anyway, it was important not to use the INK-approach too strict, but to use it as a supporting mechanism for the project.

Exercises like these bring stakeholders together to generate ideas and thus contribute to improving the chain. It takes time to change from thinking as an organisation to thinking as part of a chain. This is a social-learning process that requires re-evaluating and eventually

rejecting current rules of thought. It is important take a practical viewpoint. Participation from profit-organisations may have a stimulating effect.

### **3.3. Recommendations**

As result of the conclusions mentioned above, the GI-council was recommended to:

- Set priorities for the approach of a few specific chains within the NSDI, this can be done using the vision document created by Geonovum.
- Aim at structural improvement of collaboration for the chosen chains, ingredients for this are mentioned in the conclusions above.

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