Development of e-Land Administration in Sweden and the Next Phase

Emil CIEPIELEWSKI AND Peter RINGBERG, Sweden

Key words: e-land administration, collaboration, client orientation, cadastre, network, property, information

SUMMARY

Sweden has independently managed agencies. Each agency is responsible for its own development.

A characteristic of the Swedish cadastral procedure is that the cadastral surveyors have large responsibility and authority, strive for solutions of mutual agreement and the interested parties are given an active role. The well developed case handling system is a contributing factor to the success of the Swedish cadastral process.

Lantmäteriet is working on improving its e-land administration in three main areas: improving communications with the clients and thus getting more knowledge about the clients needs, improving the quality and availability of real property and geographical information, and developing the case handling system with modern techniques.

The traits of a modern e-land administration should be collaboration in loose networks between agencies and a strong client orientation. We believe that Lantmäteriet, due to continuous developing projects, will have the important role of both coordinator and service provider in the Swedish e-land administration of tomorrow.

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1 INTRODUCTION

Swedish public administration is characterized by a high degree of decentralization, independently managed and open-transparent public agencies. This means that each agency must take responsibility for its own development. These traits together with other factors have proved to be successful when developing e-government.

Each agency knows its clients and needs the best. Several e-services have been developed within a variety of fields, e.g. income tax return, social insurance office and customs. To improve the collaboration between different public bodies and to create a common view upon e-administration the Swedish Administrative Development Agency (Verva) was founded in January 2006. This new agency will focus on issues regarding the development of public administration including e-government and public procurement of Information and Communication Technologies (ICT). It replaces three different public bodies. Thus, the agency will have a wide scope and support renewal in the public administration and provide a basis for renewal.[1]

The principle of access to public records is important within Swedish public administration. It implies that all citizens have the right to access the records that are sent to or drawn up at the agency. The purpose of this principle is to let the public be able to observe the agency and to guarantee transparency.

1.1 The Government's Goals on Public Administration[2]

The starting points of the government's objectives for the development of e-Government are the fundamental values of democracy, the rule of law and efficiency. The aim is to deliver public administration that affords:

- Accessibility irrespective of office hours and location.
- High-quality services and responses.
- Openness to users' opinions and ideas on how to improve public administration.
- Simple and fair rules.
- Optimal benefit to users through collaboration and continuous assessment and development of activities.

[1] Swedish Agency for Public Management 2005a
[2] Government Office of Sweden 2003

The government states that the Swedish public administration system is about to be changed. ICT is in these circumstances both a precondition and a key part of this change. The challenge is to enable public agencies, municipalities and county councils to give every citizen and corporation all the advantages of e-Government.

In the plan of action initiated by the government it is stated that the public administration must supply e-services in such a way as to benefit the citizens the most. The objective concerning accessibility from a citizen perspective is deliberately given high priority in order to simplify the procedures for the citizens.

1.2 Internet/Computer Maturity in Sweden

The Swedish citizen has in general a high degree of computer and Internet maturity These parameters constitute a critical base element to achieve a functional information society. World Internet Institute has examined these parameters in a report[3]. In spite of good figures on Internet and computer usage, the report shows a great gap between those who have access, knowledge and the will to use the Internet and those who have not. As described above, the Swedish government has been aware of this gap and has a clear goal to include all citizens in an information society.

The last couple of years show a high and slowly increasing usage of public e-services. Several users first visit an agency's website to collect information before contacting the agency. A survey in the autumn of 2005[3] shows that an increasing number of visitors run errands on web sites. However, the majority of these visitors have good knowledge about the public sector. [4]

2 THE SWEDISH CADASTRAL PROCEDURE AND CASE HANDLING SYSTEM

When we talk about cadastral procedure and cadastre it includes real property formation and registration. This procedure is in Sweden carried out by public cadastral authorities, Lantmäteriet (National Land Survey) being the dominating one. With case handling system we include all applications and data bases used with the cadastral procedure at Lantmäteriet. The title registration and mortgage deeds registration are carried out within the land registration authority, which still lies under the authority of the judiciary.

2.1 The Cadastral Procedure

The Swedish cadastral procedure is unique from an international perspective. It is based on a legislation that gives the cadastral surveyor large responsibility and authority, a secure real property register and an effective process for handling cadastral matters.

[3] World Internet Institute, 2004
[4] Swedish Agency for Public Management, 2005b

The legislation concerning property formation and closely related issues is a powerful tool to promote land management. At the same time it guarantees security of the ownership of real property and land-related rights for the individual and third parties. The cadastral surveyor has a mandate to change the division of properties, make decisions on land admission and compensations orders and make decisions in juridical and technical matters. In this way the cadastral surveyor acts similarly to the first instance of courts. The interested parties are given an active role and the cadastral surveyor strives for solutions of mutual agreement.

In the 1970s the conversion to a digital real property register (Swedish land data bank system) began. Records from the land book, urban property register and land register were captured, and a computerized register based on each property was created. Since the register is complete and records of title holders and other records are continuously updated, the real estate and credit markets in Sweden work very well.

Cadastral matters are handled within a modern, rational process. The process was developed in the mid-1990s when Lantmäteriet accomplished a major business process reengineering project. One argument of this reengineering was the “single officer”. Basically, the single officer idea means that one person to a large extent carries through all tasks in a specific case. In some cases the single officer acts as a project manager and is responsible for the result. 10 years later, we know that the new process is much more time- and cost-effective than the former process for some comparison figures, see also below in section 2.3.

The procedure is legally secure, simple, impartial and cost effective.

A contributing factor to the success of the Swedish cadastral model is that Lantmäteriet has well developed tools for e-land administration. Today, the cadastral process is digitalized.

2.2 The Case Handling System

The case handling system consists of several applications that integrate and support different parts of the cadastral procedure. The central application tracks each case and supports the property formation process. Other applications support tasks like searching for information, making calculations and maps etc. There is also support for administration and a digital archive.

This system of applications and databases is connected to the real property register, land register and cadastral index map. Through the system it is possible both to request and update information. Minutes, notices, descriptions and other documents are prepared in the case handling system and stored in a documents management system. After completion of a cadastral case the final registration in the real property register is carried out.

The cadastral surveyor communicates directly with the land registration authority through the case handling system. Updated records about titles and mortgage deeds are immediately

available. The case handling system also notifies the land registration authority when changes occur to a real property unit.

2.3 The Effect of a Business Process Reengineering and Implementation of a Case Handling System

Previous to the development of the case handling system, a number of officers were involved in a cadastral procedure. Today, as mentioned in section 2.1, one officer is often responsible for a single case from the beginning to the end. He or she is assisted by the case handling system, which facilitates the whole working process.

The effects of implementing a new process and case handling system are according to SOU 2003:111[5]:

- that the time to complete a 1-unit subdivision and 2-unit reallotment decreased with 12 % between 1996 and 2002.
- that the average number of hours to conduct a transaction decreased with 8,7 % from 1999 to 2002. (How time was registered on a transaction was changed in 1999. Thus, data from before is not comparable.)
- that the price for a 1-unit subdivision decreased with by 29 % from 1996 to 2000. During the same period the price for a 2-unit reallotment decreased with 18 %.

Since these measurements were made the case handling system has been further developed and several new and improved tools have been taken into operation. We know that the efficiency has improved today.

2.4 The Missing Links

To achieve a complete e-cadastral administration, Lantmäteriet still has to develop a service for making applications electronically by using e-ID and a the possibility for the surveyor to put e-signatures on documents so that the “original” paper dossiers can be substituted by a digital dossier that can be stored directly in the digital archive.

Even if connections between the cadastre and land registration authority exist today, the integration can be improved a great deal when Lantmäteriet takes over the authority of the Land registration authority from the judiciary.

3 THE NEXT PHASE

Several agencies in Sweden, including Lantmäteriet, have a well developed e-administration. The investment in e-administration has been profitable.

[5] SOU 2003:111

It is becoming a norm to have a case handling system in order to increase efficiency and quality. To implement such a system for processes is a good way to increase efficiency in your own field of expertise.

As more agencies and other parties become "digitalized" it is becoming clear that there are a number of new possibilities to increase efficiency, improve quality and customer service. It would not be possible to create different e-services (that are good and efficient) without digitalization. Also, when more and more processes are digitalized, very good possibilities to cooperate and new services are created. Such services add customer value and decrease administration costs.

What is Lantmäteriet doing at the moment to develop its e-administration further and to reap the fruits that are in reach now and when we have a completely digitalized process?

Lantmäteriet works on several developing projects. In short there are three main areas: improving communications with the clients and thus getting more knowledge about the clients needs, improving the quality and availability of real property and geographical information, and, developing the case handling system with modern techniques.

Some examples of projects are:

- Writing and implementing a strategy of communications, a "channel-strategy". The aim is to establish through which channels the client wants to communicate with Lantmäteriet and how to make the contact as smooth and simple as possible. It also aims at further orientating the organization toward the client.
- Transition from system architecture of information silos into service-orientated architecture with standardized communication based on web services. The aim is to decrease administration and future development costs. This leads to more flexible systems. It is also a step toward making "collaboration in loose networks" possible, see section 4.2.
- Building of a digital cadastral archive. This project has been running for several years and has now completed two thirds of the cadastral archives. The project will be completed in 2008.
- Development of cadastral e-services with functions, e.g. application, communication, matter status and information and digital result delivery.
- Preparing for legislative changes to allow e-ID and e-signatures. This is possible for the land registration authority since April 1st, 2006. We believe the legislation for the cadastre will be ready in 2007.
- Improving the quality of the information in the cadastre with the aim of higher efficiency and a higher level of automation.
- Development of an Internet portal to support citizens in the process of acquiring and building a house. The project aims at creating one entrance to all information about all services that a family needs to plan, build and live in their own house. It is to be accomplished through a common commitment from municipalities, agencies, credit

institutes and private companies to give the needed support through the entire building process and at the same time improve the process.[6]

Lantmäteriet prepares the merging with the land registration authority. A decision has been made and will take effect on January 1st, 2008.This will make it possible to enhance the procedure and increase customer value and bring us one big step closer to the goal of a "one stop shop".

4 MODERN E-LAND ADMINISTRATION

In section 3 we described the ongoing development within Lantmäteriet. In this chapter we will give a picture of a modern e-land administration. It should have at least two characteristics besides being fully digital. It must be client oriented and it must provide a very good access to information. Access to information in a modern e-land administration will be achieved through collaboration in loose networks between independent agencies.

4.1 Client Orientation

With client orientation we mean the capacity to understand the client's needs and wishes. It also means assisting the client in reaching his goals efficiently and to the right price within the legal framework. For a government agency it includes living up to the standards of democracy, rule of law and transparency.

It is desirable to allow the client to get more involved so that he or she can act as an active part in the process. This has to be achieved without losing efficiency; preferably it should be done in such a way that you gain efficiency.

Important issues:
- Who is the client (age, competence, computer maturity, preferred communication etc)?
- How do we involve the client more to get a more efficient process (on both sides) with higher quality and lower price of the service?
- What is most important to the client (e.g. price, quality, time, service)?
- What is the client's real, superior, goal?
- How do we serve the client so that he can reach his goal in the best and most cost effective way?
- How does this affect the working environment for the cadastral officers?

A first step in client orientation is to establish good communication. We aim at maintaining a good day-to-day communication with our clients while doing business. Good communications vouch for good possibilities to get to know the needs of the client. Another tool to use to get knowledge of client needs and goals are client surveys.

[6] Malm 2006

Lantmäteriet's vision for e-Government identifies four client-groups and presents an idea of good Internet based communication. In general a client has to have the opportunity to choose which way to get in contact with Lantmäteriet. It could be by phone, e-mail, a web service etc. Thus, Lantmäteriet must provide services that disregard the client's location, means of communication, or disability.

The **citizen** should be able to get general information as well as access to official documents and all Lantmäteriet's information concerning him or her.

The **real property owner** should have a personal website at which he or she can access all information about owned real property. He or she should be able to initiate cadastral transactions from the website.

An interested party should also have a personal website at which he or she can initiate, follow and take part in a cadastral case. He or she should also have the opportunity to fetch the results, e.g. extracts from the dossier.

The real estate market player should have access to information on properties and cadastral dossiers, e.g. the cadastre and digital archives.

To achieve well developed services we need good access to information of a good, or at least, known quality. We believe that the future way to achieve this is to collaborate in loose networks.

4.2 Collaboration in Loose Networks[7]

The idea of a common data-based information system was founded in the late 1960s and early 1970s to keep track of population, real estate and business.

The case handling system has been built on the registers from the 1970s and is connected into a system with various, non-standardized techniques. These connections are also "hard", meaning that if you break one, it seriously affects other parts of the system, often in unexpected ways. This makes it very difficult to rebuild and/or expand the case handling system and make it work with other computer based processes within Lantmäteriet as well as with external systems.

Development has given us the tools to order and work with information in such ways that it becomes possible to acquire data which is created at the moment of decision making. It is no longer necessary to go the long way over a registry. We have for some time aimed at recording the decisions at the source but now it is possible to tap the source directly. The tools are available in the form of the Internet and Service Oriented Architecture (SOA) and

[7] Karlgren 2006

the group of standards collected under the acronym XML. The most important aspect is the technique of using web services.

The development also opens up entirely new possibilities to cooperate between organizations and thus opens the door to new ways of working. Today the interaction looks as in illustration 1. We can foresee, with some degree of accuracy, an interaction pattern as in illustration 2.

Illustration 1

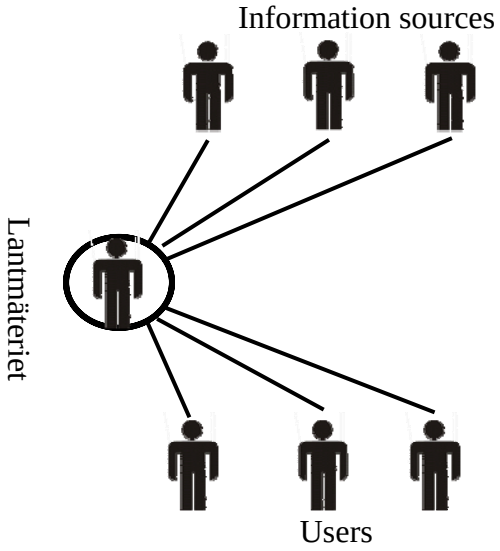
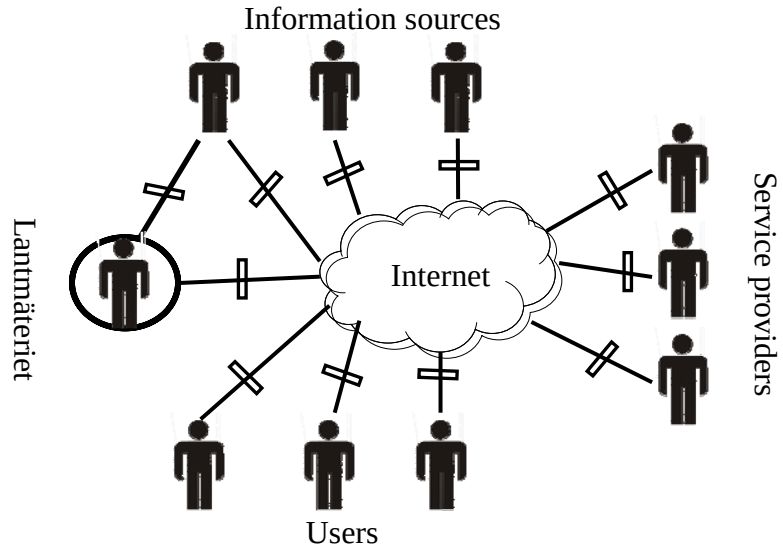


Illustration 2



From this we conclude that society will need a new infrastructure for information exchange. This new infrastructure should be built on collaboration around information use via the Internet and common interfaces. It will call for standardized methods of exchanging information.

A large amount of land information and geographical information will no longer be stored in central data bases at Lantmäteriet. The users will get the information directly from the source.

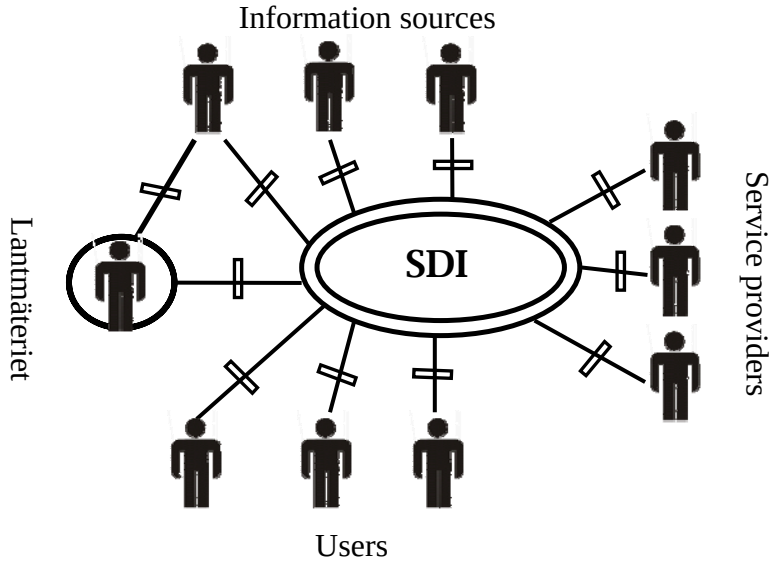
4.3 Vision of Collaboration in Loose Networks

Lantmäteriet, other government agencies and municipalities constitute a network with the task of supplying Sweden and the European Union with real property information and geographical information. The network should make available an information infrastructure that provides local, regional and national applications. It should also provide for the Swedish undertakings in the European Union and contribute to the building of a European Spatial Data Infrastructure (SDI).

- A business model should be established. The business model should be based on the assumption that information is a common resource in a society. This resource should be managed and made available by the members of the network. The business model should be adapted to the European Union directive aiming at furthering a long-term stable economic development and growth.
- The ICT solution should be based on each organization's own resources
- Within the network the responsibility for the information supply should be shared based on an agreement concerning quality and topicality
- The network should have a strategy, an infrastructure-plan that is decreed by the government.
- Lantmäteriet should act as a coordinator and administrator of the network.
- The architecture should make it possible for both large and small organizations to participate with equal responsibilities in the network.

Lantmäteriet should appear in two roles, as a producer/provider of information as well as a coordinator of the national network, see illustration 3.

Illustration 3



Collaboration in loose networks refers to applying this infrastructure in such a way that organizations, processes and ICT systems connect without direct dependencies. The aim is to be able to share information resources and connect processes to reach the Swedish government's goals for e-Government.

Client focus together with *collaboration in loose networks* makes it possible to establish processes and organizations in such a way that the customer can choose to have very few contacts with different agencies, preferably only one.

Important issues:
- What standards should be used?
- Who should be responsible of the infrastructure in Sweden/the European Union?
- How should the information model be shaped?
- Should there be an official marking of quality of the information?
- How should we build a metadata structure?
- Who should be responsible for errors emulating from faults in the information?

5 CONCLUSIONS

Today Sweden has a well functioning e-land administration. New services and applications are continuously developed. We are certain that client benefit increases due to such services.

In this article we have introduced the reader to some ongoing projects within Lantmäteriet. The organization's investments in technology and new processes have resulted in cost savings and more effective case handling procedure. The largest challenge today is to achieve a collaboration in loose networks, where property and geographic information, web services and applications are shared and accessed by the network's members. A successful network will result in good increases in efficiency.

We must not forget the right of law and the personal integrity when we discuss new technical solutions. New techniques make all kinds of services within our field possible. It is important that the legislation follows the development. Secure methods that protect sensitive information must continuously be developed.

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BIOGRAPHICAL NOTES

Emil Ciepielewski: Business developer, Cadastral Services at Lantmäteriet (The National Land Survey of Sweden) 2003-, Cadastral Surveyor 2000-2003, Municipal Land Developer 1999-2000. MSc Cadastral Surveying and Land Management at the Royal Institute of Technology in Stockholm 2001.

Peter Ringberg: Cadastral Surveyor at Lantmäteriet 2005-, Lantmäteriet's Cadastral Surveyor Programme 2005-2006. MSc Surveying and Land Management at the Lund Institute of Technology 2005.

CONTACT

Emil Ciepielewski
Lantmäteriet
SE-801 82 GÄVLE
SWEDEN
Tel: + 46 26 63 38 23
Email: emil.ciepielewski@lm.se

Peter Ringberg
Lantmäteriet
Box 154
SE-871 23 HÄRNÖSAND
SWEDEN
Tel: + 46 611 55 83 21
Email: peter.ringberg@lm.se