



## Semantic and Organisational Interoperability in Communicating and Collaborating Organisations Terje Grimstad, NO

### Semicolon

Full electronic interoperability between public and private sector and between public agencies is highly prioritised in Norway as in most other European countries. In Norway, two Norwegian Official Reports were published in 1988, introducing and discussing concepts about collaboration and communication in the public sector. Up until then, there had been a tremendous increase in IT-systems, which were not able to communicate or exchange information, all over the public sector.

Much has been accomplished during the last 20 years. The introduction of TCP/IP and the Web has built a foundation for both technical interoperability and services for citizens and businesses. However, many unsolved issues remain, especially semantic and organisational issues. In Norway, Semicolon is a contribution

from the research community to shed light on these problems and suggest solutions to overcome obstacles for better interoperability.

### Assets

The interoperability situation in Norway is not bad. The Norwegian public sector is increasingly user-oriented and there is strong national and international policy support for electronic collaboration. 'An Information Society for All', Report no. 17 (2006-2007) to the Norwegian parliament, addresses electronic collaboration as a means for the provision of electronic services on a 24/7 basis. EU's Lisbon strategy claims that a well-functioning public sector represents a competitive advantage for businesses. It is claimed that collaboration between public organisations, citizens and businesses is necessary to provide a more effective and efficient public sector.

In summer 2007, the Norwegian Ministry of Government Administration and Reform, which is responsible for coordination of the use of information technology and measures to make government more efficient and service-oriented, organised a working group with key ICT-personnel from all major public organisations to give recommendations about a Common ICT-Architecture for the public sector in Norway. The group delivered their report to the ministry in January 2008 [FAOS-report, not yet published]. All the Semicolon-partners from the public sector participated in this working group.

Quite a lot of infrastructure is already in place. Altinn ([www.altinn.no/en](http://www.altinn.no/en)) is a service through which citizens and businesses can report information to public authorities. MyPage ([www.norge.no/minside](http://www.norge.no/minside)) is a portal through which services from different public bodies are made available to the citizens. SERES II is a project run by the Brønnøysund Register Centre and the goal is to provide a national metadata register.

## Problems

Even though there has been policy support for interoperability during the last two decades, and several services are in place, many unresolved issues still remain.

One of the conclusions from the FAOS-group was that the stove-piped managerial structure in the public sector is an obstacle for collaboration and communication. The public sector organisations are allocated a budget by their ministry. All of the goals and evaluation criteria are intra-organisational. No, or only very limited, funds are allocated for collaboration activities spanning several organisations belonging to different ministries.

The Office of the Auditor General in Norway has made a recent study of ICT as an instrument to obtain a better health service and better utilisation of resources in the Health sector in Norway [Document 3:7 (2007-2008), published 22nd April 2008]. The study concludes that still, after 10 years with heavy investments in ICT-support, a vast majority of information exchange is paper-based. The Directorate for Health and Social Affairs has had the responsibility to implement a national strategy plan for electronic collaboration in the health sector. However, it

seems like the means available, and the means in this context should not be interpreted as money only, has been too limited. The Auditor General raises the question whether there is a discrepancy between the responsibility and the means available to reach the target.

A forthcoming report from the Auditor General raises the same questions for electronic interoperability in general between public agencies in Norway, stating that the overall situation is not satisfactory compared to expectations and plans.

Most of the services available today stem from one public body only. There are almost no cross-sector services, e.g. services to citizens in life-cycle situations where a child is born or a person dies. Such services require streamlined business processes running through several public organisations. There must be integration with existing data registers, and a common view of the information following the processes e.g. represented and supported by a national metadata register. Last, but not least, an easy to comprehend, universally designed, user interface to the services through well known public portals must be supported. Few of these assets are in place.

## **Semicolon's contribution**

Semicolon takes a holistic view on interoperability. All dimensions from the European Interoperability Framework are in principle covered. However, the project does not put much emphasis on technical interoperability. Semicolon is centred on the semantic and organisational dimensions and includes information models, business processes, metrics, methods and tools.

Semicolon will develop ICT-based methods, tools and metrics through research based experiences in real collaboration cases where the aim is to produce public electronic services to industries and citizens. The idea behind Semicolon is that the project shall involve influential organisations, build competence and understanding and also generate recommendations for methodologies, tools and metrics, i.e. give the public sector a set of guidelines to construct, launch and evaluate the effect of cross-sector services. Due to stove-piped budgeting and evaluation principles in the public sector, the Semicolon project will address collaboration and coordination issues that would not have been addressed by the individual organisations alone.

Five large public bodies provide collaboration cases as study items for the project. All cases are cross-sector in nature. In total, the cases cover a large spectrum of typical collaboration and communication issues. Our ambition and assumption is that Semicolon shall make a substantial contribution both to identify and give advice on strategies and solutions to overcome obstacles for interoperability in the Norwegian public sector.

The cases which have been selected are either on-going exercises or they have been started as a direct result of Semicolon. New cases will be developed during the project period. The initial cases are:

#### Realisation of eDialogues (Tax Directorate and Health Directorate)

The eDialogue-concept is introduced by the Tax Directorate. eDialogue services are cross-sector services such as the birth dialogue and the death dialogue. The eDialogue requires modelling of cross-sector processes and accompanying information. Metrics and indicators should be developed in order to measure the socio-economic effect of each eDialogue. The measures should be both quantitative and qualitative, and will among other things be used as a basis for

decisions to implement an eDialogue service or not.

#### Metadata model (Tax Directorate)

This case will constitute an example for other public organisations and pave the way to the establishment of a national metadata register. It will provide specific requirements to the SERES II work at the Brønnøysund Register Centre.

#### The Birth-eDialogue (Directorate for Health and Social Affairs)

This eDialogue-process involves lots of public organisations. When a child is born the child should be allocated a unique identity number by the Tax Directorate, it must get a name, the local health station should be notified, and the parents should be notified about health control and vaccination. In some cases Child Welfare Response and Consultation Teams and the Norwegian Correctional Services need to be notified. Norwegian Institute of Public Health and Statistics Norway gather information for national health statistics. Today much of this process is manual and much can be gained by the formation of a streamlined electronic process, an eDialogue-process.

### Provision of data for researchers (Statistics Norway)

Statistics Norway has defined the provision of information on persons, establishments and enterprises for research purposes as a case. Researchers at approved research units can order data at an individual level from Statistics Norway's data collections ([www.ssb.no/english/mikrodata\\_en/](http://www.ssb.no/english/mikrodata_en/)). Such data may be ordered according to special conditions. Furthermore a data security agreement is required. Accurate semantic definitions and high quality information models are prerequisites for high quality data.

### Result XML

The Norwegian Association of Local and Regional Authorities - KS has selected standardised integration between ICT systems in the Local Administration sector as its case. That way the Local Administrations will be able to make harmonised requirements specifications when purchasing ICT systems.

### Facts about Semicolon

Semicolon is a three year research project partly funded by the Norwegian Research Council. It addresses the challenges to establish compatible ontologies, information models and the necessary organisational coordination and collaboration to simplify public service production across several public bodies. The project runs 2008-2010, and has a budget of about 6.3 million Euro.

The Semicolon-project is organised in the following six work packages:

WP1 – Project and innovation management

WP2 – Organisational interoperability

WP3 – Semantic interoperability

WP4 – Information modelling, methodology

WP5 – Tools support

WP6 – Dissemination and conformity

- The participants of Semicolon are: the Directorate of Taxes, the Brønnøysund Register Centre, the Directorate for Health and Social Affairs, Statistics Norway and The Norwegian Association of Local and Regional Authorities – KS. The organisations performing the research are Det Norske

Veritas (DNV, the coordinator and project owner), the company Karde (initiator of the project), consultancy Ekor and the Norwegian Centre for Informatics in Health and Social Care - KITH. The University of Oslo and the

Norwegian School of Management as well as the universities of Oxford and Aberdeen provide expertise in semantics, object orientation and organisational theory.

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