Migrating a Ministry to OpenOffice.org

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Abstract

In December 2006, the Finnish Ministry of Justice decided to migrate to the open source OpenOffice.org office suite. The ministry and its administrative sector will also adopt the OpenDocument ISO standard for the file format of office documents.

After the migration, OpenOffice.org will be the primary office suite for 8500 persons and Microsoft Office for 1500 persons. All Windows XP workstations of the ministry and its administrative sector are installed with OpenOffice.org version 2.

The migration decision was based on office software evaluation in 2005 and an extensive OpenOffice.org pilot project in 2006. The main results of the office software study are presented in the report including the various migration options considered during the evaluation. In the pilot project, the functionality and compatibility of OpenOffice.org was tested in daily office use. In addition, the evaluation of training and support requirements, workstation installations and configurations were among the tasks of the pilot project. The results of the pilot project are presented in the report. The report also gives information on the current status of the OpenOffice.org migration process.

The report is to be presented at the Workshop on Open Document Exchange formats in Berlin 28 February 2007. The workshop will be held in cooperation with the German Federal Ministry of Interior and the Interoperable Delivery of European eGovernment Services to Public Administrations, Business and Citizens (IDABC) programme of the European Commission's Directorate-General for Informatics.

Keywords: office software, office suite, OpenOffice.org

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1. INTRODUCTION

The Finnish Ministry of Justice has decided to migrate to the open source OpenOffice.org office suite. The ministry and its administrative sector will also adopt the OpenDocument ISO standard for the file format of office documents.

The office suite environment of the ministry has been based on the Windows workstation platform with IBM Lotus SmartSuite on 7000 workstations and Microsoft Office on 3000 workstations. After the migration, OpenOffice.org will be the primary office suite for 8500 persons and Microsoft Office for 1500 persons. All Windows XP workstations of the ministry and its administrative sector are installed with OpenOffice.org version 2.

The migration decision was based on office software evaluation in 2005 and an extensive OpenOffice.org pilot project in 2006. In chapter 2, the main results of the office software study are presented including the various migration options considered during the evaluation. In the pilot project, the functionality and compatibility of OpenOffice.org was tested in daily office use. In addition, the evaluation of training and support requirements, workstation installations and configurations were among the tasks of the pilot project. The results of the pilot project are given in chapter 3. The migration decision and information on the current status of the OpenOffice.org migration is given in chapter 4 of the report.

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Ministry of Justice - a short overview

The Ministry of Justice maintains and develops the legal order and legal safeguards and oversees the structures of democracy and the fundamental rights of citizens. The ministry is responsible for the drafting of the most important laws, the functioning of the judicial system and the enforcement of sentences. The ministry has a Department of Judicial Administration, a Law Drafting Department and a Criminal Policy Department.

Close to 10 000 persons are employed in the administrative sector of the Ministry of Justice, about 350 of whom work at the ministry. The IT service function employs 130 persons. The administrative section has over 300 offices throughout the country including e.g. offices for courts, prosecution, enforcement of civil judgements, State legal aid, prison service and probation service.

The ministry and its administrative sector make up approximately two percent of the annual Government expenditure of Finland. The budget of the ministry for 2006 amounted to approximately 700 M€. The IT costs represent close to 5% of the budget.

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2.   OFFICE SOFTWARE EVALUATION

The background for the migration dates back to March 2005, when the Ministry of Justice published the report "*Office software evaluation for the administrative sector of the Ministry of Justice. Lotus SmartSuite, Microsoft Office, OpenOffice.org*" [Fin2005]. The report includes several recommendations inter alia an extensive migration to OpenOffice.org and the adoption of XML based OpenDocument file format for office documents.

The main focus of the software evaluation was office software used for word processing, spreadsheets and presentations. Various office software products used within the ministry and its administrative sector in 2005 are given in Table 1.

Office software	Version(s)	Licenses
Lotus SmartSuite (WordPro, 1-2-3, Freelance Graphics)	SmartSuite 97, SmartSuite Millennium	7200
Microsoft Office (Word, Excel, PowerPoint)	Office 97, Office 2000, Office XP, Office 2003	2900
WordPerfect	5.1	< 300

Table 1. Office software usage in 2005

All software in 2005 was used on the Windows NT 4 platform. The yearly license maintenance cost of office software was 297 000 €. It should be noted that during past years, various license purchase options had been used, and a large amount of the office software licenses given in Table 1 were not covered by license maintenance agreements.

Various application integrations to office software had been developed during the years. The most important integrations analyzed in the software evaluation report were the following:

- Several court information systems have built-in integration to SmartSuite Word-Pro. Applications are based on IBM Notes/Domino platform and have modules written in LotusScript language for the integration of Notes/Domino forms to WordPro.

- The civil case management system in district courts uses WordPro for document processing. The application runs on Linux platform, has BEA Tuxedo/Jolt middleware and uses Java modules, XML technology and WordPro macros in the integration of document processing to the IBM DB2 data base of the application.

- The prison information system uses Word and Excel for document print-outs. The application runs on Windows Server platform, is programmed in the Visual Basic programming language and uses Active-X technology in the integration of Word and Excel document templates to the IBM DB2 data base of the application.

- All ministries in Finland share common applications of the Finnish Government.

These applications are used to prepare documents to be processed by the cabinet and also in the context of the European Union. The applications are based on Microsoft technology using VBA macros and binary Word and Excel file formats.

As can clearly be seen from Table 1 above, the office software situation had numerous problems. Altogether seven office products, including different office software packages and their different versions, were being used. Especially old program versions created compatibility problems both internally within the organization and externally with other organizations and citizens. However, it was also clear that there was no silver bullet solution to the problem. Especially office software integrations with existing applications created a barrier that could only be removed by allowing enough time for the transition to more uniform office software use.

The following three migrating options were chosen to be evaluated in the office software study:

Lotus SmartSuite option	**Microsoft Office option**	**OpenOffice.org option**
Migration to SmartSuite Millennium on 7000 workstations and to Microsoft Office 2003 on 3000 workstations	Full migration to Microsoft Office 2003 on 10 000 workstations	Migration to OpenOffice.org on 8500 workstations and to Microsoft Office 2003 on 1500 workstations

Table 2. Migration options

The Lotus SmartSuite option can be characterized as a "do as little as possible" option. New software versions would be introduced, but otherwise changes would be minimal. Requirements for user training, document conversions and application integration modifications would be minimal in this option. The risks involved with the future of Lotus SmartSuite would remain unchanged in this option. The product is not being developed actively any more which suggests evident compatibility problems for the coming years.

The Microsoft Office option would involve a complete migration to Microsoft Office 2003. The same office software version would be introduced for all users, users would be trained, documents would be converted and applications interfaces would be modified for the new software. The risks involved with Lotus SmartSuite would be eliminated. Only minor compatibility problems can be expected when using the market leader in office suite software.

In the OpenOffice.org option a partial migration to OpenOffice.org would be introduced. The Lotus SmartSuite office suite would be completely replaced by OpenOffice.org. Also half of the of Microsoft Office licenses would be replaced by OpenOffice.org. A complete migration to OpenOffice.org was not considered a practical option e.g. due to the Microsoft technology based application integrations in the document handling of the Finnish Government. The OpenOffice.org option involves highest requirements for user training, document conversions and application integration modifications. The generous licensing terms of OpenOffice.org are a cost benefit but also the benefits of an open XML based document format are an important factor in favor of the OpenOffice.org option. The TAC (IDA) recommendations [Ida2004] were published in 2004 and they were favorable for open XML based file formats for interop-

erability. The open XML file format used by OpenOffice.org had been forwarded for the standardization in OASIS and it was obvious that it would become an international standard for office documents. Compatibility evaluations and migrations (see e.g. [Swe2003], [Den2002], [Den2005a], [Hol2004], [Ita2004] and [Uni2004]) suggested that only minor compatibility issues would be expected in the OpenOffice.org option.

For the cost evaluation of the migration options, a 6-year period 2006-2011 was chosen. The year 2006 was going to be the year for the migration from Windows NT 4 platform to Windows XP platform in the Ministry of Justice and its administrative sector. The year 2011 is the year for the end of the extended support of the Windows XP operating system. For all migration options, the following cost factors were included in the cost evaluation:

- license purchases
- license maintenance
- training and support
- document conversions and modifications to application integrations

Table 3 below gives a summary of costs for the years 2006-2011 for the three migration options.

	Lotus SmartSuite option	Microsoft Office option	OpenOffice.org option
License purchases	423 000 €	3 315 500 €	349 000 €
License maintenance	1 874 000 €	5 186 000 €	2 004 500 €
Training and support	500 000 €	880 000 €	1 155 000 €
Document conversions, application integration	75 000 €	445 000 €	685 000 €
Costs total	**2 872 000 €**	**9 826 500 €**	**4 193 500 €**

Table 3. The costs of the migration options 2006-2011

The 6-year costs for a full Microsoft Office migration would amount to a total of 9.8 M€, for the OpenOffice.org option to 4.2 M€ and for the Lotus SmartSuite option to 2.9 M€. Approximately 44 % of the migration costs of the OpenOffice.org option would be caused by training and support as well as conversion of documents and applications.

It should be noted that in all migration costs given in Table 3, there are costs related to the purchase and maintenance of Microsoft Office licenses. Also in all options there are costs related to Lotus SmartSuite licenses in order to allow some time for the migration on the Windows XP platform. The licensing bundle of Lotus SmartSuite and Lotus Notes clients creates some extra costs for each migrating option. An explanation for the low costs of the Lotus SmartSuite option comes from the fact that in this option no change in the current license maintenance agreements would be introduced which means that a large portion of licenses would not have yearly license maintenance costs.

The key recommendations of the office software study report are summarized in Table 4.

✔ The Ministry of Justice and its administrative sector migrates to open source OpenOffice.org office suite for 8500 persons and to Microsoft Office 2003 for 1500 persons.

✔ The XML based OpenDocument file format is adopted as the file format for office documents.

✔ OpenOffice.org is installed on all Windows XP workstations.

✔ The migration is scheduled to commence from the beginning of 2007 when the migration from Windows NT 4 platform to Windows XP platform has been completed.

✔ The final migrating decision should be reached by October 2005.

Table 4. The recommendations of the office software evaluation

3. OPENOFFICE.ORG PILOT PROJECT

The office software study was continued in December 2005 by launching a pilot project based on the new OpenOffice.org version 2. The original plan was to start piloting in summer 2005 but the delay in the availability on version 2 postponed the pilot project by several months. OpenOffice.org version 2 became available in October 2005. Due to the delay, also the the final migration decision was postponed until the results of the pilot project would be available.

The piloting lasted from 1 December 2005 to 30 September 2006. The participants included more than 150 persons from four offices in the administrative sector mainly in the Hämeenlinna region in Southern Finland. All participants had previous experience in the use of office suite software (either Microsoft Office or Lotus SmartSuite or both). The pilot offices were ICT Service Centre, Legal Register Centre, the District Court, and the District Prosecutor's Office.

The technical environment of the pilot was the ordinary Windows XP and Windows NT 4 workstation platform of the pilot offices. Piloting used OpenOffice.org version 2 which supports the OpenDocument standard as its default file format. In addition to OpenOffice.org, also Lotus SmartSuite Millennium and Microsoft Office 2003 software packages were used in the pilot project.

The main two tasks of the pilot project were to test the functionality of OpenOffice.org for the tasks of the administrative sector and the compatibility of OpenOffice.org with Lotus Smart-Suite and Microsoft Office software. Other tasks included the evaluation of requirements for user support and training. Also specifications for workstation installation and configuration on the Windows XP platform were to be produced during the pilot project.

All the tasks described above were completed in the OpenOffice.org pilot project. A detailed description of the project and its results is given in the report "*Final report of the OpenOffice.org pilot of the Ministry of Justice*" [Fin2006c] which was published in October 2006 by the Ministry of Justice.

3.1. Functionality

The key results of the piloting, the functionality and compatibility of OpenOffice.org, were published in the report "*OpenOffice.org version 2. Handbook of questions and answers*", published in May 2006 [Fin2006a]. The report represents the functionality and compatibility in the form of 87 questions and answers. The questions are presented here in Appendix 1. The questions included all questions asked during training and piloting and they can be categorized as follows:

General topics	18 questions
Text processing	31 questions
Spreadsheets	23 questions
Slide presentations	15 questions

The largest share of questions is focused on text processing which is also the main use of office software. Questions are on different levels of complexity. There are questions on small details like how to make a hanging indent as specified the official Finnish document standard. On the other hand, some questions cover wider topics and require more comprehensive explanations like the management of spell checking and hyphenation in foreign languages.

Concerning functionality, the questions and answers explore comprehensively the topics of document production in the administrative sector. The functionality of OpenOffice.org covered the needs in document processing from basic functions to more developed automation functions (like paragraph and page styles, document templates and abbreviation handling). Also requirements in multilanguage document production were met by OpenOffice.org (user interfaces in several languages, spell checking and hyphenation in several languages).

The support of different file formats is, as a whole, one of the strong points of OpenOffice.org. The software opens and saves file formats used by a large amount of programs. A good example is the ease of producing PDF files.

In order to further support file format management, the OpenOffice.org piloting platform included *MultiSave* which is a free add-on feature to OpenOffice.org. With MultiSave users can save a document easily in altogether three formats in different files in one save operation. Figure 1 shows the general idea of multiple saves in the Finnish language version of MultiSave. When MultiSave is activated, the user gives the folder (1) or browses the folder (2) and gives the name for the file to be saved (3). Up to three file formats can be selected for the save operation (4): OpenDocument format (OpenOffice.org), Word/Excel/PowerPoint format (Microsoft) and PDF format. The save operation is accepted by pressing the save button (5). The example save operation in Figure 1 would create two files: one in OpenDocument format and one in PDF format.
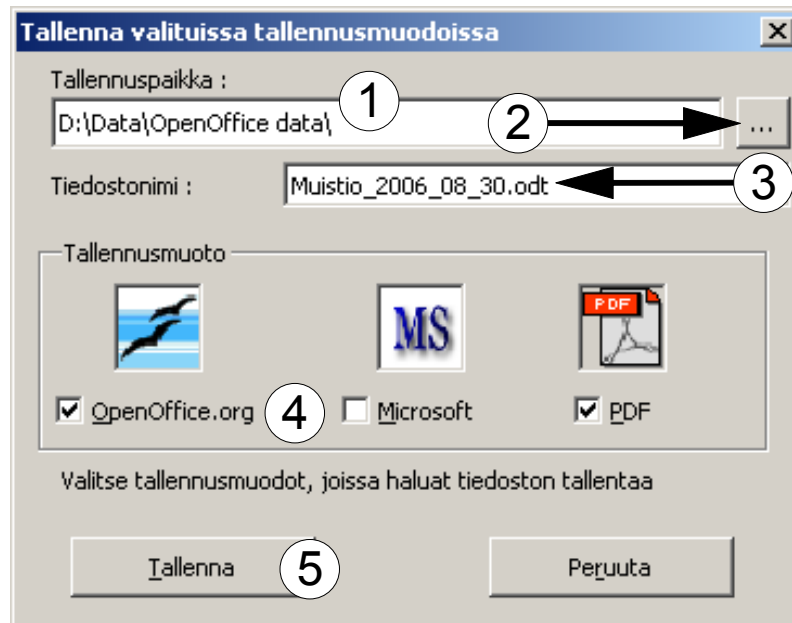
Figure 1. MultiSave

A small but handy additional feature of the functionality is *OpenOffice.org Portable* which can be installed on a USB memory stick. OpenOffice.org Portable can be used in any Windows computer which supports the USB interface. The memory stick has a complete OpenOffice.org installation. It can e.g. be used to handle OpenDocument or Microsoft Office documents in Windows workstations which do not have OpenOffice.org or Microsoft Office installed.

The general conclusion concerning the functionality of OpenOffice.org can be given as follows.

> The functionality of OpenOffice.org covers the needs of the administrative sector of the Ministry of Justice. In ordinary tasks, only a small part of the features of the software are utilised.

3.2. Compatibility

The compatibility is a more demanding issue than functionality. A large portion of the handbook of questions and answers [Fin2006a] is devoted to compatibility issues in the management of different file formats. OpenOffice.org version 2 supports natively the OpenDocument (ODF) file format which was published as an OASIS standard in 2005 [Odf2005] and then accepted as an international ISO standard ISO/IEC 26300 during the pilot project in May 2006 [Iso2006]. Lotus SmartSuite and Microsoft Office are based on proprietary file formats. The handbook gives detailed guidelines for the management of file formats used by Lotus Smart-Suite and Microsoft Office:

- file formats which OpenOffice.org reads and writes
- compatibility of OpenOffice.org Writer with Lotus SmartSuite WordPro
- compatibility of OpenOffice.org Writer with Microsoft Word
- compatibility of OpenOffice.org Calc with Lotus SmartSuite 1-2-3

- compatibility of OpenOffice.org Calc with Microsoft Excel
- compatibility of OpenOffice.org Impress with Lotus SmartSuite Freelance Graphics
- compatibility of OpenOffice.org Impress with Microsoft PowerPoint

The compatibility of OpenOffice.org with the different Microsoft Office versions, including Office 2003, is high. OpenOffice.org is able to open and save Word, Excel and PowerPoint files automatically. During the pilot project, all Word, Excel and PowerPoint files could be opened and processed with OpenOffice.org. However, documents containing programming functions in the Basic language are not fully compatible and they require a separate conversion. In ordinary document processing the use of Basic programming is rare. With some documents, minor fidelity issues with text layout could also be noticed.

Where necessary, OpenOffice.org can be specified as the default application for Word, Excel and PowerPoint files. For migration purposes, OpenOffice.org includes a wizard function (*Document Converter*) which can be used to make a mass conversion of Word, Excel and PowerPoint files to OpenDocument file format. The MultiSave add-on feature to OpenOffice.org offers a handy function to save a document simultaneously both in Microsoft Office format and in OpenDocument format.

The compatibility of OpenOffice.org with Lotus SmartSuite is not as high as with Microsoft Office. Lotus 1-2-3 spreadsheet files can be opened directly but word processing files (Word-Pro) and slide presentations (Freelance Graphics) have to be saved or converted separately to a file format supported by OpenOffice.org. WordPro files can e.g. be saved in Microsoft Word format and Freelance Graphics files in PowerPoint file format which can then be opened by OpenOffice.org.

The general conclusions concerning the compatibility of OpenOffice.org can be given as follows.

> Compatibility of OpenOffice.org with the different Microsoft Office versions, including Office 2003, is high. OpenOffice.org is able to open and save Word, Excel and PowerPoint files automatically. Where necessary, OpenOffice.org can also be specified as the default application for Word, Excel and PowerPoint files.
>
> Compatibility between OpenOffice.org and Lotus SmartSuite is partly automatic. The compatibility requires that users know which file formats are supported by both software packages.

3.3. Training

During the piloting, altogether 18 OpenOffice.org training events were arranged for a total of 164 participants. Each event lasted one day and the maximum size of the training group was 15 persons. The majority of the events (16) were basic training events in OpenOffice.org which give an understanding of OpenOffice.org functionality and basic skills in the use of OpenOffice.org. Two training events were arranged regarding document templates and forms. Teachers from outside training service providers were used for most of the courses. Also in-house training given by own IT staff members was arranged.

Based on the piloting experience, the framework given in Appendix 2 was developed for the

contents and structure of a basic OpenOffice.org training day. In addition to main functions in text processing, spreadsheets and slide presentations, the emphasis of the training is in file management and compatibility issues.

During the piloting, a large number of manuals both in Finnish and English were used in the training. The manuals in Finnish were produced in connection with the piloting. The English-language manuals were taken from the web site of the OpenOffice.org documentation project http://documentation.openoffice.org/. The following manuals were used at the different stages:

> ✔ OpenOffice.org 2 Express Guide (in Finnish)
> ✔ OpenOffice.org 2 Template Guide (in Finnish)
> ✔ OpenOffice.org version 2 Handbook of Questions and Answers (in Finnish)
> ✔ Getting Started (introductory guide in English)
> ✔ Writer Guide (text processing guide in English)
> ✔ Migration Guide (in English)

The piloting and training experiences were used when preparing a general-purpose OpenOffice.org handbook "*OpenOffice.org version 2. Handbook of questions and answers. Second, revised edition* "[Fin2006d] which was published in October 2006 by the Ministry of Justice. The handbook is the most comprehensive handbook of OpenOffice.org in Finnish and it is freely available to all.

To aid training and piloting, a browser-based OpenOffice.org learning environment was established in the Internet, based on the open source Moodle software. The learning environment contains inter alia frequently asked questions, handbooks, training materials as well as discussion and problem solving pages.

On the basis of the piloting results, the starting point to basic OpenOffice.org training can be summarized as follows:

> The basic skills to use OpenOffice.org are adopted in a one-day training.
>
> OpenOffice.org training materials in Finnish were produced and made available as the result of the pilot project.

3.4. Support services

One of the tasks of the piloting was the evaluation of support service requirements. In addition to user support services, also the need for technical support services was evaluated.

The actual need for daily user support can be influenced by training and the availability of handbooks and various additional tools. The user support arrangements during the pilot project is given in Table 5.

- ✔ Basic training day for each person

- ✔ Additional training day on document templates for selected persons

- ✔ Handbooks (both in Finnish and in English)

- ✔ Browser-based OpenOffice.org learning environment

- ✔ Document templates complying with the Finnish document standard SFS 2487

- ✔ Support service agreement with an external service provider

Table 5. User support arrangements in the pilot project

The IT service organization of the Ministry of Justice employs 130 persons and includes e.g. technical support and Help Desk service. To strengthen the OpenOffice.org user support during the piloting, an agreement with an external service provider was made.

Past experience with office suite software has shown that almost all user support tasks can be solved by the own IT staff members of the ministry. The Lotus SmartSuite and Microsoft Office software packages have been in use for almost ten years, and the number of problem contacts to IBM and Microsoft software support have been very rare. There have been several years with no support requests at all. The same was experienced in the pilot project: there were only two problem contacts to the outside service provider (and even these two could have been solved the own IT staff). The detailed list of all user questions presented during the pilot project is given in Appendix 1.

Considering technical support, several OpenOffice.org versions (2.0.0, 2.0.1, 2.0.2 and 2.0.3) were installed and updated during the pilot project. In installations, both standard installations from the installation CD-ROM and silent installations based on systems management software were used. The documentation of OpenOffice.org proved to be sufficient for the management of installations. External expert advice was used twice during the pilot project: once in order to have a second opinion on the recommended user settings of OpenOffice.org (the various option in the *Tools* menu) and once in the modification of the settings in the *setup.xcu* file in order to customize the default text template setting.

The conclusions of support service evaluation can be summarized as follows:

There is no need for an external Help Desk agreement with an external service provider for OpenOffice.org user support. The need for support appears seldom and expert services should be acquired on a case-by-case basis.

The installations of OpenOffice.org software versions can be done as internal work. External technical support services should be acquired on a case-by-case basis.

3.5. Installations and configurations

During the piloting, installation packages were prepared for OpenOffice.org versions 2.0.0,

2.0.1, 2.0.2 and 2.0.3. For the installation of OpenOffice.org on Windows XP platform for all 10 000 workstations of the Ministry of Justice and its administrative sector, a special installation model based on OpenOffice version 2.0.2 was prepared. The installation model was published as a manual "*OpenOffice.org version 2. Installation handbook*" [Fin2006b] in September 2006 by the Ministry of Justice. The handbook gives guidelines in several installation issues and was written to serve both private persons and organizations considering the migration to OpenOffice.org. The installation model described in the handbook consists of the following entities:

✔ Basic installation of the Finnish-language OpenOffice.org

✔ Recommendations on OpenOffice.org user settings

✔ Installation of the Swedish language package to enable the Swedish user interface

✔ Installation of the Finnish spell checking and hyphenation package

✔ Installation of spell checking and hyphenation packages for foreign languages

✔ The design and installation of a customized default text template

✔ Installation of MultiSave add-on module

✔ Installation of the clip art library

✔ OpenOffice.org settings for Swedish-language offices

Table 6. The OpenOffice.org installation model on Windows XP platform

During the pilot project, most participants completed the OpenOffice.org installation on their workstations by themselves. Expert help was available, but practical experience in the installation was considered helpful in order to e.g. encourage persons to do installations also on their home computers. An installation CD-ROM for home computer installations was made available for the participants of the pilot project.

3.6. Other aspects

From the beginning, the pilot project aimed at maximum transparency so that the results could easily be used also by outsiders. In connection with the pilot, a lot of material has been published in the Internet freely available for all interested parties. In addition to several handbooks ([Fin2006a], [Fin2006b] and [Fin2006d]), also document templates complying with the Finnish SFS standard 2487 were made available (default text template, letter templates and memorandum templates in different languages as well as instructions for document templates).

Some miscellaneous observations during the pilot project can also be reported:

No *information security* problems related to the OpenOffice.org software or the OpenDocument format appeared during the piloting.

The *opposition to change* during the piloting was minor than expected. OpenOffice.org and the open source software were generally experienced as positive and interesting issues.

3.7. Resources and the cost of piloting

Originally the amount of internal IT work of the piloting was estimated to be 150 person days between 1 December 2005 and 30 June 2006. As the piloting was extended by three months until 30 September the amount of work was increased to a total of 250 person days in order to finalize the publications of the project.

The cost of piloting was estimated to be 45 000 € for outside training and consulting services, manual purchases and IT environment as well as support services. The final costs were 41 000 € divided as given in the Table 7.

Manuals and other materials	13 000 €
Purchase of training services	9 000 €
Purchase of support services	11 000 €
Purchase of consulting services	8 000 €
Hardware and software	0 €
Costs total	**41 000 €**

Table7. Piloting costs

4. MIGRATION

The final migration decision was originally expected in 2005. Delays in the availability of OpenOffice.org version 2 postponed the decision till 2006 when the results of the OpenOffice.org pilot project would be available.

In section 4.1 below, revised cost estimates for the three migration options considered in the 2005 software evaluation study are given. Section 4.2 describes the migration decision in more detail. Information on the current status of the OpenOffice.org migration process is given section 4.3.

4.1. Revised cost estimates

The costs for the three migration options in Table 3 were estimated in 2005. Since then, important changes in the cost factors had occurred. A revised cost estimate was produced to reflect the new situation. The revised cost estimates for the the three migration options are given in Table 8.

	Lotus SmartSuite option	Microsoft Office option	OpenOffice.org option
License purchases	668 300 €	2 517 000 €	211 000 €
License maintenance	737 000 €	3 545 000 €	737 000 €
Training and support	200 000 €	370 000 €	580 000 €
Document conversions, application integration	105 000 €	355 000 €	535 000 €
Costs total	**1 710 300 €**	**6 787 000 €**	**2 063 000 €**

Table 8. The revised costs of the migration options 2006-2011

The costs of all migration options in Table 8 are considerably lower than the costs in Table 3. During 2005-2006, the licensing bundle of Lotus Notes client software and Lotus SmartSuite was dissolved. This helped to exclude all costs related to Notes clients from the calculation. For Lotus SmartSuite, a one-time license charge was negotiated for the Windows XP platform in order to allow some time for the migration on the Windows XP platform. The costs of Microsoft Office licenses were reduced when the number of Office Professional licenses was adjusted to follow the licensing decisions made during 2006. The positive results of the pilot project allowed some reduction in the training and support costs because it was obvious that the need for external training and support services was lower than estimated in the 2005 cost evaluation.

The revised 6-year costs in Table 8 for a full Microsoft Office migration would amount to a total of 6.8 M€, for the OpenOffice.org option to 2.1 M€ and for the Lotus SmartSuite option to 1.7 M€. The relative cost differences between the options are high. The costs of the Lotus SmartSuite and OpenOffice.org options represent 25-30 % of the costs of the Microsoft Office option.

4.2. The migration decision

When considering the migration to OpenOffice.org, the results of the pilot project were positive. The functionality of the software covered the needs of the Ministry of Justice and its administrative sector, and also the compatibility of OpenOffice.org with other software packages was high. The need for external support services is low, and the pilot project had produced training materials and various support tools for the migration.

The cost evaluation given in Table 8 shows that the costs of the OpenOffice.org option and the Lotus SmartSuite option are considerably less than the Microsoft Office option.

The native support of OpenOffice.org to the OpenDocument ISO standard ISO/IEC 26300 for office documents is an important factor in order to achieve interoperability between organizations and and citizens.

The influence of OpenOffice.org to personnel productivity in document handling was not ex-

plicitly measured in the pilot project. Practical experience showed that no obvious differences in document handling times could be noticed when compared to Lotus SmartSuite or Microsoft Office. Recent studies suggest that personnel productivity is not influenced negatively when a migration to OpenOffice.org is done. The Danish Ministry of Science, Technology and Innovation conducted an experiment with six public organizations using Microsoft Office and OpenOffice.org as the targets for office software migration [Den2005b]. The results showed that there was no visible economic effect (neither influence in the use of resources nor in productivity) in the workflows, no matter which office suite was chosen. The only difference in the total costs (direct as well as indirect) was related to license fees. Studies in Italy have given similar productivity results. In these studies ([Ita2005a] and [Ita2005b]), personnel productivity was not affected by the introduction of OpenOffice.org software. The number of documents handled daily had not reduced nor had the the global effort to handle documents increased.

The final migration decision was made on 1 December 2006 by the Permanent Secretary and the CIO of the Ministry of Justice:

The Ministry of Justice has decided to migrate to open source OpenOffice.org office suite. OpenOffice.org will replace the Lotus SmartSuite software, and also part of Microsoft Office software packages will be replaced by OpenOffice.org. After the migration, 85 % of the total document processing will be handled by OpenOffice.org and 15 % by Microsoft Office.

The migration is scheduled to commence from the beginning of 2007.

The Ministry of Justice and its administrative sector will adopt the OpenDocument ISO standard for the file format of office documents.

The decision follows closely the 2005 recommendations given in Table 4. The migration from Windows NT 4 platform to Windows XP was in progress during 2006 with OpenOffice.org installation included in all Windows XP workstations. This provided the beginning of 2007 to be the natural starting point for the actual migration process.

4.3. The status of migration

The migration to OpenOffice.org and the adoption of OpenDocument file format was scheduled to commence from the beginning of 2007, but an important set of preliminary measures had already been completed during 2006:

1. In the 2006 migration from Windows NT 4 platform to Windows XP, OpenOffice.org installation was included in all Windows XP workstations.

2. Several Finnish-language handbooks of OpenOffice.org were made available as the result of the OpenOffice.org pilot project:
    – OpenOffice.org 2 Handbook of Questions and Answers
    – OpenOffice.org 2 Express Guide
    – OpenOffice.org 2 Template Guide
    – OpenOffice.org 2 Installation Handbook

3. The pilot project had produced a browser-based OpenOffice.org learning environment which contains e.g. frequently asked questions, handbooks, training materials as well as discussion and problem solving pages.

4. Document templates in OpenDocument format complying with the Finnish document standard SFS 2487 were produced as the result of the piloting.

5. Based on the piloting experience, a tested framework for the contents and structure of a basic OpenOffice.org training day was available.

6. An installation CD-ROM with instructions and handbooks, suitable also for home computer installations, was available.

The move towards OpenOffice.org and OpenDocument by the Finnish Ministry of Justice has several common factors with the initiative of the French public administration. According to IDABC news [Fre2006], France's newly formed Directorate General for the Modernisation of the State (Direction Générale de la Modernisation de l'Etat - DGME) prepared during 2006 an extensive set of tools for French administrations to assist them in their migration to OpenOffice.org: a CD-ROM for the installation of OpenOffice.org, a training pack, on-line training assistance, a communications pack, various support tools, guidelines, etc. Basicly the same set of tools was produced in the OpenOffice.org pilot project of the Ministry of Justice.

On the Windows NT 4 platform of the ministry and its administrative sector, altogether seven office products were previously used (see Table 1). On the Windows XP platform, the number of office products has been reduced to four. In addition to OpenOffice.org version 2, both Microsoft Office 2003 and Office 2000 are used for certain tasks. For Lotus SmartSuite, a one-time license charge was negotiated for the Windows XP platform in order to allow the required time for the migration from Lotus SmartSuite to OpenOffice.org. The migration approach taken by the Ministry of Justice does not follow a "big bang" approach where all office software use would be migrated at once to OpenOffice.org. Instead, the migration is a step-by-step process where existing integrations with office software and applications are gradually modified allowing old office software to be phased out.

From the 10 000 persons employed by the ministry and its administrative sector, more than half can be migrated to OpenOffice.org in a short period of time. Others have various restrictions implied by application integrations which require more time for the migration.

The migration in 2007 was started with an information campaign where all IT staff members and all IT contact persons in over 300 offices were being informed on the OpenOffice.org migration decision. Introductory information on the use of OpenOffice.org on the Windows XP platform has been made widely available and the installation CD-ROM has been widely distributed throughout the organization. By March 2007, more than 6000 copies of the OpenOffice.org handbook [Fin2006d] have been distributed to employees. In addition to giving information on the new software, the campaign provided enough guidance for employees to handle e.g. ODF documents received as e-mail attachments. In a large organization of 10 000 employees there are hundreds of skilled users who are able and willing to use new software immediately when it is made available.

In addition to basic training, the migration needs to address issues related to the conversion of

old documents and to the introduction of OpenOffice.org document templates.

In January and February 2007, the main migration effort has been in the largest offices situated in Helsinki and Tampere. These offices employ approximately 800 persons. In addition, migration was started in the offices in Hämeenlinna region which employ 200 persons. In-house OpenOffice.org training has been arranged for the IT staff members of these offices in order to provide them with skills needed in the OpenOffice.org support. Basic one-day training following the framework given in Appendix 2 has been given for the employees. Also short 2-hour training events for larger groups have been arranged. In these short events, the focus has been in the network learning environment, basic text processing functions and document interoperability issues.

The basic training has been supplemented by document template workshops for selected users. The OpenOffice.org document templates following the Finnish document standards are the basis of the workshops. The standard templates are supplemented with the required details of specific offices. The arrangement of template folders and path settings provide the environment for creating new documents from templates using the operation *File - New - Templates and Documents*. By March 2007, more than 100 document templates have been produced. These include various letter, memorandum and facsimile templates in several languages. Also customized slide presentation templates for offices have been produced.

The migration phase does not involve massive document conversions. Microsoft Office documents do not need conversion, they can be opened and processed directly by OpenOffice.org. Also Lotus 1-2-3 spreadsheets can directly be processed by OpenOffice.org. Lotus WordPro documents are more problematic because they cannot be directly opened by OpenOffice.org. In order to support migration from Lotus WordPro to OpenOffice.org Writer, WordPro installation is available. Old documents can be opened by WordPro and document contents can be transferred to Writer either using copy/paste or saving the document e.g. to MS 2000 Word format.

In the coming weeks, the remaining large offices (e.g. in Turku and Oulu) are the main focus of the migration. At the same, the training of in-house trainers is of key importance. This far no outside service providers have been used in the migration or in the support service arrangements. The development of in-house knowledge and OpenOffice.org support skills is considered to be vital to the successful migration.

Negative experiences in the migration have been rare during the first two months of 2007. The positive results of the 2006 OpenOffice.org pilot project have been valid also in the actual migration. Also the opposition to the change in office software has been very rare. The positive attitude can be strengthened by focusing in training, standards complying document templates, good handbooks and supportive tools. The strong points like the support for standards and document interoperability in addition to the free installation possibilities of OpenOffice.org are emphasized in the introduction of the software to new users.

The Ministry of Justice is an important customer to several Finnish IT companies. The companies produce large amounts of IT systems documentation as part of their services. The migration to OpenDocument file format in systems documentation has also started.

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APPENDIX 1. OpenOffice.org questions during the pilot project

General topics – OpenOffice.org

1. How do I install OpenOffice.org on a Windows computer?
2. How do I upgrade to a newer OpenOffice.org version?
3. Does the use of OpenOffice.org require a Java run-time environment?
4. What are good user settings for OpenOffice?
5. How much RAM does OpenOffice.org require?
6. Does OpenOffice.org increase the size of the Windows profile of the user?
7. How do I install and activate Finnish spell checking and hyphenation?
8. How can I get a Swedish user interface for OpenOffice.org?
9. What are the XML file formats used by OpenOffice.org?
10. How can I assign Microsoft Office file formats as the default save formats?
11. How can I set the default application for Microsoft Office files?
12. What are the shortcut keys of OpenOffice.org?
13. How can I enable/disable the OpenOffice.org Quickstarter?
14. How can I use document templates?
15. How can I assign my own document template as the default document template?
16. How do I find the style settings of a document?
17. How do I transform a Microsoft Office file to the PDF file format?
18. Does Acrobat Reader display the PDF files generated by OpenOffice.org?

Text processing – OpenOffice.org Writer

1. Is OpenOffice.org compatible with Lotus SmartSuite WordPro?
2. Is OpenOffice.org compatible with Microsoft Word?
3. What file formats does Writer read?
4. What file formats does Writer save?
5. How do I copy text from elsewhere to a Writer document?
6. How can I create a document template from a text document?
7. How do I use AutoText for text abbreviations?
8. What are the shortcut keys of text processing?
9. How do I set my own shortcut keys?
10. How do I find out the differences between two documents?
11. How do I use Finnish spell checking?
12. How do I hyphenate the Finnish text?
13. How do I install and activate spell checking and hyphenation in foreign languages?
14. How can I prevent a line break between two words?
15. How do I insert non-breaking hyphens?
16. How can I disable the display of conditional hyphens?
17. How can I make tab stops and return characters visible?
18. How do I set tab stops and indents?
19. How do I define a hanging indent as specified in the Finnish document standard?
20. How do I use bullets and numbering?
21. How do I create headers and footers and insert date and page number fields?
22. How do I make a different layout for the first page?
23. How do I apply heading paragraphs and generate a table of contents?
24. How can I add empty space between the numbers and titles in the table of contents?
25. How can I create watermark background for each page?

26. How can I prevent automatic formatting of the text?
27. How can I prevent automatic word completion?
28. How do I restore text back to default format?
29. How can I display/hide line numbers in the document?
30. How do I remove in Word the highlight marking of text made in OpenOffice.org?
31. How can I disable the display of background colour in page number and date fields?

Spreadsheets – OpenOffice.org Calc

1. Is OpenOffice.org compatible with Lotus SmartSuite 1-2-3?
2. Is OpenOffice.org compatible with Microsoft Excel?
3. What file formats does Calc read?
4. What file formats does Calc write?
5. How do I open and save text files in Calc?
6. How do I refer to cells and cell areas in Calc?
7. How do I use the cell of another table (sheet) in a formula?
8. How can I automatically generate series in consequent cells?
9. How do I calculate the sum, number and average of cells?
10. How do I use the Function Wizard?
11. How do I transform the information in a table into a chart?
12. How do I format the dates of the cells?
13. How do I assign the border line settings of the cells?
14. How do I assign the background colour of the cells?
15. How do I create headers and footers for tables?
16. How do I spell check the text of a table?
17. How do I control line breaks in the cells of a table?
18. How do I print only a selected table (sheet)?
19. How can I print a table in the landscape format?
20. How can I adjust the height and width of printing?
21. How can I insert and remove page breaks?
22. How do I lock the rows and columns of a table?
23. Why isn't the number representation of date 1.1.1900 the same in Calc and Excel?

Slide presentations – OpenOffice.org Impress

1. Is OpenOffice.org compatible with Lotus SmartSuite Freelance Graphics?
2. Is OpenOffice.org compatible with Microsoft PowerPoint?
3. What file formats does Impress read?
4. What file formats does Impress write?
5. How do I add new slides to the presentation?
6. How do I add slides from another presentation?
7. How do I hide slides from the presentation?
8. How do I create slide headers and footers and insert date and page number fields?
9. How do I show the presentation without page numbers and dates?
10. How do I set the background of the slides?
11. How can I create a presentation template from a slide presentation?
12. How do I spell check the text of the presentation?
13. How do I hyphenate the text of the presentation?
14. How do I adjust the slide contents to fit the print paper size?
15. How do I print several slides on one sheet?

APPENDIX 2. Framework for an OpenOffice.org basic training day

Goals	✔ Understanding overall functionality of OpenOffice.org ✔ Basic skills in the use of OpenOffice.org
Previous knowledge	✔ Experience in the use of some office suite software
General topics	✔ Network learning environment for OpenOffice.org (Moodle) ✔ What is OpenOffice.org? ✔ File formats: OpenDocument, XML, PDF, doc/xls/ppt ✔ Installation procedure of OpenOffice.org • Path settings for own documents and templates
Text processing **Writer**	✔ The Writer interface: Title bar, Menu bar, Standard toolbar, Formatting toolbar, Status bar ✔ File management: open/save, OpenDocument, PDF, doc-files, lwp-files, MultiSave ✔ Inserting and modifying text, copy/paste, copy/paste special ✔ Practising ✔ Styles and formatting, paragraph styles: Default, Body text ✔ Heading styles: Heading 1, Heading 2, Heading 3 ✔ Page styles: Default, First page ✔ Spell checking and hyphenation ✔ Document templates ✔ Tab stops, indents, bullets and numbering, tables, pictures ✔ Practising
Spreadsheets **Calc**	✔ The Calc interface: Title bar, Menu bar, Standard toolbar, Formatting toolbar, Formula bar, Status bar ✔ File management: open/save, OpenDocument, PDF, xls-files, 123-files, MultiSave ✔ Cell references, series, AutoFill ✔ Functions and formulas, sum function ✔ Inserting a chart ✔ Page and cell area formatting • Borders, background, print scale adjustment ✔ Practising
Slide presentations **Impress**	✔ The Impress interface: Title bar, Menu bar, Standard toolbar, Line and Filling toolbar, Drawing toolbar, Status bar ✔ File management: open/save, OpenDocument, PDF, ppt-files, MultiSave ✔ Adding and modifying slides, using slide designs ✔ Master slides ✔ Slide transition effects ✔ Practising
Discussion	✔ Questions and answers