



Extract from the report to the
Public Accounts Committee on
the project to implement a
digital registration system

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Introduction and results

1. This report is about the digital registration project. Land registration is the public registration, review and publication of titles to land (the land register), cars (the car register), the register of chattels and marriage settlements and the register of shared-ownership certificates. On 20 August 2009, registration of land was put on hold temporarily and on 8 September 2009, the digital land register was launched. The car register is expected to be launched on 2 November 2010, and the registers of chattels and shared-ownership certificates are expected to be launched on 21 March 2011.

2. The Court Administration is responsible for the implementation of the digital land registration system. The objective of the digital land registration project was to improve efficiency by digitising and automating as many services and processes as possible. In addition, registration should be centralised and merged into a special court of registration. The Land Registration Court was established on 1 January 2007 and is responsible for land registration. The implementation of the digital registration system took place in close cooperation between the Court Administration and the Land Registration Court. The Court Administration has stated that the Land Registration Court is responsible for ensuring that rulings are correct and is also responsible for the organisation of the court's work, including land registration, training of employees and system set-up. The Court Administration is an independent institution under the Ministry of Justice. The Court Administration is headed by a board, which has the overall responsibility for the management of the activities pursued by the court. A director is responsible for managing the daily activities of the court in compliance with the instructions and guidelines laid down by the board. The Ministry of Justice has no powers of direction over the court, but is overall responsible for the administration of the grants that are funding the Court Administration, and for the legislation in the area.

3. The reform of the Danish courts that was passed by the Danish parliament on 8 June 2006 can be sub-divided into three main areas: the jurisdictional reform, the content reform and the land registration reform. In accordance with the *jurisdictional reform*, the number of district court jurisdictions was reduced from 82 to 24. The *content reform* called for a number of changes of which the most significant was that district courts should serve as courts of first instance. According to the *land registration reform*, the land registration system should be digitised and centralised. So it was decided by law that national land registration should be merged into one unit and be managed by a newly established Land Registration Court located in the city of Hobro in Jutland.

4. Since August 2003, when the Ministry of Justice established a land registration committee, efforts have been made to eliminate paper-based land registration. In 2005, at the request of the Ministry of Justice, Deloitte assessed the possibilities of digitising and automating land registration to the extent that users would be able to register documents for automatic registration electronically. According to the analysis performed by Deloitte, it would be possible to digitise land registration and achieve efficiency gains (staff savings), time savings and cost savings for the users. In 2006, it was decided by law to implement a digitised land registration system (Act no. 539 of 8 June 2006 on digital land registration).

The digital registration system

The system for registration of title includes four registers:

- The land register
- The car register
- The chattels register
- The register of shared-ownership certificates.

5. At its meeting on 17 June 2009, the Public Accounts Committee asked the Auditor General to conduct an audit of the Court Administration's digital land registration project. The request of the Public Accounts Committee was prompted by the fact that the Court Administration's land registration project had been selected for inclusion in Rigsrevisionen's report no. 2/2008 on management of government IT projects. However, as the Court Administration at the time (2008) did not have the resources available to participate in the audit, it was decided to postpone the audit of the digital land registration system. As the launch of the digital land register was postponed several times, the Public Accounts Committee asked Rigsrevisionen to audit the project. Originally, the digital land register should have been launched on 26 March 2008, but it was delayed by almost 18 months and was not launched till 8 September 2009.

The Public Accounts Committee asked Rigsrevisionen to focus on the following areas:

- the development of the project over time with respect to launch date, economy and functionality, including the causes of the repeated postponements of the launch of the system;
- was the decision to implement the project made on an adequate basis?
- were roles and responsibilities relating to the implementation of the system defined in sufficient detail?
- has the Court Administration managed the project in a satisfactory manner?
- is the projected impact of the system well-defined?
- will the impact of the system be followed up systematically?

6. In November 2009, the Auditor General submitted a memorandum to the Public Accounts Committee on the planning of a major examination of the Court Administration's IT project concerning land registration. The Public Accounts Committee approved the memorandum on 25 November 2009 and asked Rigsrevisionen to expand the scope of the audit to include also a historic review of land registration from 1993 to date.

7. Since the digital land register was launched, various problems relating to the start-up period have lead to very long processing times in the Land Registration Court. Rigsrevisionen has therefore in continuation of the Public Accounts Committee's request examined whether the preparation of the organizational implementation of the IT system was satisfactory.

8. Rigsrevisionen has, based on the request of the Public Accounts Committee, formulated the following questions to be answered by the audit:

- was the Court Administration's decision to implement the digital registration system made on an adequate basis?
- was project management handled by the Court Administration in a satisfactory manner?
- was the financial management of the digital land registration project satisfactory?
- is the system functioning satisfactorily?
- was the preparation of the organisational implementation of the digital land registration system satisfactory?

MAIN FINDINGS AND CONCLUSIONS

The digital land registration project was approved by the Finance Committee in 2006 and according to plan the system should have been launch early in 2008. However, the implementation of the digital land register (records of title to real estate) was delayed by almost 18 months and the remaining three registers have not yet been launched. Delayed deliveries from the supplier and the fact that more time was required to test the system are among the causes of the delay. The original budget for the development of the digital registration system has been increased by approximately DKK 67 million. To this should be added additional costs for the government of approximately DKK 124 million caused mainly by the postponement of the planned operational savings. The Court Administration has not ensured appropriate planning of the project. The court has not had full control of the costs related to the project.

When the Finance Committee approved the project in November 2006, the document included a pre-condition according to which planned savings equivalent to 200 full-time staff should be implemented three months after the system had been launched. This pre-condition was changed due to the delays in the project and the savings of 200 man years were timed to coincide with the launch of the system. According to the Land Registration Committee, it was the intention to launch the system as a big-bang project, i.e. simultaneous nation-wide launch without any pilot operation test period. Furthermore, it was decided by law that land registration should be merged into one unit and be managed by the Land Registration Court in Hobro.

Thus three significant framework conditions had been set for the implementation of the digital registration system; savings equivalent to 200 full-time staff in land registration when the digital service was launched, launch of the system as a big-bang project, and merger of all land registration into the Land Registration Court in Hobro. The Court Administration has launched the digital land register in compliance with these conditions.

According to the Court Administration the *system* was essentially functioning satisfactorily by the end of 2009. However, the user-friendliness of the system is still causing problems in 2010. Since the turn of the year 2009/10, approximately 70 per cent of all registrations were fully automated and processed within a few minutes which was in compliance with the target set for the system. During the start-up period following the launch of the digital land register a number of significant flaws and deficiencies were identified, which the Court Administration has taken initiatives to rectify. Moreover, the Court Administration has continuously improved the system.

The *preparation of the organizational implementation of the system* made prior to the launch of the digital land register were inadequate and not based on thorough estimates of resources required and sizing of tasks. The Court Administration's expectations with respect to employee productivity were unrealistically high, the handling of powers of attorney was not sufficiently prepared and the decision to opt-out a test of the system's user-friendliness increased the demands on the quality of the guidelines and the efficiency of the Land Registration Court's hotline. But the Court Administration under-estimated the significance of these factors which created a backlog of cases and thereby very long case processing times, all of which had severe consequences for citizens and companies buying, selling and mortgaging real estate. Since January 2010, the Land Registration Court has, however, reduced the backlog of unprocessed cases.

Overall, Rigsrevisionen's audit shows that the three framework conditions set for the digital land registration project implied that it was a high-risk project. In particular the condition that the Court Administration should achieve savings equivalent to 200 full-time staff in registration at the time of the launch of the digital land register, and the condition that the system should be launched as a big-bang project, made it imperative that the digital land register performed at its peak from the very beginning. Rigsrevisionen is principally of the opinion that efficiency benefits following the implementation of a new IT system should be reaped as flaws and deficiencies in the system are being rectified, staff is gaining experience and the system is being firmly rooted in the organisation. Rigsrevisionen finds that the Ministry of Justice reaped the efficiency benefits prematurely. The Ministry of Justice has informed Rigsrevisionen that the Ministry agrees with the principle that efficiency benefits in relation to IT projects should generally be reaped as they emerge. The Ministry of Justice does not share Rigsrevisionen's opinion in the specific case and does not find that the efficiency benefits were reaped prematurely. According to the Ministry, it would not have been possible to phase reaping the benefits because staff was located in the city courts and therefore could not be transferred to the Land Registration Court in Hobro after the digital land register had been launched. Rigsrevisionen finds that the Ministry of Justice, in collaboration with the Court Administration could have secured more resources for the Land Registration Court in Hobro if it had been agreed to retain some of the 200 full-time staff in a transitional period.

This overall assessment is based on the following factors:

The Court Administration's decision to implement the digital registration system was made on an adequate basis, measured against the framework conditions. A number of significant risks related to the project were identified prior to the launch of the system. Based on the risk analysis and the framework conditions, Rigsrevisionen considers the project to be a high-risk project due to the risks relating to the technical solution and the stakeholders involved.

- According to the framework conditions of the project, all staff savings should be reaped when the digital land register was launched, the digital registration system should be launched as a big-bang project, which meant that it would be launched simultaneously nation-wide without any pilot test operation period, and the geographical location of the Land Registration Court in Hobro was determined by law.
- The Court Administration has worked out a very detailed risk analysis and according to the court's original assessment, digitising land registration was considered a medium-risk project. After a detailed review of the risk analysis, Rigsrevisionen is, however, of the opinion that digitising land registration was a high-risk project. For instance, the time schedule was very tight, a very complex system was to be developed based on untested technology, the project was to be developed in collaboration with many stakeholders and the framework conditions presented many organisational challenges.
- The Court Administration has involved stakeholders in the elaboration of the requirements specification for the digital land registration project. The Court Administration has also established and appointed stakeholders for a user group, a test and technology group and a mortgage-deed monitoring group. Finally, the Court Administration has performed a meticulous analysis of the supplier prior to conclusion of contract.

The launch of the digital land register was postponed for almost 18 months and the remaining three registers have not been launched yet. The postponement was mainly caused by delays in deliveries from the supplier and the fact that more time was required to test the system. The Court Administration's project management has not been entirely satisfactory. The Court Administration has generally established standards for monitoring and reporting of project status, and the targets set for the project were unambiguous. Yet, two important project management tools have not been used to their full potential. First, the planning of the project by the Court Administration and the Land Registration Court included only milestones for system development and, for example not for training of staff, development of guidelines and recruitment of staff for the Land Registration Court. Second, the internal distribution of roles and responsibilities in relation to the implementation of the digital registration system were not specified and described in sufficient detail. Late in 2007, project management was strengthened through various initiatives including the employment of an external consultant to manage supplier relations. However, the Court Administration is now of the opinion that the project management should have been strengthened at the start of the project.

Development over time

- The launch of the digital land register has been postponed three times and by almost 18 months. The launch of the car register, the chattels register and the register of shared-ownership certificates have been postponed for approximately three years and have not been launched yet. The primary reasons for the postponements were that core employees left the supplier, which lead to delays in deliveries, and that more time was required to test the system including test of the system's interaction with other IT systems. Furthermore, the Court Administration as well as the financial sector requested a number of changes to the system in the period up the launch.

Project management

- The targets set for the digital land registration system with respect to centralising, digitising and automating the registration task are considered clear. The Court Administration has worked out a milestone plan which is addressing only system development and not any organisational issues such as training of staff, development of guidelines, recruitment of staff and development of a demo version of the system for the users. Risk management was strengthened in February 2008, i.e. approximately three months after the first postponement of the digital land register. The Court Administration has not described and specified the internal distribution of roles and responsibilities in relation to the implementation of the digital registration system in sufficient detail. For instance, the role and responsibility of the project manager has not been described.

Monitoring and reporting

- The Court Administration is generally complying with the standards set by the court concerning monitoring and reporting of the digital land registration project. The Court Administration has strengthened project management on an ongoing basis, and has, for instance increased the frequency of meetings with the supplier and strengthened the requirements to the supplier's reporting. The fact that the Court Administration late in 2007 took on an external consultant to manage supplier relations to ensure timely implementation of the system is considered a positive step by Rigsrevisionen. However, in hindsight, the Court Administration finds that project management should have been strengthened at the start of the project.

Assessment of impact

- The projected impact of the digital land registration system was well-defined. The Court Administration has not yet examined whether the projected impact of the digital registration system has been achieved, but is planning to conduct an activity-based measurement of the administrative burden on the companies using the system along with a general user satisfaction survey in the autumn of 2010.

The financial management of the digital land registration project is not satisfactory. The Court Administration is not following its own guidelines nor the general government guidelines for the planning of development projects of this nature. Thus, the Court Administration has not prepared any overall budget for the project comprising all expenditure relating to the digital land registration project. Moreover, the Court Administration's follow-up on the budget does not provide a complete overview of all expenditure related to the development and operation of the digital land registration system. Rigsrevisionen has pieced together a budget for the digital land registration project from which it appears that the development budget has been increased by approximately DKK 67 million, whereas the postponement of the launch of the system has resulted in additional government expenditures of approximately DKK 124 million, mainly because planned operating savings have been delayed. The total project budget is DKK 621 million of which estimated expenditures at the end of 2009 accounted for approximately DKK 485 million, according to Rigsrevisionen's estimate.

- The original budget for the digital land registration project for the period 2006 to 2016 did not include all operational expenditures and savings related to the project. The Ministry of Justice's quality assurance of the document was inadequate.
- The Court Administration has not, as prescribed by the general government guidelines, prepared an adequate budget for the digital land registration project. The Court Administration therefore cannot present a budget that includes all expenditures relating to the digital land registration project.

- Moreover, the Court Administration's follow-up on the budget is not providing a complete overview of all expenditures related to the development and operation of the digital registration system. The lack of sufficient procedures is further aggravated by the court's inconsistent handling of invoices and voucher entries.
- The total budget for the project amounts to DKK 621 million, as the development budget for the digital land registration system of DKK 266.8 million has been increased by DKK 67.2 million. To this should be added an additional amount of DKK 123.5 million relating mainly to the postponement of planned operational savings. At the end of 2009, estimated expenditures made up approximately DKK 485 million according to Rigsrevisionen's estimate.
- **According to the Court Administration, the system was functioning satisfactorily at the end of 2009. Although the user-friendliness still caused problems. At the turn of the year 2009/10, 70 per cent of all registrations were processed automatically as planned. The system has, however, in the start-up phase – from September 2009 up to and including December 2009 – been characterized by a number of significant flaws and deficiencies, which the Court Administration has taken initiative to remedy. It is Rigsrevisionen's assessment that a pre-launch pilot operation period, for instance in a couple of judicial districts, would have revealed system flaws and deficiencies, before the system was implemented in the entire country. The test of the user-friendliness of the system that was opted out could also have revealed the inadequate user-friendliness of the system.**

The system prior to the launch

- The digital land register was launched on 8 September 2009 with a number of flaws and deficiencies. The Court Administration was aware of the flaws and deficiencies prior to the launch, but did not consider them to be of any significance for the running of the system. Rigsrevisionen agrees with this assessment. The system was not finally approved by the National Court Administration till November 2009.
- A pilot operation test period of the system prior to its implementation in the entire country, for instance in one or several judicial districts, could, in the opinion of Rigsrevisionen, have identified some of the teething troubles that emerged after the launch, and which any IT system must be expected to encounter.

The system after the launch

- When the digital land register was launched, it did not possess all the planned functionalities and as a consequence many applications were picked out for manual processing during the first weeks following the launch. Updates implemented by the Court Administration have subsequently improved the system, and at the turn of the year 2009/10 70 per cent of all applications were processed automatically, and typically within a few minutes, in compliance with the target set.

- *After* the launch of the digital land register, a number of significant flaws and deficiencies were identified, which the Court Administration has taken initiatives to remedy. Despite the fact that the requirements specification emphasized the importance of user-friendliness there were also significant problems with the user-friendliness caused by, for instance the legal terminology displayed on the computer screen. The Court Administration opted out testing the user-friendliness before the system was launched. This is not considered entirely appropriate by Rigsrevisionen.

The preparation of the organisational implementation of the digital land register system was insufficient. The preparation was not based on thorough estimates of resources needed and task size, and so the Court Administration and the Land Registration Court underestimated the size and complexity of the tasks that needed to be performed when the system was launched. First, the Court Administration and the Land Registration Court had unrealistically high expectations to the employee productivity, and consequently both courts were understaffed. Second, the Court Administration and the Land Registration Court did not address the management of powers of attorney, neither did they estimate the resources required to perform the task. Third, the quality of the guidelines on how to use the system was inadequate, and the Land Registration Court's hotline service was understaffed and did not have the expertise required to handle the many user enquiries. It is Rigsrevisionen's assessment that the Ministry of Justice reaped the efficiency benefits related to the system prematurely, and did not await that flaws and deficiencies were being rectified, staff gained the necessary experience and the system was becoming firmly rooted in the organisation. This led to very long manual processing times, which had severe consequences for citizens and companies. In January 2010, the Court Administration took initiatives to reduce the case processing time.

Establishment of the Land Registration Court

- The Land Registration Court was established on 1 January 2007 when the court took over land registration from six judicial districts. The Land Registration Court gradually took over registration of titles to real estate from a total of 25 of the old judicial districts and took over land registration for the entire country when the digital land registration system was launched. The Land Registration Court moved into a new court building on 1 April 2009, i.e. five months prior to the launch of the digital land register. The merger of land registration into the Land Registration Court in Hobro had thus been completed well ahead of the launch of the digital land register.

The preparation of the organisational implementation of the system

- According to Rigsrevisionen's assessment, the Court Administration and the Land Registration Court have not been sufficiently thorough in their estimates of staffing requirements, including the capacity and productivity required in the Land Registration Court in connection with the launch of the digital land register.

- The Court Administrations' and the Land Registration Court's expectations with respect to the number of registrations that staff could process in the start-up period were unrealistic; the Court Administration and the Land Registration Court assumed that the staff of the Land Registration Court would be able to process 50 to 100 applications manually per day after the launch of the digital land registration system compared to the fact that the staff in September – October 2009 processed an average of only 5 to 20 applications per day and in November – December 2009 only 10 to 25 on average per day. Rigsrevisionen is of the opinion that it was to be expected that staff would need to gain experience with the use of the system before productivity could reach the estimated level. To this should be added that because only a few of the experienced employees transferred to Hobro, not all members of the staff of the Land Registration Court possessed the competencies required to perform the registration tasks and required further training. In cooperation with the Land Registration Court, the Court Administration agreed to have 20 employees on stand-by to handle foreseen as well as unforeseen problems after the launch of the digital land registration. In addition, the equivalent of 10 full-time staff was allocated to the Land Registration Court prior to the launch of the digital land registration, which the court could deploy at its own discretion in connection with the launch of the land registration service. When the digital land registration was launched, these resources turned out to be insufficient.
- The Court Administration and the Land Registration Court had foreseen that many users would not use electronic signature and the courts therefore implemented a solution to handle applications and powers of attorney that allowed mortgage banks and consultants to register title to land electronically on behalf of their clients. The Court Administration and the Land Registration Court had, however, under-estimated the consequences hereof. After the launch of the digital land register, the Land Registration Court received so many incorrect paper-based powers of attorney that it impacted the processing time, because staff that had been designated to process applications, had to handle the piles of powers of attorney instead.
- As the digital land register was launched without any preceding test of user-friendliness and pilot operation period, the Court Administration and the Land Registration Court under-estimated the importance of the Land Registration Court's hotline and guidelines for using the system. In Rigsrevisionen's assessment, the Court Administration and the Land Registration Court should have had particular focus on the quality of the guidelines for the users and the establishment of a well-functioning hotline. Huge strain on the hotline and inadequate resources resulted in very long processing times, and the Land Registration Court's hotline staff provided different answers to similar questions.

Launch of the digital land register

- According to the Court Administration the most important reasons for the long processing times in the autumn of 2009 was *many corrections of errors in paper-based documents* processed in the former land registration system, *problems with the scanners for powers of attorney and beginner's errors in the powers of attorney received, conversion of mortgage deeds and inexperienced staff*. As a consequence, the productivity of the staff in the Land Registration Court was lower than anticipated after the launch of the digital land register.

- *Correction of errors in paper-based documents:* the Land Registration Court received many applications in the period up to the closing of paper-based registration. Staff in the district courts was experienced and processed all applications before the digital register was launched. After the launch, however, it turned out that many of these cases were flawed and staff of the Land Registration Court had to spend time correcting the errors. The Court Administration has stated that the low productivity was not a reflection of idleness, but of the fact that all efforts were focused on processing the extraordinary number of paper-based cases. The flawed paper-based documents that needed to be corrected are included in the statement made by the Land Registration Court of the number of cases received and processed, and are thereby also included in the Land Registration Court's statement of productivity. In the opinion of Rigsrevisionen, these cases therefore cannot be considered the cause of the low productivity that followed after the launch of the digital land register.
- *Power of attorney scanners and paper-based powers of attorney:* malfunctioning machinery for scanning of paper-based powers of attorney and many beginner's errors made by the users in the powers of attorney made it necessary for the staff of the Land Registration Court to check all paper-based powers of attorney manually, which reduced the time available for processing applications. Rigsrevisionen finds that the Court Administration's guideline on the powers of attorney and the layout of the power of attorney form are responsible for part of the problems related to the processing of the powers of attorney.
- *Conversion of mortgage deeds:* the Court Administration assumed that it had a clear agreement with the financial sector and the other users that mortgage deeds would not be forwarded to the Land Registration Court for conversion, unless they required endorsement by the court or a specific agreement had been made with the Land Registration Court. Yet, according to information provided by the Court Administration, the Land Registration Court received 200,000 mortgage deeds for conversion in the *period up to the end of 2009*, and according to information received, up to 30 employees were assigned to handle this task. Rigsrevisionen has established that a written agreement with the financial sector concerning conversion of mortgage deeds was not entered before February 2010. The Land Registration Court should have made a written agreement with the financial sector earlier instead of starting conversion of the many mortgage deeds that had been forwarded to the Land Registration Court, which Rigsrevisionen considers to be an inappropriate utilisation of resources.
- *Staff's experience:* the Court Administration had assumed that the staff of the Land Registration Court would need time to adapt to the system and the entirely new work routines. At the same time, Rigsrevisionen's audit showed that many new employees had been hired and some of these were being trained to perform tasks related to land registration. The conversion of mortgage deeds and the correction of errors in old paper-based applications influenced the speed at which staff accumulated the appropriate experience. A generalist approach on the organisation of work had prevailed since the launch of the digital land register, but the Land Registration Court abandoned this approach when the organisation was changed on 1 December 2009 and instead staff was divided into specialised teams handling individual types of cases. It is Rigsrevisionen's assessment that the Court Administration under-estimated the requirement for special competencies within land registration, which is also reflected in the increase in productivity that followed the change of organisation.

- The reasons for the very long processing times stated by the Court Administration are not substantiated by evidence of number of cases processed and time consumption. Time recording was not introduced till 1 January 2010 in the Land Registration Court and it is therefore not possible to determine the impact of the individual factors on the manual processing time. As demonstrated by Rigsrevisionen's examination of the preparation of the organisational implementation, the expectations to the productivity of the staff of the Land Registration Court were unrealistically high, and the causes of the accumulation of cases indicated by the Court Administration show that the Court Administration under-estimated the task. Digitising land registration – on the basis of comparatively untested technology, in interaction with other systems and involving several external stakeholders - is a task of such complexity that it should have induced the Court Administration to ensure access to resources to handle foreseen as well as unforeseen problems in the start-up period. Rigsrevisionen is therefore of the opinion that the Ministry of Justice reaped the efficiency benefits prematurely. According to the original plan, the staff savings were to be implemented three months after the launch of the system, but due to the delayed launch of the digital land registration system this pre-condition was changed, and the Court Administration instead had to realise the savings at the time of the launch. It is Rigsrevisionen's assessment that the Ministry of Justice in cooperation with the Court Administration should have ensured that staff savings were realised as flaws and deficiencies in the system were being rectified, staff was gaining experience and the system was being firmly rooted in the organisation.
- The Court Administration has stated that the Court in January 2010 took initiatives that early in April had reduced the processing time for 95 per cent of all cases to 10 days or less for all types of cases, with the exception of those relating to records of cadastre.