Estimates of the Costs of Implementing Office Open XML and Open Document Format in the Central Government

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1. Executive summary

In this report, Rambøll Management calculates the financial consequences of the central government switching from Microsoft's current proprietary documentation formats to new, open formats. The formats that are included in the cost calculations are Office Open XML, which was developed by Microsoft but has now been transferred to the standardization organization, ECMA, and Open Document Format (ODF), which was accepted as an official ISO standard in May 2006.

Only cost calculations were made; not estimates of the possible financial advantages of the central government switching to an open document format. Therefore, no estimate was made of the possible financial gains derived from realizing a political wish to promote competition in the marketplace through selection of a nonproprietary standard format.

In the opinion of Rambøll Management, the results of this report should be supplemented with evaluations of the societal and functional advantages and disadvantages if they are to be used as the basis for a recommendation of the choice of a standard format or formats for documentation in the central government.

The calculations are based on three main scenarios:

1. Implementation of Office Open XML by using the existing office packages from Microsoft or by a gradual transition to Microsoft Office 2007, in which the new format is the standard format.
2. Implementation of the Open Document format by carrying out a general transition to the open source office package, OpenOffice.org
3. Implementation of the Open Document format in the Microsoft Office packages.

The calculations include both setup costs and operations costs for a period of five years. Various types of cost are used, categorized into three main headings:

1. Technological (primarily including conversion costs)

2. Organizational (including employee training and anticipated waste of time when using a new office package)

3. System-related (including license costs and the cost of developing interfaces to other generally used systems in the central government)

Note that the calculations and estimates that have been made were based on a number of prerequisites, which were qualified as much as possible. They will, however, always include a degree of uncertainty. This is the case even for relatively small changes of the prerequisites for the organizational-related costs and could mean significant adjustments, increases or decreases, of the level of total costs for a period of five years.

This would similarly be the case if Microsoft were to increase or decrease its license fees in connection with launching Office 2007. A reduction of the yearly license ex-

pense of, for example, DKK 100 would result in the savings of millions for the central government as a whole.

Based on the prerequisites that Rambøll Management is operating with and the current prices for, for example, Office licenses, the main figures for the five-year period are:

1. A transition to the Office Open XML documentation standard in the existing Microsoft Office versions would, in itself, result in the cost of **approximately DKK 105 million.** If it is assumed that the central government follows its current practice and, over a period of five years, updates its current Microsoft Office licenses (primarily Microsoft Office XP and 2003) to the new 2007 version, the total costs would amount to **approximately DKK 380 million.**

2. The costs of implementing the ODF standard while simultaneously switching office packages OpenOffice.org are evaluated as involving costs of **approximately DKK 255 million.**

3. The costs of implementing the ODF standard in the Microsoft Office packages are estimated as being marginally higher than the costs of scenario 1 (primarily due to greater conversion and support costs).

It is important to stress that the very significant costs are not exclusively due to the implementation of *the formats* Office Open XML and ODF. They are to a large extent expenses that generally exist in connection with existing agreements and those that are connected with the upgrading of existing office packages or a general change to new office packages.

The sensible reason for introducing a specific office package generally in the central government, would, of course, be reflected in a concrete business case, which would include the expected advantages (including the financial affect) of the implementation.

2. The report's background and limits

The association for open source suppliers in Danmark [Foreningen for Open Source Leverandører I Danmark] (OSL) has requested Rambøll Management to carry out a comparison of the financial consequences of changing to Office Open XML and Open Document Format (ODF), respectively, as the document formats in the central government.

Rambøll Management wishes to stress that the focus of the report is exclusively on the costs and does not include an evaluation of the possible gains that result from using a specific office package. That is, there is no discussion of, for example, the functional differences between the various products. Neither has any attempt been made to estimate the possible gains achieved through realizing any political wish to promote competition in the marketplace for office packages by choosing a nonproprietary standard format

The report does not analyze the technological and organizational risks of changing document formats and thus possibly also office packages.

Note that the estimated costs in connection with existing, multi-year agreements with Microsoft are included in all of the cost calculations made. That is, they are also included in the scenario that concerns the introduction of ODF and Open Office, because these Enterprise Agreements will be gradually terminated during the five years that is the timeframe dealt with in the report.

These and other elements should, of course, be included in the decision about which standard or standards are to be chosen and used in the future in the Danish central government.

The report was prepared during the summer of 2006, which has meant, among other things, that it has been difficult to have a dialog about the prerequisites of the report and the costs, which, ideally, we should have been able to have prior to publication.

Rambøll Management is fully responsible for the content of the report, including the prerequisites used and the evaluations that are made.

3. Introduction

Documentation format standards in the public sector are currently under debate around the world.

Microsoft Office and the related binary document formats are currently the de facto standard, dominating market share both globally and throughout the Danish public sector (including, not least, the central government).

During the last several years, attempts have been made to introduce competition in this area, with the publishing of open source office software such as OpenOffice.org and commercial products such as StarOffice and IBM Workplace Managed Client. The competition will be further intensified when Microsoft's updated version of Office is launched in 2007.

The various software packages use different document formats. Microsoft Office 2007 will, as the default (native format), use the Office Open XML format, while OpenOffice.org, StarOffice, IBM Workplace, and many other products use the Open-Document format (ODF)[1].

Currently, the state of Massachusetts in the U.S.A. is working on implementing the ODF format in its administration. The Belgian government has also decided to use ODF for document exchange[2]. In Croatia, the government has decided that all employees of the central government must, when possible, use open source programs, including Open Office. The list can be supplemented with more examples.

With the Danish Parliament's enactment of proposed resolution B103 before summer vacation in 2006, Denmark is perhaps about to embark in the same direction as some of the examples above.

From the Danish Parliament's information system

"Parliament requires that the government ensure that the public sector's use of information technology, including the use of software, be based on open standards.

The government must, no later than 1 January 2008, or as soon as it is technically possible, implement and maintain a set of open standards that can be a source of inspiration for other public authorities. Open standards should thereafter be part of the basis for the public's development and purchase of IT software with the intention of promoting competition.

The government should ensure that all digital information and data that the public exchanges with citizens, companies, and institutions is in formats that are based on open standards."

B 103 (as passed on 2 June 2006)

B103 is open to interpretation, but it requests that the government use open standards in public administration. Work is also being done in a number of public institu-

[1] Microsoft has recently announced that the company will provide financial support and technical consulting for a project that is to develop an ODF plug-in to Microsoft Office. See chapter 7.

[2] http://presscenter.org/archive/20060623/432d0130470a88df1105dda38d1282b0/?lang=nl&prLang=en

tions to evaluate the possible use of the ODF format. Documents on the Ministry of Science, Technology and Innovation's Web site at vtu.dk will thus, as of 1 September 2006 be available in ODF format. At first, this will not replace other formats, but supplement HTML, Word, PDF, and XML formats.

On the surface it does seem that there is an increased interest among public institutions to investigate alternatives to the documentation formats that Microsoft uses.

4. Methodological considerations

This chapter explains a number of considerations concerning the analysis methods that were used for this report.

4.1 Definition of terms

4.1.1 *Open source vs. open standards*

When evaluating the relative costs of introducing different document standards it is important to differentiate between open source and open standards. The two expressions are often used as synonyms, but this is not correct.

Open source describes the right to gain insight into a program's code in order to make it possible to see how it is structured so that modifications, changes, or customizations can be made. Examples of open source programs are the Apache Web server, the Firefox Internet browser, and the office package OpenOffice.org.

This is in contrast to closed source, in which the source code belongs to the software provider and is not publicly available. Microsoft Office is simply one of many examples of closed source.

There is no clear definition of what is meant by open standard. In an attachment to the basis for the Danish Parliament's resolution B103, it says that:

- "A completely open standard is characterized by it being available and free of charge to everyone, that it remains freely available and is documented in detail, and that all relevant parties can participate in the development and maintenance of the standard."

Examples of open standards are Internet standards such as HTML or TCP and standards such as OIOXML, OCES, and ODF.

4.1.2 *OpenDocument format*

The OpenDocument format is an XML-based document format that was developed by the OpenDocument Foundation. In May 2005, the format was approved as standard through the standardization organization, OASIS, and in May 2006 as an official international standard through ISO.

The purpose of ODF is to create an open document format that is not controlled by a specific supplier.

4.1.3 *Office Open XML*

The Office Open XML format is Microsoft's alternative to ODF. Office Open XML is, as is the case with ODF, an XML-based format and will become the standard format for Word, Excel, and maybe also PowerPoint in the next version of Microsoft's Office package. Microsoft has sent Office Open XML for approval in the standardization organization, ECMA and is working on having Open XML be approved as an ISO standard. (See section 5.2.1 for further details.)

Because Office 2007 has not been officially published but exists as a beta version, and because Microsoft has stated that it intends to have Office Open XML defined as being an open standard, changes could occur in both the format and the programs and functions that support it.

4.1.4 *Definition of a government institution in this report*

This report is limited to dealing with the central government. This limit follows the Ministry of Finance's publication, "*Centraladministrationens organisering – status og perspektiver*" [the organization of the central government – status and perspectives]. The central government is comprised of 19 departments and a total of 57 government agencies, and so on, or a total of nearly 68,000 employees.[3]

Note that the central government is also comprised of a number of other institutions, primarily educational and research institutions. Through the use of the limits used, it is easier to make cost estimates because of the special license conditions that apply to educational institutions, and others, for the use of various types of software, and so on.

4.2 The report's scenarios

The report reviews three scenarios, which Rambøll Management considers to be the most relevant and likely to be used for the implementation of document standards in the central government.

The report considers the starting point in the central government today. That is, a situation in which most documents, spreadsheets, and presentations are, as default, saved in Microsoft's binary formats.

In Rambøll Management' assessment, the central government uses three different versions of Microsoft Office. This report does not discuss what extra costs this might involve for the government as a whole; neither will it include this in the cost calculations that we make for the future.

Microsoft Office and Office Open XML
This scenario will become relevant in connection with Microsoft's planned launching of Office 2007 and the Office Open XML format in the beginning of 2007. Immediately following this launch, Microsoft will release updates to Office versions 2000, XP, and 2003, making it possible to open, read, edit, and save documents, spreadsheets, and presentations in Office Open XML format in these Office versions.

The scenario has two sub-scenarios. One of them is based on the use of the existing versions of Microsoft Office and the other is based on the assumption that the central government will follow its current practice and gradually upgrade its office packages to Microsoft Office 2007.

OpenOffice.org and ODF
In this scenario, the office package is changed from Microsoft Office to the latest version of OpenOffice.org (version 2), which uses the ODF format as the default format. OpenOffice.org has been translated into Danish and is therefore a good candidate as a product that can be used generally in the central government if the government wished to start using ODF.

Microsoft Office and ODF plug-in/translation tool
In this scenario, Microsoft Office is used together with a plug-in or a translation tool that makes it possible to open, read, and save files in ODF format directly in Microsoft Office.

[3] "Centraladministrationens organisering – status og perspektiver" " [the organization of the central government – status and perspectives] (The Ministry of Finance, 2006).

The OpenDocument Foundation has announced that it is already working on developing such a plug-in for Microsoft Office (from version 97 and later)[4].

Similarly, in July 2006 Microsoft gave its support to an open source project that is to prepare a plug-in or a translation tool[5], which means that the ODF format will be supported by a number of MS Office versions. Currently, a beta version of Office 2007 has been released, but later, according to Microsoft, it will also be possible to use the plug-in in other versions of Microsoft Office (see chapter 7).

Naturally, other scenarios could be made; for example, ODF is supported by other commercial products. However, it is likely that the Office Open XML format will be widely used due to Microsoft's leading market position. This might make relevant a scenario in which the Office Open XML is the default. The market research firm, Gartner believes that there is an 80% probability that StarOffice and OpenOffice.org will support the Office Open XML format by the end of 2008[6].

4.3 The most important prerequisites and key figures

The report's financial calculations use a number of variables that Rambøll Management has either been informed about from various sources or were set up or estimated on the basis of our knowledge about conditions in the central government.

4.3.1 *General information about the cost calculations*

In this report, Rambøll Management has attempted to include all relevant costs related to the transition of introducing a new document format. However, because the scenarios deal with the simultaneous implementation of new office packages, the costs of this are included in the calculations made.

Experience shows that there are significant costs related to introducing IT systems for general use. For this reason, of course, many cost items are not the direct result of introducing the Office Open XML and ODF *formats*.

The concrete introduction of new office packages should primarily be done due to other wishes and considerations. Whether it is a good idea to introduce a specific office package generally in the central government should be reflected in a concrete business case that includes the expected advantages of the introduction.

4.3.2 *Validity and sensitivity*

The calculations and estimates that have been made are not to be interpreted as being an "exact science". They concern the probable costs based on the prerequisites.

Especially in the case of organizationally based costs, relatively small changes in the prerequisites can involve significant increases or decreases of the total level of cost during a period of five years. This can be illustrated by the cost factor "wasted employee time". If work is done on the assumption that the transition to a new document format and a new office product involves an average of one wasted hour per employee, the following result is reached:

> *1 hour • 68,000 employees • an average hourly salary of DKK 220 = nearly DKK 15 million per year*

[4] http://www.groklaw.net/article.php?story=20060504015438308

[5] http://sourceforge.net/projects/odf-converter/

[6] http://www.gartner.com/resources/137600/137688/office_software_battle_moves_137688.pdf

An expectation that the wasted time will be twice as much would result in a yearly cost of nearly DKK 30 million.

Similarly, if Microsoft increases or decreases its license fees in connection with, for example, entering into a new agreement about volume licenses with SKI, a decrease of the yearly license expense for, for example, DKK 100 would involve significant savings in the millions for the central government as a whole.

4.3.3 *Conditions concerning the central government's employees and IT training*

The following assumptions were made when calculating a number of the organizational costs:

- The average salary and personnel costs (excluding overhead expenses) for an IT user were set at DKK 220 per hour.
- The average yearly salary expense for an IT employee was estimated to be DKK 425,000, corresponding to about DKK 260 per hour.
- A course day for an IT user was estimated to cost DKK 2,000 for external courses and DKK 1,000 for internal courses for a number of participants, coordinated internally.
- One course day for an IT employee was estimated to cost DKK 3,000 based on participation in external courses.

4.3.4 *Microsoft Office licenses*

The number of Office licenses in the central government is estimated to be more than 74,000, covering both normal administrative PC workplaces and home workplaces financed by the state. In the case of home workplaces, the institutions that have entered into an Enterprise Agreement (EA) (see below) would be able to install Office in them without further charge.

Unless a more detailed analysis is made, it is difficult to precisely set the costs of using Microsoft Office that the central government would have during a period of five years. This is primarily because Microsoft offers its customers "package solutions" ("bundling"), in which, in addition to the right to use Microsoft Office, access is given to a large number of services.[7]

[7] There is more information about EA at http://www.microsoft.com/danmark/licens/programmer/ea.mspx.

For the duration of the Enterprise Agreement (starting with three years), the agreement includes the right to or possibility to:

- Upgrades to new licenses of Microsoft Office and the programs for which Software Assurance is subscribed to
- Choose between the use of Office Standard and Office Professional[8]
- Without further charge, be able to use a number of otherwise obligatory client-access licenses for various server software (including Windows Server, Exchange Server, SharePoint Server, and System Management Server)
- Access to or a discount on various courses and consulting services

As previously mentioned, the estimated costs for existing, multi-year Enterprise Agreements with Microsoft are included in all of the cost calculations. This means that they are also included in the scenario that deals with the introduction of ODF and OpenOffice. For this scenario, these costs will gradually disappear as the agreements with Microsoft expire.

It is estimated that 65% of the licenses for Microsoft Office in the central government are obtained through an Enterprise Agreement with Software Assurance and that 35% are obtained through a Select Agreement without Software Assurance.

By far, most (if not all) organizational units in the central government procure licenses for Microsoft Office using SKI's framework agreement with Microsoft for software volume licenses. This agreement was entered into on 1 April 2004 and terminates on 31 March 2007. It is assumed that at this time a new agreement will be entered into with the same financial and commercial conditions as today. If the price is increased, the cost picture would change significantly, depending on the size of the price adjustment.

Even though prices in the SKI agreement are, in principle, not publicly available, the level is widely known. The price for Microsoft Office Standard is about DKK 2,000 and DKK 2,480 for Microsoft Office Professional though a Select Agreement (level D). It is estimated that about 10% of the employees in the central government use Office Professional.

In the case of an Enterprise Agreement, there are yearly payments during the duration of the agreement and the pricing depends on the actual content of the agreement. The agreement is adjusted yearly depending on developments in the number of PCs or employees. Since it is not possible to separate the license expenses for Microsoft Office from the other services in an Enterprise Agreement, a level must be determined that not only reflects the services that are made available and the use that is actually made of these services in an average institution in the central government.

As mentioned, this would require a more detailed study, which would probably show great variations in the way that the central governmental institutions use the EA agreements. In the case of institutions that make extensive use of Microsoft's services and programs (not just Microsoft Office), and that also regularly upgrade them to new versions, an EA agreement makes good sense from a financial point of view. On the other hand, an EA agreement would be a poor business for the institutions that make use of the various services to a lesser degree, and that, for example, do not upgrade the Office package prior to the termination of the agreement.

In this report, Rambøll Management has estimated the cost to be DKK 1,450 for the first year and DKK 900 for the following two years[9]. This should be seen in light of the fact that we estimate that access to be able to upgrade the Microsoft Office package for many institutions is the primary motivating factor for entering into an EA agreement.

[8] The most significant difference between the two versions is that the Access database is included in Microsoft Office Professional.

[9] Based on pricing of Desktop Professional Only Windows Upgrade and Office.

At the same time, the calculations assume that the first 25% of the EA agreements terminate at the end of 2006, 25% at the end of 2007, 25% at the end of 2008, and 25% at the end of 2009. Note that scenario 1 is based on the existing Microsoft Office versions and a prerequisite for scenario 2 is that these agreements are not renewed.

4.3.5 *Licenses for OpenOffice.org*

OpenOffice.org version 2 can be downloaded free of charge from, for example, www.OpenOffice.org. If OpenOffice.org is to deliver a CD-ROM, this can take place through a reseller. This involves expenses for the medium, an administration fee, and postage. These costs (DKK 75-100) do not, however, have to be paid per user, but only for a smaller number of users per IT organization, and for this reason they have no significance for the total cost picture.

4.3.6 *Time frame*

The scenario calculations in this report include the immediate costs of the transition to the two document formats (initial costs or year 0 costs) and the expected operations costs for a period of five years. At the end of the report, this time frame is put into perspective.

4.4 The individual cost elements

The following table summarizes the various cost elements used in the financial analysis of the scenarios mentioned.

Cost elements	***Explanation***
Technology costs	
Batch conversion of documents	In connection with the transition from the current binary formats, a decision must be made regarding which and how many documents are to be converted. This is a task that would typically be handled by the internal IT functions using batch runs in document drives, and so on. In addition to any payment for conversion tools, the time used by the IT functions (for testing, actual runs, and subsequent quality assurance, and so on).
Individual document conversion	The vast majority of the relevant internal documents will be converted in connection with the initial batch runs. But subsequently, errors and so on might be found in the converted documents, so there is a need for contingency plans in connection with the exchange of documents with external partners, who typically send and expect to receive documents in Microsoft's current binary formats. This would primarily result in increased use of time by IT users.
Any upgrade of PCs	It is not expected that the transition of document formats to OpenXML or ODF will make special demands on PC upgrades. But this cost element is included due to the possibility that this factor might be included in the spreadsheet models. Some observers point out that the use of specific functions in Microsoft Office 2007 require the

Cost elements	***Explanation***
	used of Microsoft's new operating system, Vista, which, among other things, has special requirements for the PCs that are to run the system. Because this cost calculation is focused on document formats, Rambøll Management does not find it relevant to include this factor.
Test and installation of PCs	Prior to a major upgrade, a number of tests must be carried out, and it also takes time and therefore costs money, to carry out the installation.
Extra costs related to the operation and maintenance of the IT environment	If it is necessary to operate two different Office platforms, there will be extra costs for IT employees. In principle, there might also be extra costs for hardware (primarily servers), but Rambøll Management estimates that there is generally enough sever capacity, so this is not included in the estimates.
Any disk usage savings	A transition to both OpenXML and ODF would involve reducing the size of the documentation due to built-in compression algorithms. However, this does not seem to be a cost element of any great significance. This is partly because the price per disk space per gigabyte or terabyte is relatively modest, and partly because there is not a sufficient basis for evaluating how much a specific format is most effective. For these reasons, this cost element is primarily included for the sake of completeness and is not part of the concrete calculation in this report. Note that in the individual organization, significant savings for this item can be achieved in connection with the transition to a new document format because compression can delay upgrading or new acquisitions of expensive solutions for storage and backup.
Any savings on backup capacity	See above.
Organizational costs	
Extraordinary downtime in connection with installations, and so on	For any change in the operations environment, in addition to the planned downtime, there is the potential risk of short or long periods of downtime. This cost element is included for this reason; even though Rambøll Management does not believe that it should be included in the calculations. If it is to be included, it is mostly relevant in connection with a transition to OpenOffice.org, because for most IT functions it will be a new product.
External user training	The transition to new document format itself will require a limited amount of user training. However, in connection with a transition to OpenOffice.org and Microsoft 2007, a special training effort is required, in part to minimize the

Cost elements	***Explanation***
	time wasted by users who are looking for functions that have moved, and so on.
Internal user training	The same as above, because this cost element is just for internal training, organized internally (regardless of the character of the training; for example, presentations at general employee meetings, and so on).
Loss of working hours for users due to training	In addition to the costs of the training activities themselves, the loss from productive work among employees should be calculated as "lost production time". This is done using the average hourly salary.
Training of IT employees	Rambøll Management does not expect that especially demanding or expensive training programs would be required for IT employees in connection with a transition to new formats and any new Office products. The expenses will primarily be related to employees in the support functions (mainly service desks, and so on).
Loss of working hours for IT employees due to training	See "Loss of working hours for employees due to training" above.
Time wasted due to transition from current Office	This concerns the extra time that the individual users spend in connection with the transition from well-known user interfaces and menu structures to new ones. The greater the changes are, the more time will be spent on becoming familiar with the new product. Good, complete training in connection with the transition should be able to reduce the amount of wasted time and thus the costs.
Extra time usage by first-level support and so on	Especially a change of Office product would, for a period of time, mean more work for first-level support (service desks and so on). In time, the extra work will stop. In the spreadsheet models, a reduced amount of extra work is calculated during the first three years.
System costs	
License costs for OpenOffice.org	This is included for the sake of completeness, but because there are no special license costs in connection with OpenOffice.org, this element is of minor significance.
The cost of Microsoft Office licenses for Enterprise Agreement (with Software Assurance)	This element and the one that follows reflect the fact that there are many ways in which licenses to Microsoft Office can be obtained. See also section 4.3.4.
The cost of Microsoft Office 2007 Select Agreement (without Software Assurance)	See section 4.3.4.
The cost of plug-ins, service	This is included for the sake of consistency. If it is necessary to obtain special plug-ins and so on in

Cost elements	***Explanation***
packs, and so on	order to open and save documents in the two formats, ODF or OpenXML. In light of Microsoft's new announcement concerning ODF, it is not really relevant.
New templates and so on	A transition to OpenOffice.org and Microsoft Office 2007 would, in most organizations, involve the use of time and money to adjust or develop business-specific templates, and so on.
Integration and interfaces for CMS systems	For a number of systems, a change of document format, especially Office products, would mean that existing interfaces and integration possibilities would cease to exist unless version upgrades are made for them or special development actions are taken. In the central government as a whole, the interfaces for the systems for content management, ESDH, and Navision Stat would, in general, have to be evaluated.
Integration/interface to Navision Stat	See above.
Integration/interface to ESDH systems	See above.

5. Scenario 1 – The use of Office Open XML format (in Microsoft Office)

In the beginning of 2007, a new version of Microsoft's Office package will be released, which will include integrated support of the Office Open XML format. At the same time or shortly thereafter, Microsoft will release updates to existing Office (starting with and including 2000), which will make it possible to use Office Open XML format without having to obtain the new version of the Office package. In other words, in 2007 it will be possible to use Office Open XML format in already purchased Microsoft Office software and by upgrading to the new version 2007. At the time of writing, the updates are in beta versions for testing[10], but only versions for Microsoft Office XP and 2003.

In older versions of Microsoft Office, the possibility to upgrade to Office Open XML will be offered in the form of service packs, and a Software Assurance subscription will not be needed. Thus, they will be free of charge to customers, if you do not count the time it takes to test and install.

5.1 Technological consequences

5.1.1 *Conversion costs*

If Office Open XML is introduced as a document format in an organization, it would be natural to transform all or most of the organization's existing documents at one time (batch conversion). Microsoft will provide tools intended for helping IT departments and others to convert documents from the existing binary formats to the new XML-based formats.

It might be necessary to carry out such a comprehensive conversion more than once. A result of the standardization process for Office Open XML (described below) might result in document format changes before they are finally approved by the various standardization agencies. Such changes might result in the need for another mass conversion in order to ensure full compatibility with a standard version of Office Open XML. For organizations that choose to implement the format before final standardization, in the worst case this would mean that the expenses for mass conversion would be doubled (if this is to be carried out in two rounds of conversion of the same size).

5.1.2 *Compatibility with other software or system integration*

In connection with this study, Rambøll Management has been in contact with the suppliers to the public sector of CMS and ESDH systems. These suppliers say that they are working on supporting Office Open XML in future versions of their software, as the format gains acceptance in the market. At the time of writing, Rambøll Management has neither received detailed information about when the format will be supported nor information on prices, and so on.

5.1.3 *Networks and hardware*

According to Microsoft, the new file format will result in a significant reduction in document size due to compression. An ordinary text file in Office Open XML format is 50-75% smaller than current binary formats. In principle, this will result in smallller costs for disk space and backups, and reduce the network traffic internally and externally for document exchange.

[10] http://www.microsoft.com/office/preview/beta/converter.mspx

5.2 License terms and conditions

5.2.1 *Standard license terms and conditions*

Microsoft has publicly declared that the company will renounce the possibility of prosecuting those who use the Office Open XML specification[11]. This means that Microsoft will have no requirements to software developers who develop support of Office Open XML in their applications.

At the same time, Microsoft has taken the initiative to have the Office Open XML format approved by the standardization agency, ECMA. According to Microsoft, this will mean that control will be given to an independent authority that ensures customers that Microsoft will not control the format alone.

Note that with regard to ECMA's role in relation to the Office Open XML standardization process, OpenDocument Foundation, has stated that ECMA has no experience with document standards.

Some observers also criticize the composition of the Office Open XML format's technical committee because they say that in addition to Microsoft itself, it consists of companies and organizations that do not have software development as their primary business area.

Following approval of Office Open XML by ECMA, the plan is to send the standard for approval to the international standardization organization, ISO.

Because ISO has already approved ODF as a document standard, it is not certain that yet another document standard will become an ISO standard. The market research firm, Gartner, believes that there is only a 30% chance that this will happen[12].

5.2.2 *Software costs*

Because, in principle, the central government could continue to use existing Office software, there will not be immediate changes in the license costs in connection with a transition to Office Open XML format.

In the long run, it is unrealistic that government agencies will continue to use old Office version. As can be seen in the table below, normal support for old Office versions has already expired, so in order to ensure continued support, it is necessary to upgrade[13].

[11] http://www.microsoft.com/office/xml/covenant.mspx

[12] http://www.gartner.com/resources/140100/140101/iso_approval_of_oasis_opendo_140101.pdf

[13] support.microsoft.com

Product	*End of normal support*	*End of extended support*
Office 97	31 Aug 2001	28 Feb 2002
Office 2000	30 Jun 2004	14 Jul 2009
Office XP	11 Jul 2006	12 Jul 2011
Office 2003	13 Jan 2009	14 Jan 2014

For the vast majority of central government institutions, the norm has thus far been that upgrades of Microsoft Office packages have been made before or just after the expiry of Microsoft's normal support.

5.3 Organizational consequences

5.3.1 *Users*

A transition to the use of the Office Open XML document format in Microsoft Office versions that are currently used by the central government would not result in special expenses for training users because the interface is the same. The introduction to the new format could take place by using general information.

On the other hand, Rambøll Management believes users would need a training program in the event of a transition to a new version of Microsoft Office (2007). The content, duration, and breadth of this training – and thus the level of the connected costs – would probably vary significantly across the various institutions and ministry areas.

Rambøll Management believes, however – on the basis of its own experience and the experience of others with the beta versions of Office 2007 products – that there will be a greater need for training in the event of a transition from, for example, Office 2003 to Office 2007 than there would be for a transition from, for example, Office 2000 to Office 2003. In this study, it is assumed that 5% of the users will complete an external half-day course, while 25% will be introduced to Office 2007 at an internal two-hour introduction course.

Some time might be wasted in connection with document exchange with citizens, companies, and other external partners, should they not be able to read documents in Office Open XML. This might require that documents continue to be saved in their current binary formats.

5.3.2 *Software support*

The use of Office Open XML for existing Office versions would not result in significant extra expenses for usage support. IT departments should expect that a number of hours would be spent on carrying out batch conversions of documents from binary format to Office Open XML. Because the tools from Microsoft are not yet available, it is difficult to evaluate how many person hours this will involve. If the conversion is to be carried out twice or more times as a result of file format changes, the costs will increase.

5.4 Scenario costs

The table below shows a calculation of the most significant costs related to scenario 1. It includes both the expected cost of continued use of existing Office versions and a transition to Microsoft Office 2007 during a period of five years.

The scenario includes both setup costs (initial costs year 0) and operations costs for five years. The table is based on the key figures and prerequisites described in Appendix 1.

	Transition to Office Open XML in existing Office versions	**Transition to Office Open XML in connection with continuous implementation of Office 2007**
Technological	**10,600,000**	**10,600,000**
Time used for batch conversion of documents	2,500,000	2,500,000
Individual conversion of documents	8,100,000	8,100,000
Extra operations costs	0	0
Organizational	**0**	**72,700,000**
External user training	0	3,900,000
Internal user training	0	4,900,000
Loss of working time for users due to training	0	10,500,000
Training of IT employees	0	400,000
Loss of working time for IT employees due to training	0	200,000
Time wasted due to transition from current Office	0	52,400,000
Extra time usage in first-level support and so on	0	400,000
System	**95,200,000**	**298,200,000**
License costs for Open Office	0	0
Costs for Enterprise Agreement with MS	95,200,000	233,000,000
Costs for MS Office 2007 with Select	0	51,900,000
Costs for plug-ins, service packs, and so on	0	0
New templates, document templates, and so on	0	1,900,000
Integration and interfaces to CMS systems	0	3,800,000
Integration and interfaces to Navision Stat	0	3,800,000
Integration and interfaces to ESDH systems	0	3,800,000
Total for the scenario	**105,800,000**	**381,600,000**

The estimated costs in connection with the existing, multi-year Enterprise Agreements with Microsoft are included in the cost calculations made. In the case of the scenario in which use of Office Open XML is made in existing versions of Microsoft Office, it is assumed that the cost of these agreements will cease to exist as the agreements expire.

The very significant extra costs in the scenario with a gradual transition to Office 2007 are not based on the implementation of the Office Open XML *format*. A concrete implementation of Microsoft Office 2007 would thus be based on other wishes

and considerations. This would be reflected in a concrete business case that would include the anticipated advantages of implementation.

6. Scenario 2 – The use of OpenDocument format (in OpenOffice.org)

As already discussed, the OpenDocument format is currently supported in a number of products. There are many commercial products on the market, such as IBM Workplace, with license costs of approximately DKK 500 per user.

This scenario is concerned with OpenOffice.org. It has been translated into Danish, which is one reason why it can be considered to be a good proposal for a product that can be relevant in the Danish central government. OpenOffice.org is open source software and for this reason there are no specific license expenses.

6.1 Technological consequences

6.1.1 *Conversion costs*

In order to carry out a total conversion of existing documents from Microsoft's binary formats, it would be necessary to use tools that can handle this. There is a conversion tool in the product itself that can make batch conversion possible.

However, Rambøll Management believes that in many parts of the central government it would still be necessary to keep some spreadsheets in Excel format. There are some special financial functions and departments that carry out a great deal of analysis that use advanced macros and VBS scripts, and so on, which cannot be converted so that they can be immediately used for ODF-based solutions. This means that for a period of time it will be necessary to use two office packages in some areas, resulting in increased license and support costs. In the cost calculations it is estimated that it would be necessary to run double installations for 7% of the central government's users.

After the initial conversion, a certain amount of wasted time can be expected in connection with continuous conversion of documents.

These compatibility problems are expected to have been reduced since the completion of this study in 2003. A number of compatibility improvements have been made since the previous version 6.0 of StarOffice in the current version 8.0 and in version 2.0 of OpenOffice.org.

However, there are still compatibility problems in the transformation of binary Microsoft Office documents in OpenOffice.org or StarOffice. This is primarily due to the fact that the binary formats are closed, which makes it very difficult for others to ensure full compatibility.

In addition, there are further problems with opening Microsoft Office documents in platforms other than Microsoft Windows. Microsoft Office can generate files with embedded COM objects or ActiveX elements that require Windows. If you use OpenOffice.org in other platforms, for example, Linux, some information will be lost.

6.1.2 *Compatibility with software/integration*

ODF format is supported or will be supported by a number of different software solutions[14]. In addition to OpenOffice.org and others, IBM has announced ODF support in future versions of Lotus Notes software[15].

[14] http://en.wikipedia.org/wiki/OpenDocument_software
[15] http://www.computerworld.dk/art/33945?a=rss&i=0

In connection with this study, Rambøll Management has been in contact with different suppliers of both CMS and ESDH systems. These suppliers have stated that they will support ODF in future versions of their software if there is a market demand. Rambøll Management has requested further information about, among other things, the anticipated costs in connection with this but has not yet received this information.

6.1.3 *Networks and hardware*

There are examples of benchmarks that show that the work involved with creating and opening documents is slower when using OpenOffice.org than with Microsoft Office[16]. These performance problems have not been fully clarified and are probably related to the performance of the OpenOffice.org office package itself and not the document format.

Because ODF (just as OpenXML) uses compression, an ordinary file in this format will occupy about 50% less disk space than the usual binary formats.

6.2 License terms and conditions

6.2.1 *The standard's license terms and conditions*

ODF can be used free of charge because Sun Microsystems has relinquished all rights to the format[17]. If you implement ODF as specified in the standard, you are ensured that Sun Microsystems will not make any demands.

ODF has been approved by the standardization agency OASIS (2005) and through ISO (2006).

6.3 Organizational consequences

6.3.1 *Users*

The use of an office package other than Microsoft Office would require a certain amount of employee retraining. Assuming that the user interface in OpenOffice resembles to a high degree that of, for example, Office 2003, a conservative estimate of the amount of training needed is that it would be at the same level as a transition to Microsoft Office 2007. That is, 5% of the users complete one half-day external course, while 25% would receive an introduction to Office 2007 at an internal two-hour introduction program. The price for a course day about Open Office is between DKK 2,000 and DKK 2,500.[18,19]

In order to minimize the changes on the users' desktops and thus minimize costs, in OpenOffice.org it is possible to adjust the interface (menu texts, menu structure, and key shortcuts) so that they resemble Microsoft Office[20]. This adjustment is connected with financial expenses, regardless of whether it involves extra time spent by IT employees or external suppliers are used. On the other hand, the transition to a new product is made simpler for the users if it involves fewer organizationally related costs.

[16] http://blogs.techrepublic.com.com/Ou/?p=119
[17] http://www.oasis-open.org/committees/office/ipr.php
[18] http://da.openoffice.org/leverandoerydelser.html
[19] http://www.superusers.dk/kurser/applikationer/oversigt.htm#office
[20] http://searchopensource.techtarget.com/tip/1,289483,sid39_gci1190230,00.html

6.3.2 *Software support*

The transition to a new software package is a process of change both for users and IT departments in an organization. This process of change might result in increased use of IT support and thus increase expenses in this area.

6.4 Scenario costs

The table below includes a calculation of the most significant costs in scenario 2. It includes both setup costs (initial costs in year 0) and operations costs for five years. The table is based on the key figures and prerequisites described in Appendix 1, which also includes a complete specification of the calculations.

	Transition to ODF and Open Office
Technological	**39,300,000**
Time used for batch conversion of documents	4,900,000
Individual conversion of documents	13,100,000
Extra operations costs	21,300,000
Organizational	**103,700,000**
External user training	3,900,000
Internal user training	4,900,000
Loss of working time for users due to training	10,500,000
Training of IT employees	700,000
Loss of working time for IT employees due to training	700,000
Time wasted due to transition from current Office	82,300,000
Extra time usage in first-level support and so on	700,000
System	**114,000,000**
License costs for Open Office	0
Costs for Enterprise Agreement with MS	95,200,000
Costs for MS Office 2007 with Select	3,600,000
Costs for plug-ins, service packs, and so on	0
New templates, document templates, and so on	3,800,000
Integration and interfaces to CMS systems	3,800,000
Integration and interfaces to Navision Stat	3,800,000
Integration and interfaces to ESDH systems	3,800,000
Total for the scenario	**257,000,000**

All of these costs cannot be exclusively attributed to the implementation of the ODF *format*, but it could be argued that this is more true for this scenario than is the case for the scenario with Office Open XML and Microsoft 2007. According to Rambøll Management's evaluation, it is, therefore, difficult to see the immediate functional advantages of undergoing a transition to the Open Office package. On the other hand, there might be more long-term gains from using an already approved document format such as ODF.

Note that the estimated costs in connection with the existing multi-year Enterprise Agreements with Microsoft are included in the cost calculations because these costs will gradually cease to exist as the agreements with Microsoft expire.

7. Scenario 3 – The use of ODF plug-ins in Microsoft Office

For some time, the OpenDocument Foundation has been working on a plug-in that makes it possible to use ODF in Microsoft Office[21]. A number of private companies, including Sun Microsystems, have already published plug-ins or other tools with this functionality.

The latest is that Microsoft has given its support to an Open Source project that is to prepare a plug-in or translation tool[22]. This solution can, in its preliminary version, be downloaded and installed in the beta version of Office 2007. Later, it will also be possible to use the same plug-in in the current versions of Office.

This announcement is a breach of Microsoft's previous position. Until recently, the market research firm, Gartner, believed that Microsoft could not be expected to support the ODF format at the end of 2008 and that it was not possible to predict whether or when this would happen[23].

However, note that this announcement does not mean that Microsoft will *support* ODF plug-ins or translation tools in its office package. Thus, the Microsoft announcement is that they only will provide *support* and provide *technical* consultancy for the Open Source project[24].

The assumptions in this scenario must therefore be treated with some reservation. The plug-ins mentioned have not yet been released and the precise functionality and performance cannot be easily evaluated. However, the OpenDocument Foundation has provided information that their plug-in has been thoroughly tested and is ready to use.

7.1 Technological consequences

7.1.1 *Conversion costs*

The conversion costs in this scenario will be the same as those for the transition to using ODF in OpenOffice.org. A conversion of all or most of the organization's documents will be necessary.

During conversion, there may be problems with loss of data and lack of functions.

By using the plug-ins or translation tools approved by Microsoft, the conversion possibilities between the existing binary formats and ODF might be better because of Microsoft's knowledge of its own formats.

7.1.2 *Compatibility with software and integration*

Compatibility between the OpenDocument format and other types of software, such as CMS and ESDH systems is, in this scenario, the same as for scenario 2. The format used is the same in both.

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[21] http://www.groklaw.net/article.php?story=20060504015438308

[22] http://sourceforge.net/projects/odf-converter/ and http://online.wsj.com/article_email/SB115215216823499185-lMyQjAxMDE2NTAyNjEwNTYyWj.html and http://www.technewsworld.com/story/51592.html

[23] http://www.gartner.com/resources/137600/137688/office_software_battle_moves_137688.pdf

[24] http://blogs.zdnet.com/BTL/?p=3300

7.1.3 *Networks and hardware*

Currently, the performance of the combination of ODF and Microsoft Office cannot be evaluated because the different plug-ins have not yet been released. Therefore, it has not been possible to find information about this area.

7.2 License terms and conditions

7.2.1 *The terms and conditions of the standard*

The same license terms and conditions apply to ODF as for scenario 2.

7.2.2 *Software license terms and conditions*

In principle, with an ODF plug-in it is possible to use Microsoft Office instead of using OpenOffice.org or StarOffice.

As in scenario 1, it is important to note that Microsoft's support of the various versions of Microsoft Office will be terminated. In general, it is recommended to update to new versions of Microsoft Office at the latest at the time when Microsoft's support and updates of the old version have expired.

Plug-ins from both OpenDocument Foundation and Microsoft are open source and are, therefore, free of charge for users.

In a response to Massachusetts, Sun Microsystems writes that the price of the company's plug-in has not yet been determined. Another, smaller provider estimates that the price of their plug-in, which is being developed, will be USD 99 per workstation[25].

7.3 Organizational consequences

7.3.1 *Users*

An advantage of this scenario is the possibility to avoid training in the use of a new office package. Even though the format will change from Microsoft's binary format to ODF, the software, interface, and procedures will initially be the same for the users.

However, it is not clear whether all of the various plug-ins will make it possible to save directly in ODF format using the "Save" or "Save as" function. Alternatively, there would, for example, be an extra tool line such as the familiar PDF plug-in for current versions of Microsoft Word. This lack of "seamless integration" appears to complicate procedures for the users.

7.3.2 *Software support*

The installation of an ODF plug-in would mean that there would be some extra work for the IT employees in an organization. Currently, it is not possible to see whether there will be differences in the need for resources in connection with the installation of various solutions.

7.4 Scenario costs

The costs of this scenario correspond largely to those of scenario 1, as described in section 5.4, in which Microsoft Office is used with OpenXML.

The costs depend first and foremost on the frequency of Microsoft Office updates and are estimated to be marginally higher because of the higher costs of conversion and support.

[25] http://www.linuxworld.com.au/pp.php?id=418291310&taxid=9

8. Proposals for further action

This report is an attempt to contribute to the current debate on formats and interoperability by discussing the financial costs of implementing various document standards in the central government.

This report does not provide a definite answer and therefore it is natural that the evaluations in this report should be verified by some pilot projects or concrete tests, involving various relevant scenarios in practice.

The primary focus of these projects should be on the technological costs, including, not least, the conversion costs and organizational costs, including those that are connected with employee training and any time wasted due to the change from the current Microsoft Office package. In addition, any resulting demands on the IT departments should be further clarified.

This is where the myths must be stripped away and the often very subjective evaluations of different interested parties must be replaced with facts.

9. Appendix 1: Prerequisites and key figures

General prerequisites, variables, and so on Organizations and person years	Value	Comments/sources
Number of person years in the area of finance laws	128,424	"Statens personale i tal 2005" [state sector personnel in numbers] (Personalestyrelsen 2006) [the State Employer's Authority]
Number of organizational units in the central government	76	Source: "Centraladministrationens organisering – status og perspektiver" [the organization of the central government – status and perspectives] (FM 2006)
Number of organizational units in the central government with their own IT functions	40	Source: "Administrative fællesskaber – status og inspiration" [administrative communities – status and inspiration] (FM 2004) and Rambøll Management's own evaluation
Number of employees in the central government (rounded number)	68,000	Personnel in educational institutions and so on are not included. Source: Centraladministrationens organisering – status og perspektiver [the organization of the central government – status and perspectives] (FM 2006)
Number of IT employees in the central government	1,200	Rambøll Management's own calculation based on data from Personalestyrelsen [the State Employers' Authority]
Salary and hourly rates	Value	Comments/sources
Average yearly salary of an IT user in the central government (excluding overhead)	DKK 360,000	Rambøll Management's own calculation based on data from Personalestyrelsen [the State Employers' Authority]. The amount includes pensions.
Average hourly rate for an IT user in the central government (excluding overhead)	DKK 220	Rambøll Management's own calculation based on data from Personalestyrelsen [the State Employers' Authority].
Average yearly salary for an IT employee in the central government (excluding overhead)	DKK 425,000	Searches in the Finance Ministry's negotiations database 2006, first quarter. The amount includes pensions.
Average hourly rate for IT employees in the central government (excluding overhead)	DKK 260	Rambøll Management's on calculation base on information from Personalestyrelsen [the State Employers' Authority].
Conditions concerning PC workplaces	Value	Comments/sources
Percentage of IT users in the central government with their own PC workplaces	100%	It is assumed that all of the employees in question have a PC.
Of which the following percentage have a desktop PC workplace	90%	Rambøll Management's own empirical figures (based on various tasks in the government).
Of which the following percentage have a notebook PC workplace	10%	Rambøll Management's own empirical figures (based on various tasks in the government).
Of which the following percentage have a PC at home paid for by the place of work	10%	Rambøll Management's own empirical figures (based on various tasks in the government).
Average replacement frequency for desktop PCs (number of years)	4	Rambøll Management's own empirical figures (based on information from various sources).
Average replacement frequency for notebook PCs (number of years)	3	Rambøll Management's own empirical figures (based on information from various sources).
Conditions concerning licenses	Value	Comments/sources
Percentage of workplaces in the central government with MS Office 2003 licenses	60%	Rambøll Management's own empirical figures (based on various tasks in the government).
Percentage of workplaces in the central government with MS Office XP licenses	29%	Rambøll Management's own empirical figures (based on various tasks in the government).
Percentage of workplaces in the central government with MS Office 2000 licenses	10%	Rambøll Management's own empirical figures (based on various tasks in the government).
Percentage of workplaces in the central govern-	1 %	Source: "Den offentlige sektors brug af it

ment with Open Office or similar licenses		2005" (Danmarks Statistik 2006) [the use of IT in the public sector (Statistics Denmark 2006)]. The figure is based on the 87 public authorities out of 101 who filled out a questionnaire.
PCs at home that are covered by the Enterprise Agreement (EA)	Yes	
Percentage of central government Office users that are covered by the Enterprise Agreement	65%	Rambøll Management's own empirical figures (based on information from various sources).
Percentage of central government Office users with Office Professional	10%	Rambøll Management's own empirical figures.
Percentage of agreements about Enterprise Agreement that expire at the end of 2006	25%	Rambøll Management's own prerequisites.
Percentage of agreements about Enterprise Agreement that expire at the end of 2007	25%	Rambøll Management's own prerequisites.
Percentage of agreements about Enterprise Agreement that expire at the end of 2008	25%	Rambøll Management's own prerequisites.
Percentage of agreements about Enterprise Agreement that expire at the end of 2009	25%	Rambøll Management's own prerequisites.
Percentage of central government Office users who will switch to Office 2007 in year 1	5%	Rambøll Management's own prerequisites.
Percentage of central government Office users who will switch to Office 2007 in year 2	30%	Rambøll Management's own prerequisites.
Percentage of central government Office users who will switch to Office 2007 in year 3	30%	Rambøll Management's own prerequisites.
Percentage of central government Office users who will switch to Office 2007 in year 4	30%	Rambøll Management's own prerequisites.
Percentage of central government Office users who will switch to Office 2007 in year 5	5%	Rambøll Management's own prerequisites.
Percentage users who will still need MS Office 200/XP/2003 after switching to Open Office or similar licenses	7.0 %	Employees with a special need ("high-frequency users") will be given a license to MS Office. The need varies from organization to organization. In the central government, the number of high-frequency users is expected to be high due to responsibilities for the budget and budget management. (By comparison, experience with psychiatry in Århus County shows that the need is 3%). It is expected that 65% of the central government continuously finances their licenses Office through the Enterprise Agreement, so for them, expenses for new licenses are not expected during the duration of the agreement.
Conditions concerning task solving in the internal IT function	Value	Comments/sources
Further employee needs in the IT function in connection with operations and maintenance of two Office platforms (average)	0.25	Rambøll Management's own evaluation per IT organization. It assumes that the operations environment is not outsourced.
Extra time consumption in hours for year 1 in the IT function's first-level support during the transition Open Office	40	Rambøll Management's own evaluation.
Extra time use in hours in year 1 in the IT function's first-level support during the transition to Office 2007	20	Rambøll Management's own evaluation.
Extra time consumption in hours for year 2 in the IT function's first-level support during the transition Open Office	20	Rambøll Management's own evaluation.
Extra time use in hours in year 2 in the IT function's first-level support during the transition to Office 2007	10	Rambøll Management's own evaluation.
Extra time consumption in hours for year 3 in the IT function's first-level support during the transition Open Office	10	Rambøll Management's own evaluation.
Extra time use in hours in year 3 in the IT func-	5	Rambøll Management's own evaluation.

tion's first-level support during the transition to Office 2007		
Extra time consumption in hours for year 4 in the IT function's first-level support during the transition Open Office	0	Rambøll Management's own evaluation.
Extra time use in hours in year 4 in the IT function's first-level support during the transition to Office 2007	0	Rambøll Management's own evaluation.
Extra time consumption in hours for year 5 in the IT function's first-level support during the transition Open Office	0	Rambøll Management's own evaluation.
Extra time use in hours in year 5 in the IT function's first-level support during the transition to Office 2007	0	Rambøll Management's own evaluation.

Conditions concerning training	Value	Comments/sources
Number of training hours in a course day	7.0	
Number of external course hours per user in connection with a transition to Open Office	4.0	Rambøll Management's own evaluation
Number of external course hours per user in connection with a transition to MS Office 2007	4.0	Rambøll Management's own evaluation. The market does not currently provide transition courses.
Number of internal course hours per user in connection with a transition to Open Office	2.0	Rambøll Management's own evaluation. Provides a quick overview of the OpenOffice package with the major focus on Writer.
Number of internal course hours per user in connection with a transition to MS Office 2007	2.0	Rambøll Management's own evaluation. Provides a quick overview with the major focus on the new user interface and Word.
Number of course hours per IT employee who needs special training in connection with the transition to Open Office	11.5	Rambøll Management's own evaluation.
Number of course hours per IT employee who needs special training in connection with the transition to MS Office 2007	7.0	Rambøll Management's own evaluation.
Percentage of users who are to attend an external course on Open Office	5%	Rambøll Management's own evaluation.
Percentage of users who are to attend an external course on MS Office 2007	5%	Rambøll Management's own evaluation.
Percentage of users who are to attend an external course on Open Office	25%	Rambøll Management's own evaluation.
Percentage of users who are to attend an internal course on MS Office 2007	25%	Rambøll Management's own evaluation.
Number of IT employees who need to have special training about Open Office	20%	Rambøll Management's own evaluation.
Number of IT employees who need to have special training about Office 2007	10%	Rambøll Management's own evaluation.
Conditions concerning time wasted in connection with a change of platform and so on	Value	Comments/sources
Time wasted per user in year 1 in connection with the transition to Open Office (hours)	3.0	Rambøll Management's own evaluation.
Time wasted per user in year 1 in connection with the transition to MS Office 2007 (hours)	2.0	Rambøll Management's own evaluation.
Time wasted per user in year 2 in connection with the transition to Open Office (hours)	1.5	Rambøll Management's own evaluation.
Time wasted per user in year 2 in connection with the transition to MS Office 2007 (hours)	1.0	Rambøll Management's own evaluation.
Time wasted per user in year 3 in connection with the transition to Open Office (hours)	1.0	Rambøll Management's own evaluation.
Time wasted per user in year 3 in connection with the transition to MS Office 2007 (hours)	0.5	Rambøll Management's own evaluation.
Time wasted per user in year 4 in connection with the transition to Open Office (hours)	0.0	Rambøll Management's own evaluation.
Time wasted per user in year 4 in connection with the transition to MS Office 2007 (hours)	0.0	Rambøll Management's own evaluation.
Time wasted per user in year 5 in connection with the transition to Open Office (hours)	0.0	Rambøll Management's own evaluation.
Time wasted per user in year 5 in connection with the transition to l MS Office 2007 (hours)	0.0	Rambøll Management's own evaluation.

Conditions concerning disk usage, document conversion, and so on	Value	Comments/sources
Number of MB of disk space used per user for storing Office documents	100	Rambøll Management's own evaluation. Varies significantly from organization to organization and from employee to employee.
Yearly growth in disk usage per user for storing Office documents	25%	Rambøll Management's own evaluation. Varies significantly from organization to organization and from employee to employee.
Number of documents per user that are to be converted to ODF or OpenXML	100	Rambøll Management's own evaluation.
Yearly growth in the number of documents that are to be converted	25%	Rambøll Management's own evaluation.
Average size of the documents that are to be converted (MB)	0.2	Rambøll Management's own evaluation.
Reduction of disk usage in connection with conversion of documents to OpenXML	50%	Based on information from Microsoft Danmark, which specifies a number between 50 and 75 percent.
Reduction of disk usage in connection with conversion of documents to ODF	50%	Based on Rambøll Management's own experience with using OpenOffice
Number of documents that can be batch converted to OpenXML per hour	720	Based on converting an average of 12 documents a minute. The product is not yet available, but Rambøll Management expects better performance than is the case for OpenOffice.
Number of documents that can be batch converted to ODF per hour	360	Based on converting an average of six documents a minute.
Number of documents per user in year 1 that must be converted to OpenXML manually	4	Rambøll Management's own evaluation.
Number of documents per user in year 1 that must be converted to ODF manually	6	Based on a combination of figures from Gartner and Rambøll Management's own evaluations.
Number of documents per user in year 2 that must be converted to OpenXML manually	1	Rambøll Management's own evaluation.
Number of documents per user in year 2 that must be converted to ODF manually	1.5	Based on a combination of figures from Gartner and Rambøll Management's own evaluations.
Number of documents per user in years 3-5 that must be converted to OpenXML manually	0.5	Rambøll Management's own evaluation.
Number of documents per user in years 3-5 that must be converted to ODF manually	1	Based on a combination of figures from Gartner and Rambøll Management's own evaluations.
Time usage per user for manual conversion (number of minutes)	5	Based on a combination of figures from Gartner and Rambøll Management's own evaluations.
Expenses for development of interfaces, templates, and so on	Value	Comments/sources
Cost per organizational unit for an interface between the CMS system and Open Office	50,000	A request has been made to different main suppliers to the central government, but currently, RM has no concrete figures.
Cost per organizational unit for an interface between Navision Stat and Open Office	50,000	A request has been made to The Agency for Governmental Management, which is responsible for the development of Navision Stat, but currently, RM has not received any concrete figures.
Cost per organizational unit for an interface between the ESDH and Open Office	50,000	A request has been made to different main suppliers to the central government, but currently, RM has no concrete figures.
Cost per organizational unit for developing templates for Open Office	50,000	Rambøll Management's own evaluation.
Cost per organizational unit for an interface between the CMS system and Office 2007	50,000	Rambøll Management's own evaluation.
Cost per organizational unit for an interface between Navision Stat and Office 2007	50,000	Rambøll Management's own evaluation.

Cost per organizational unit for an interface between ESDH and Office 2007	50,000	Rambøll Management's own evaluation.
Cost per organizational unit for developing templates for Office 2007	25,000	Rambøll Management's own evaluation.
Prices of licenses, equipment units, course days, and so on	Value	Comments/sources
Yearly cost of the Enterprise Agreement for MS Office and XP Pro upgrading for the first three years (through SKI)	DKK 1,450	Estimated price based on the SKI agreement with med Microsoft, which will expire on 31 March 2007.
Yearly cost of the Enterprise Agreement for MS Office and XP Pro upgrading for the following years (through SKI)	DKK 900	Estimated price based on the SKI agreement with med Microsoft, which will expire on 31 March 2007.
Purchase price of MS Office 2003 Standard in a Select agreement (through SKI)	DKK 2,000	Approximate price. The SKI agreement with Microsoft will expire on 31 March 2007.
Purchase price of MS Office 2003 Professional in a Select agreement (through SKI)	DKK 2,480	Approximate price. The SKI agreement with Microsoft will expire on 31 March 2007.
Purchase price of an ODF plug-in for MS Office 2000/XP/2003	DKK 0	Microsoft has announced that an ODF plug-in can be used free of charge for all versions from 2000 and later.
Purchase price of Open Office 2.0	DKK 0	OpenOffice can be downloaded from www.openoffice.org
Purchase price for IBM Workplace Managed Client	DKK 515	IBM Danmark's price list for July 2006.
Purchase price for a program for batch conversion of documents to OpenXML	DKK 0	Microsoft has announced that a program for batch conversion can be used free of charge in all versions from 2000 and later.
Purchase price of a program for batch conversion of documents to ODF	DKK 0	This is standard in OpenOffice 2.0.
Purchase price of standard desktop PC (without screen)	DKK 4,000	Rambøll Management's own empirical figures (based on information from various sources).
Purchase price of standard notebook PC	DKK 7,000	Rambøll Management's own empirical figures (based on information from various sources).
Purchase price of 1 gigabyte of disk space	DKK 6	
Purchase price of 1 gigabyte of backup storage	DKK 10	
Price for external course day per user for courses on MS Office (7 hours)	DKK 2,000	Rambøll Management's own evaluation, based on pricing of open courses with a discount subtracted. Currently, there are no courses.
Price for external course day per user for courses on Open Office (7 hours)	DKK 2,000	Rambøll Management's own evaluation, based on pricing of open courses with a discount subtracted.
Price for internal course day per user for courses on MS Office (7 hours)	DKK 1,000	Rambøll Management's own evaluation, based on market prices.
Price for internal course day per user for courses on Open Office (7 hours)	DKK 1,000	Rambøll Management's own evaluation, based on market prices. A larger amount of development work is expected than for MS Office.
Price for external course day for IT employees (7 hours)	DKK 3,000	Rambøll Management's own evaluation, based on the pricing of open courses.

Calculation prerequisites Cost factors, and so on	Value	Comments/sources
Total number of documents in MS Office's proprietary formats that are to be converted	6,800,000	
Disk space used for storing Office documents now (number of gigabytes)	1,360	
Extra disk space needed yearly for storing new Office disk space (number of gigabytes)	340	
The total number of administrative licenses for MS Office regardless of version (including PCs at home)	74,120	This assumes that 99% of all administrative PCs and PCs at home have Office licenses.
The total number of administrative licenses for MS Office regardless of version (excluding PCs at home)	67,320	
Total cost of external training about Open Office for all users	DKK 136,000,000	
Total cost of external training about Office 2007 for all users	DKK 136,000,000	
Total cost of internal training about Open Office for all users	DKK 68,000,000	
Total cost of internal training about Office 2007 for all users	DKK 68,000,000	
Number of administrative PC working places (desktops)	60,000	
Number of administrative PC workplaces (notebooks)	7,000	
Number of administrative PC workplaces (PCs at home)	7,000	