

# **EGovernment for eCitizens. NSDI as Tools in Good Governance - Examples from eNorway and Norway Digital**

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**Key words;** Spatial Data Infrastructure, eGovernment, eCitizens, good governance, Geoportal

## **SUMMARY**

eGovernment has been put on the agenda at several FIG WW, Workshops and seminars and there is a lot of information in the various proceedings. Commission 3, working Group 3.1 eGovernment for eCitizens has followed the development, summarized and analyzed some papers and studies. In my paper I will present a short summary and lessons learned and give some examples from various countries. I will present more in depth the situation in Norway about eNorway 2009, eKommune 2009 and Norway digital as tools in good governance and interaction with the citizens. I will also present this in relation to the European INSPIRE directive.

WG 3.1 are focusing some key mission statement in its work

- Supporting the use of spatial information tools in eGovernment for decision makers and citizens to support the goals of participatory democracy.
- Encouraging decision makers for a more extensive use of spatial information and successful SIM approaches within good e-Government and e-commerce.

The development of Internet use, e-Government and GI based net-portals have accelerated. WG 3.1 is not occupied with the technical approach. We want to focus especially on the users, their demands and needs, the potential for good information dissemination and interaction. I will inform you about the WG 3.1 plan and experiences so far. I will refer to some good examples of e-Government case that the WG 3.1 has studied, but mostly I will share with you the experiences from eNorway 2009 and the Norway digital program including the relation to the European INSPIRE directive

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## **1. INTRODUCTION**

**FIG WG 3.1 eGovernment for eCitizens** has the overall objective to support awareness raising on interactive information flow between providers, partners and customers (PPP) based on Spatial Information Management (SIM) based tools.

Spatial information is a facilitator for IT based services for administration as well as for citizens. By thus SIM will have the role of an integrator of components for a Spatial Information Infrastructure within an Information society such as:

- Services and workflows for decision makers and citizens in participatory democracy
- Government – business – customers: relations and activities
- Integration and cooperation in a distributed environment
- Business location and economical analysis

### Projects and outputs from WG 3.1.

- Facilitate experience exchange through workshops and papers
- Provide links to information and minutes of workshops
- Summaries on lessons learned – success criteria and impact on administration and citizens
- Provide recommendations for facilitating interactive and participating e-Government society
- Report on good practice of Spatial Information within e-Government supporting citizens in participatory democracy

In our detailed work plan we have encouraged speakers and papers to FIG meetings with examples of e-Government projects and programs where SIM is an important part. Examples can be found in the proceedings from FIG working weeks and from FIG Com 3 meetings from 2002 to 2008. Especially in our annual meeting and Workshop in Budapest 2006 important findings were presented with examples from all over the world where spatial data distribution and public web access to spatial data are essential. These cases demonstrated spatial data as a tool in decision making and as a tool for public participation in decision processes.

We have informed about some links to e-Government web sites where SIM is an important part. There has been a discussion about criteria for successful eGovernment and invitation to come up with relevant good demonstration cases. There have also been some parallel studies

and publications on assessment of e-Government and we have decided not to double up such studies like the UN portal on e-Government. However we will extract the relevant information and some of the criteria from such studies. WG 3.1 has decided to focus on the examples based on GI as an important key to information and will especially look into examples on real interaction and participatory use of eGovernment.

## 2. EXPERIENCES AND EXAMPLES

### 2.1 UN-Survey on eGovernment

Global UN portal on e-Government <http://www.unpan.org/egovgovernment.asp> gives many links and comments to cases on eGovernment around the world. Exploring the interlinkages between e-government and development, the *UN Global EGovernment Readiness Report 2005: From E-government to E-Inclusion*, presents an assessment of the countries according to their state of e-government readiness and the extent of e-participation worldwide. The *UN Global E-government Survey 2005* gives the basic message that there are huge disparities in the access and use of information technologies, and that these disparities are not likely to be removed in the near future unless a concerted action is taken at the national, regional and the international levels. I quote from the report an important summary:

“An imperative of development today is to employ information and communication technologies (ICTs) to level the playing field for all. The cross-cutting nature of technology provides opportunities and enables delivery of much needed economic and social information to remote areas of the world with the promise of leapfrogging traditional development cycles. Access to information and communications is considered crucial for poverty reduction, since it contributes to new sources of income and employment for the poor, improved delivery of health and education services and competitiveness of the economy. However, harnessing the full potential of the benefits of the global information society is possible only if all nations and the peoples of the world share this opportunity equally. Further, the existing spread of information technologies to a select group of people in the world is worsening disparities between the e-haves and the e-have-nots. “

### 2.2 Ongoing developments in Europe

Most countries in Europe now have strategies for eGovernment and how to use internet as a communication base for interaction between Government and the citizens.. Spatial Data Infrastructure (SDI) is established in most countries. The EU INSPIRE directive gives new framework for harmonising and exchange of information as a base for environment planning and management. There are several websites and portals for information on eGovernment development in Europe. <http://www.epractice.eu> is a website where registered users can submit their projects to the portal and can contact authors of cases to have the possibility of experience exchange. It is a website for real life good practice cases, submitted by the ePractice members. Some of EU R&D programmes are also dealing with eGovernment issues as well as projects connected to the INSPIRE program and the GMES program

## 2.3 Global Examples

We have also looked into some global examples like eGovernment solutions in disaster management with examples from ISDR (International Strategy for Disaster Reduction) Some websites by NGOs and authority after the great Tsunami in 2004, the Integrated Land Information System in Northern Territory, Australia (NTLIS), OGC services and others.

In my presentation here I will not go into the various examples but only mention a few including the Web-castle set up by Eurogi as a portal for linking to good examples and experiences in various countries and fields. Other examples are City and Country information portals like Capital Prague Municipality Informatics in Czech Republic, GeoInformacio de Catalonia in Spain, Flood Control Information System in Hungary, Information on Road situation in Slovenia with updates every 10 minutes, various weather forecast portals, and we can find many portals with information on disaster situations, including prevention and preparedness information. Many of these portals bring good information to the citizens and give them a good background for participating in the development in their local environment,

However there is still much to do, especially on eCitizen interaction to reach a level from pure information through one-way interaction, two-way interaction to a stage of real transaction and full electronic case handling.

Working group 3.1 has so far summarised some important issues for succeeding in eGovernance and will highlight the importance of political support to insure inclusion and interaction, to secure data sharing and distribution, to facilitate equal opportunities, and to invite for participation. It is important to have enthusiastic organisations at all levels with clear strategy, easy access to internet and open, standard based technology that allows online integration from distributed sources and dynamic metadata, both data content and services catalogues.

## 3. EXAMPLES FROM NORWAY

### 3.1 eNorway 2009

The Norwegian Government has set up an objective of making everyday life simpler for the citizens and securing the future welfare. ICT, used in the appropriate way, is a contribution to achieve these goals. ICT is a natural part of everyday life for most people. The Norwegian government wants to support a knowledge society where everyone can participate and where the potential of the use of information and communication technology is optimised. ICT shall support the development of public authorities to be a safe and efficient distributor of services and resources. The needs of the citizens and the private industry shall be the driving force for the development of the eNorway services. *eNorway 2009* is about how the government wants to use and realise the opportunities

The government has initiated a co-operation between representatives from governmental and municipal institutions, private enterprises, professional organisations and NGOs. With a

strong and constructive commitment from the various actors, there is achieved a lot of results in relatively short time. eNorway 2009 will support the governments policy on economic growth and value for society. Good environment for research, high digital competence amongst the citizens, a high level of investments in ICT and a good ICT infrastructure are factors which contribute to get Norway in a good position in this field. Actions and projects will contribute to release value for society of IT. It is not only about technology but also about the way we communicate, work, learn and organise our public sector and about how value adding services are to be created in the Norwegian society. eNorway 2009 has three main focused areas:

- The citizens in the Norwegian digital environment.
- Innovation and growth in the private industry
- A co-ordinated and user approached public sector.
- eNorway 2009 is focusing on cross sector initiatives and projects both across the sectors and between public and private sector.

Some of the goals from eNorway 2009 relevant for the GI society.

- eServices for everyone including those who does not have internet access by 2007
- 80% of public web sites shall fulfil the quality criteria of Norway.no for availability by 2007
- ICT shall be integrated in all subjects through the education plans
- All relevant interactive public services for the citizens shall be available through the citizens portal My Page by 2009
- All Citizens can choose to receive public information and communication from the public electronic by 2007
- All agreements for reuse of public data shall be assessed for adaptation to the PSI directive by 2007
- Governmental authorities within the geodata field and most of the municipalities shall be part of Norway Digital and have an update system for their own data.
- There will be modern electronic charts available for all Norwegian coastal water by 2008
- All non-sensitive communication between public authorities shall be done electronic
- All public institutions shall use electronic supported administrative systems and electronic archives
- All public institutions shall use eID and eSignature for all relevant services
- All new ICT systems in public sector shall be based upon open source standards by 2009

The Ministry of Environment in co-operation with other ministries, the municipalities and Norwegian Mapping and Cadastre Authority are given the responsibility for the priority tasks in eNorway 2009 relevant for the Geographic Information Society

*My page.* As a part of the eNorway 2009 program it is a goal that all relevant interactive public services for the citizens shall be available through the citizens' portal My Page by 2009. As part of development and demonstration projects some examples is set up by use of

interactive map related to “My Page” for the citizens to access information related to his own neighbourhood. My Page won a European ICT award for 2007

### 3.2 Norway Digital

*Norway digital* is the Norwegian government’s initiative to build the national geographical infrastructure. Norway digital is already a working co-operation and infrastructure with reference data and thematic data available, more than 600 partners and more than 100 operational web map services, geoportal and other services. Thus Norway digital is an existing implementation of the infrastructure described by the European Inspire- directive. The major concept is the building of a national geospatial infrastructure in support of eGovernment. The aim is to enhance the availability and use of quality geographic information among a broad range of users, primarily in the public sector. A broad representation of Norwegian public bodies is participating, at national level ministries and their directorates, at local and regional level most of the Norwegian Municipalities and different regional public bodies. The co-operation is based on the white paper on the National Spatial Data Infrastructure presented by the Norwegian government and accepted by the Parliament on June 18. 2003.

Norway has a long tradition for co-operation between public and private sector in general and between organisations in both public and private sectors. The national standard known as SOSI is a very good example of this co-operation. Within the framework of SOSI, there is nation-wide acceptance of the data structure of nearly all relevant application fields, and also a standardised method of exchanging the data. Now the framework is based on ISO standards. The current policy for the SDI development is based on three main components:

- a geodata portal
- a geographic information metadata service
- a range of access services

Through Norway Digital all public producers, authorities and main national users of geographic information (maps, geodata and property data) have established a co-ordinated and user friendly distribution service. This service makes all standardised geodata available through a core portal. The data is free of charge for internal use for all the participants in the program and the service is available on commercial basis and as a free of charge view service for the citizens. All institutions participating in Norway digital bring their own data into the infrastructure making it available to the other partners. The spatial data is divided in two main categories, reference data and thematic data. Norway digital will treat both kinds of data. Reference data include topographical data, hydrography, roads and other infrastructure, land use, buildings and cadastral information, elevation and bathymetry, orthophoto. There is a joint funding of reference data through Norway digital, based on the Geovekst model. Thematic data include a broad range of information produced by national institutions and municipalities at the local level. The themes cover aspects such as demography, risks and risk management, protected sites, biodiversity and nature values, pollution, fisheries, geology, mineral resources, agricultural and forest resources, cultural heritage and outdoor recreation

facilities. The activities in Norway digital are regulated through standardised agreements and a core technological platform based on internet technology. The Norwegian mapping and cadastre authority is the co-ordinator of Norway digital. The task will increase the availability of geographic information, and improve the quality and availability for all.

One of the important elements in Norway digital is co-operation. The cooperation is unique both nationally and in Europe with more than 600 partners. The red thread is to give a little and get a lot.

### 3.3 GeoPortal – [www.geonorge.no](http://www.geonorge.no)

The main objective for the portal is to make spatial data and environmental data available and ready for use to local and regional planners, officials and politicians. The needs for environmental decision making and planning will have priority. The Portals shall also in general serve the government, private sector and citizens with environmental GI on the Internet. The dissemination of the information in Norway digital is based on new technologies and standards for Internet distribution. There is a rapidly growing interest among the partners to disseminate data as web map services.(WMS) Downloadable data are available on standard formats. Metadata is delivered together with the data. The Geoportal architecture is based on national components and on WMS, WFS, WCS web services and based on international standards (ISO and OGC). It includes both regional and local components and is used to build both a national portal ( [www.geonorge.no](http://www.geonorge.no) ) and regional and local portals. Also some organisation/thematic specific portals are based on the same architecture. The development addresses all and any potential application field for geospatial information. It has a big variety of content, a rich set of functionality reference and thematic data and services. Much is now in daily, fully operational use such as the national portal, wms services from a large amount of agencies with national coverage, Web services and portals from local authorities. The geoportals and gateway focus on four main topics :

- GI catalogue/metadata service
- Web mapping, web map server clients
- Downloading functionality
- Information, specification, standardisation

*Download functionality, access points.* Many users in area planning, the environment and risk management field will need the thematic data sets for use on their own GIS applications. The portals will be an access point making spatial data-sets available through a set of download functions. It is distributed solutions where the data will be provided directly from the various agencies own servers. The geoportals will offer the download functionality as service to other data suppliers. In this context it is a challenge to handle the differences regarding copyright and pricing policies. Today this is ranging from full cost recovery and strict licensing regimes to general free access and use. Several metadata catalogues are now running and more than 210.000 datasets with reference data and more than 50.000 datasets with thematic data are accessible through the portal. On an average there is about 300.000 downloads every day.

### 3.4 eKommune 2009

The municipalities in Norway have decided on a core strategy for ICT called *eKommune 2009*. This includes strategies both for surveying and spatial data, cross border cooperation, infrastructure and standardisation, integration and interoperability, ICT in local democracy and participants for the citizens. In the strategy it is stated that maps and spatial information is important both in society planning and for value adding services directed to the industry and to the citizens. Access to spatial data is essential for local government and for development of quality services. For the industry there is good potential for development of services based on geographic information. In this strategy participation and influence for the citizens is highlighted. By facilitation participation in the political decisions in the municipalities through electronic channels for dialogue between the citizens, the municipality and the politicians, the political arena is broadened and the possibilities for the citizens for real influence is increased. This will lead to better knowledge about the needs and the challenges that concerns the citizens.

An increasing number of regional GI portals are opened the last years, many in collaboration between neighbouring municipalities. The collaboration often has defined two main activities. One activity is to join forces in first time data capture/storage, maintenance and distribution of various spatial data sets. The second activity is to develop and run a common web-mapping application. Some major benefits achieved from such collaboration are

- GI catalogue/metadata service
- Shared cost through establishing a common IT/GIS infrastructure and
- Access to GI expertise by employing a project manager with long GIS experience.

*Municipal experiences and opportunities.* In the municipalities there are new possibilities with WMS as important condition for better access to data and better participation in municipal processes. A good example is Bårum municipality who has participated active in the geoPortal project. Bårum municipality has long experience with internet distribution of geographic information both to the public and for internal use. Bårum is an active municipality within development and use of new solution within ICT and GIT, they have interested and demanding users within the municipality, a liberal attitude to the spread of information but they recognize sometimes conflict between the objective on free float of information and the demand for income of the same information. The chief surveyor in Bårum summarise the basic improvement with WMS as increased information access, information directly from the source, always updated information (or at least dated) and independent of system and organisation.

In a municipal context this means better preparation for decisions, core information basis and a more efficient distribution system compared to the traditional print and copy process today. WMS gives better information exchange within the organisation and with the citizens in hearings and makes it easier to make regional (intermunicipal) map solutions – flexible for different demands and he summarises in the end that it is really fun.



For even more success there is a need to get good ordering and payment solutions and electronic self service of data. When preparing for start there is important to know what contribution can come from others and to get good demonstrations of the possibilities by best practice. Information in local and regional media is important to get a broad involvement both from the staff and from the citizens. It is crucial to invest in competence and good guidance. It is also important to test the possibilities and the limits within the organisation and to choose a solution that is most suitable for your municipality if you should have in house services or buy services at a web-hotel.

### **3.5 Environment Management and Spatial Planning**

3.5.1 Arealis was a national project initiated by the Norwegian Ministry of the Environment in 1997. The main objective of the project was to make environmental data and land use information available at national, regional and local level and especially for planning and natural resource management. The project focused on co-operation, standardisation and extensive information activities to achieve the objective. From the very beginning the Arealis project has chosen the Internet as a strategic information channel. Arealis was a program focusing on the environment management and to make sure that there was a sustainable approach in the spatial planning and that relevant information was made available both for the planners, the politicians and the public. Arealis is now integrated in the Norway digital program.

Several successful web-mapping applications focusing on GI for environment and area planning has been launched both on national, regional and local level. The further development gives an opportunity for better access and participating from the citizens in planning processes. The needs for environmental decision making and planning will have priority. Project including 3D visualisation is also tested for planners and citizens to view consequences of various construction proposals like landscape analysis, risk assessment, tourist information etc.

#### 3.5.2 Digital Planning Dialogue

Digital Planning dialogue is a joint project between twelve Vestfold municipalities, Vestfold County Municipality, the County Governor of Vestfold, Vestfold University College and the Norwegian Mapping and Cadastre Authority. The project aims to integrate existing municipal geographic information system with other relevant applications and data sources to improve current planning processes and increase citizen influence on municipal planning. The background was a need for a better overview in the planning process so that the citizens, Architects, Property owners and politicians more easily can be updated and achieve status in the Planning process. The project aims to integrate existing municipal geographic information system with other relevant applications and data sources to improve current planning processes and increase citizen influence on municipal planning. The project will pick up profits and synergies from earlier programmes in the municipalities and at national level like from the development of broadband services, common Internet/intranet portals, common projects on Geodata, common Web based GIS, common handling and filing system and of

course to build on the Norway Digital programme. This project is supported economically by The Norwegian Research Council / HÖYKOM and has developed pilots for two of the cities. I will present some examples from the system in my oral presentation.

Some expected output of the project:

- More efficient executive work
- Faster processes in case handling of plans and building applications
- Better action data
- Strengthened information services
- Transparency in the planning process (e-democracy)
- Increased contact and more predictable processes for Land owners and other business
- Increased citizen influence on municipal planning.
- Increased accessibility of information from municipal planning
- Realise gains from ICT- investments
- Web-based handling and filing system
- Cooperation on Geodata
- Web-based GIS tools
- Participation in national important development work

### 3.5.3 Risk Management.

In Norway the municipalities are responsible for spatial planning and building permits. As part of the municipal spatial master plan it is now a demand that the municipality should carry out risk and vulnerability mapping and analyses. Such maps and analyses can also be required at a more detailed level before building permits can be given. It is a municipal task to make sure that spatial planning and building permits is carried out so it can be guaranteed that it will not create danger for people, environment and material values. It is a demand to have an overview of the risk and vulnerability in the municipality. Some guidelines are made to assist the municipalities in this work. «GIS in risk management and spatial planning ». These guidelines give good examples on how to use spatial data and GIS tools in these fields.

Through a good planning process the municipality make sure that new building areas are located so they are secure. It is important that risk information are easily available when the building permit are handled, so we do not locate new buildings in slide exposed areas, and that flood possibilities are taken into consideration. Many of the risk related GI data can be used for preparedness and risk management, by the risk management organisation, the fire corps, the social security management etc. There is made some checklists for the municipalities that list the most typical risk and vulnerability problems that could be present in a municipality. For all R&V item there is also an overview over relevant laws, directives and rules that put up demands for security precaution in the spatial planning, like rules for water management, noise descriptions, slide and other exposed areas, demands for security zones around industry areas. The municipality could also put out its own objectives for security in the planning like for traffic security.

One example of use of spatial information and internet for emergency situation is the SmartRap system. It is a pilot program developed by the National Food Security Agency, the National Mapping and Cadastre Authority, the private companies Gecko and NorKart. The main objectives are to design and build distributed systems for use in case of emergency, such as natural or manmade disasters. The system is designed so all information is collected in real time by different Web Services and Geospatial Services directly from official databases. The system shall have the capability to produce notification lists with names and addresses inside a defined buffer zone and send warnings by SMS and voice mail directly to the people, companies or farmers inside this buffer (notification Zone). The distributed systems for use in case of Emergency consist of three different modules that communicate with each other and with several web services in real time.

#### 4. CONCLUSIONS

These examples and more not mentioned demonstrate the need of spatial information as tool in many of the day to day tasks. It is a clear need for a core framework in each country and also by authorities at local level to achieve the benefit for society of these tools. The INSPIRE directive is one part of such a framework and the same development we find all over the world. It is important that the infrastructure for spatial information at the same time is serving the eGovernment strategies. To achieve this there is a need for

- Commitment across sectors and authorities on a common strategic direction;
- Corporate data and information must be easily accessible and usable across agencies and by external users in the private sector and the local community;
- Responsibility for efficient management and updates of the information at each relevant authority.
- Avoid duplication of data and development effort to minimise the costs of development and support of NSDIs
- Core development and advisory forums to establish guidelines, standards, integration, logistics and user support,
- Involvement and acceptance of the private sector in adapting standards, interfaces and participating in developing and managing of relevant LIS/GIS supporting both data owners and data user
- The architecture must incorporate standard Intranet and Internet Web access mechanisms so that secure data access can be provided directly to the application, distributed spatial object, application server and metadata/query interface layers.

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UN portal on e-Government: <http://www.unpan.org/egovernment.asp>

## BIOGRAPHICAL NOTES

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