

Development of e-Land Administration in Sweden

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SUMMARY

A characteristic of the Swedish cadastral procedure is that the cadastral surveyors have large responsibility and authority, strive for solutions of mutual agreement and that 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.

Some ten years ago a new business process and a complete case handling system was introduced to support the property formation and cadastre updating process within Cadastral Services at Lantmäteriet. Since then the productivity has increased as well as the markets demand. Today the same number of staff produces some 40 % more than ten years ago.

Now the big challenge is to significantly reduce delivery times which are the same as before, around 6 months as an average for normal cases. To achieve this, the process must be developed, the technical support refined, and the training and management refocused on delivery times. The interested parties must be ready to take their part of the responsibility to drive the process. The challenge in this is of the same magnitude as the introduction of the new business process and the case handling support ten years ago. We are convinced that when the delivery times are reduced the cost also will be and the clients and employees will be more satisfied.

The effort to reduce delivery times is an important step in the development of the e-government within Cadastral Services. The first generation of coherent IT systems used for the property formation process is about to be retired, and a new one is under development. This development will also be the definite development of the e-government within the Cadastral Services.

Our own development of a new process supporting system and examples from the manufacturing industry, forestry, medicine etc points out the necessity to give the cadastre a new role in the future, based on land information of high quality and

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1. BACKGROUND

Founded in 1628 the National Land Survey, i.e. Lantmäteriet, is Sweden's second oldest governmental agency. From the beginning Lantmäteriet has been involved in mapping as well as cadastral activities. During the 18th, 19th and the beginning of the 20th centuries large land reforms administered by Lantmäteriet were carried out in Sweden in order to give the land owners in the previously common owned hamlets right to their own piece of land. Since then the cadastral surveyors in Sweden have been working in a process that besides the field surveying and mapping also contains the decision of whether the applied matter is allowed concerning general conditions in the law, local plans and land use regulations.

Today the cadastral surveying in Sweden is organized in 21 governmental (will be merged to one after this summer) and 38 municipal authorities. The municipal authorities play roughly the same role as the governmental ones, though they don't handle all land consolidation matters. The governmental authorities are organized as a division of Lantmäteriet and are managed by a director reporting to the director general. They besides the property formation activities work with a strictly limited consulting business, registration of plans and land use regulations, archiving and quality improvements in the cadastre. The division (Cadastral Services) also contains common technical and business process support, development, marketing, HR, economy and other units.

With the beginning in the mid -90's the business process and its IT-support has developed significantly. Earlier there could be 5-10 people involved in the handling of one rather simple matter, each of them specialized on field surveying, mapping, law, typing, archiving etc. One of the objectives of the process development was to reduce the number of staff involved in each matter, the ideal was one. To achieve this, besides training, an IT-support was developed, Trossen for case handling and DPL for surveying and mapping, which simplified the process in many ways. Today about half of the normal simpler matters are handled by one officer, with the exception of the invoicing which still normally is handled by experts.

The process development has so far been very much oriented towards reducing costs and reducing the time the officers must spend in handling the matters. This has been rather successful; the handling of a normal subdivision today takes about half the time of what it did before the development. The costs have been reduced too, but not as much as the time spent partly since the costs for IT has increased. During this process development we didn't pay much attention to delivery times. We monitored them, we asked our clients of their opinions about them, we put up goals for reduced delivery times. But we didn't make any real development efforts to reduce them.

2. THE DEVELOPMENT OF E-GOVERNMENT WITHIN CADASTRAL SERVICES

First of all, e-government is not only about web services. In Sweden we describe e-government as the facilitation of the citizens' contacts with the public administration using IT, but also increased efficiency within the authorities. One objective with the development of e-government in Sweden is to reduce the staff needed in the public administration to cope with the demographic problems Sweden as well as most industrialized countries face. Within Lantmäteriet this problem is most relevant; we have a concentration of employers that will retire the coming ten years. There are not enough surveyors educated to meet the demands from the industry. So we really need to make our process more efficient with use of modern technology.

2.1 Today's Situation

Since 1997-1998, we have a coherent tailor made IT system to support the property formation process. Since 2004 we have launched services on the web to facilitate for the public to achieve information about properties and property formation.

The first one allows the public to ask questions about the possibilities to for instance subdivide a property, or to achieve information about a certain property unit. After that we have put our journal on the web, and we provide support for applications via the web. Today we also have a service for those involved in a matter, where the surveyor can provide information and documents via a password protected webpage. We provide quite a lot of information about the property formation procedure and nearby issues. There are also several services that provide information from our databases; for example you can view historical maps for free.

Since a few years we are working with Server Based Computing. This makes our surveyors independent of what computer they are using, as long as it has a connection to the internet. This has made it a lot easier to use our staff in a flexible and efficient way.

During a number of years we have built up a digital archive by scanning all the documents in the regional cadastral archives. We are now implementing the possibility to archive digitally directly from the process support system into the data storage. This gives us a totally digital process.

2.2 Ongoing development

We are since December 2006 developing a new process management system that will communicate with the new basic data environment that also is under development within Lantmäteriet. Developing the new support system we have taken the view that everyone involved in a matter is a user of the system. Landowners and local authorities will have access to parts of the system via the web. The web will be used to inform about the status of the matter and the plans for the future. We will have an application service that guides the applicant in a way that he actually performs a part of the surveyor's traditional task. The new

system is planned to be implemented successively until 2012.

2.3 My Vision

We are working on a vision for the property formation procedure for around 2020. Even with this work not completed it is possible to point out a few examples of what I expect from the future.

We will as far as possible automate decisions. A necessity for that is heavily improved information quality. If and when we will have information of sufficient quality will decide when and how much we can automate decisions. When the quality is good enough, we will be able to proclaim the Cadastre to have legal force.

All of the public administration's different IT systems will communicate via standardized interfaces. Our system will automatically access information about a building permit in the municipality's IT system. Lantmäteriet has led the development of a portal that now is launched where you can address all kind of issues concerning the building of a new house (www.mittbygge.se). As a citizen visiting the portal you don't have to know what authority to turn to and in what order. This way of meeting the citizens and enterprises needs will be typical.

Our support system will be able to read and analyze the information in the digital archive. To achieve that, we need to transfer the information on the scanned images with sometimes handwritten text to digital text and vector data. And we need to introduce reliable information extraction systems.

Field survey will be rare. We will get the information we need from images, and we will normally only go out in the field to mark new boundaries. And that will too be rare since the demand for physical monuments will decrease. Almost everyone will have a GPS receiver in his cell phone, and the accuracy will be quite sufficient for most purposes.

3 DELIVERY TIMES ARE IMPORTANT

3.1 More satisfied clients

Time is becoming a more and more important parameter in the modern society. The reducing of delivery times has been a major object for industrial development for some time now. "Time to market" and "Just in time" are concepts that are well known to most. If you want to stay in market you must be able to launch new products constantly. The customers expect fast deliveries, and trading over the web and other web services spoils us with short time response. You spend a lot of money in an ordinary household for products that are said to save time. We note an increased demand from professional clients for fast deliveries, and they are willing to pay for it. Time is money, lots of money. And time is a limited source, more limited than money. Banks do not provide time loans.

Our client demand shorter delivery times. They also demand lower prices, but they consider the delivery times to be more important. This has changed over the years, but now this is the fact.

3.2 Interest Rate Costs

We pay an internal interest rate for work done and not invoiced. This is wasted money for us. Costs for staff or equipment or premises give us something back, but costs for costs don't. The interest rate is calculated on a monthly basis, so if we could invoice our work within a month after it is performed, we would have no interest rates at all. We probably can't reach so far, but it is still something to consider.

3.3 A more Efficient Process

We have for some time identified a parameter for making the process more efficient; we talk about concentrated handling. When the surveyor can work with one matter for a longer period, he achieves more in shorter time. When the process is split on many short efforts, you tend to start over and over again. You loose control of what is done, and you no longer remember the bright ideas of future activities you had the last time. The most efficient handling method is to gather information and then idealistically run through the whole process at once. Shorter delivery times will promote concentrated handling, but will also depend on it.

3.4 More Satisfied Staff

The clients ask for shorter delivery times. When they become impatient they call the responsible surveyor and ask questions and try to promote their matter. If they are unhappy with the delivery times they let our staff know that. Shorter delivery times will reduce the number of unpleasant encounters between our staff and the clients; on the contrary we will meet appreciation instead of critic. Satisfying the client makes the job more rewarding.

4 A PROJECT TO REDUCE DELIVERY TIMES

There are many reasons to reduce the delivery times. In autumn 2007 we launched a project to achieve this. It will run to the end of 2008 with the objective to decrease delivery times for simple subdivisions (today 5-6 months) with 10% compared to 2007. And to continue to reduce delivery times with 25% at the end of 2009, compared with 2007.

4.1 First, We Made a Decision

The change is a major change of focus, maybe you can call it a change of culture. It is similar to the change from function orientation to process orientation. To carry out a change of culture and of attitude you need consequence and endurance. The local management needs strong support as they must be the bearers of the change. And the upper management must make a very active decision that they really want to carry out the change. It is that kind of decision that you must take some time to prepare, because when you've made it you must

stick to it and be ready to accept the different consequences of it. We have decided that reducing the delivery times is our without competition major goal for the operative business this year. This means that other previous goals concerning earnings etc has lower priority.

4.2 Next, We Must Consider how we are Fundamentally Organized

The same amount of people with the same productivity can either have many matters constantly in stock and have an quite long delivery times, or have fewer matters in stock and have shorter delivery times. Having a huge stock may give you a sense of security; you know what you will do for the coming half year, and you know that you are demanded. What we must achieve in order to reduce delivery times, and this is essential, is to reduce the stocks and train the staff in working with small stocks. This will demand for more active local management in order to make sure that everyone has the right amount of work. We also must make it easier to distribute matters without the obstacles of organizational boundaries.

4.3 We Need to Revise the Process

We have analyzed the process in order to find obstacles for shorter delivery times. When and why is the matter “sleeping”? Where is the problem located? Is it within the local working team, is it at external cooperating partners or is it in the general rules for the process? This we are carrying out locally since the situation varies a lot, and we must solve the local problems locally.

4.4 The Identified Problems Must be Taken Care of

The process revision has identified problems that need to be taken care of. Typically what is needed is improving the cooperation with external actors, reorganization of the work in the team and steady focus in management on all levels. To a small extent a need of improved IT support has been identified.

A typical step in the Swedish property formation process is the consulting of other authorities. When doing this the cadastral surveyor often gets the feeling of losing the grip of the process. The consulted authority must be convinced that we have a common responsibility to give best possible service to the citizens, and that one authority’s clients in some meaning are all authority’s clients. One approach that has been implemented to some extent is to agree with other authorities about so called principally consultations. This means that the two authorities decide about typical situations and what the consulted authority’s opinion is in that situation. When the situation occurs there is no need for consultation in the actual matter.

Another typical step is that the cadastral surveyor’s decision can be appealed over to the local real property court. Not only land owners concerned, but also the municipality has the right to appeal within planned areas, and the county administration board outside planned areas. The appeal time is four weeks, but if all that have the right to appeal agrees on that, the matter can reach legal force at once. It can therefore be successful to cooperate with the municipality and the county administration board to find ways to facilitate for them to agree to relinquish the

appeal right.

It is essential that the local management has the full information about every employers stock of matters and the characteristics of that stock. Without this information it is not possible for the management to control that the team has the best prerequisites for an effective work. In the same way management on upper levels must have corresponding information about the units they are responsible for.

5 FUTURE DEMANDS ON THE E-CADASTRE

We have for a long period of time used information out of the cadastre as a base for decisions. When buying property, maintaining property, planning activities, deciding about taxes, allowing mortgages or other valuating activities and else. Concerning an actual property or used as statistics on a more overall level. We have looked into the cadastre, extracted data, evaluated the data and based our decisions on what we have found.

We can see examples of use of information as an input into decision making software, with no people involved. In the more sophisticated examples you call it Artificial Intelligence, and find it used for medical diagnosis purposes, interpreting the law, industrial production etc. This is only possible when you have access to accurate and reliable information.

I am convinced we will see it in our business as well. As mentioned above, we in the Cadastral Services are discussing the possibilities of automatic decision making in the property formation process based on reliable information in the cadastre. And this is the essence of the problem, you need correct digital information. We are demanding it and I am convinced that more will. We have already automatic valuation services on the net. The world around us will demand correct information in order to be able to automate processes and decision making. And we will have to be able to provide it. This is at least for us in Sweden a huge challenge, but it is also an excellent possibility for us to find our niche in a new world, with Google Earth, Wiki-web, “free” access to satellite images and so on. High quality digital large scale land and geography information.

BIOGRAPHICAL NOTES

Roger Ekman is since September 2007 head of the Cadastral Services division at Lantmäteriet. Before that Roger Ekman was head of the Development unit at Cadastral Services for 6 years and before that Chief Count Surveyor for 10 years. Earlier Roger Ekman has been engaged as a cadastral surveyor and with property valuation and city planning.

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