towards Open Source Software adoption and dissemination

tOSSad

Contract N° 015981

F/OSS Usability Test Results Report

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Change History

v0.1: Initial release and content structure

v0.2: Added introduction paragraph, small modifications

v0.3: Added external references, applied minor changes

v0.4: Added chapter 2

v0.5: Moved “test scenarios” to Appendix A and B

v0.6: Added user comments (presentation)

v0.7: Added user comments (word processing / spreadsheet)

1 http://www.gnu.org/licenses/gpl.html

2 http://creativecommons.org

v0.8: Minor modifications

v0.9: Changed table-data layout (from portrait to landscape)

v1.0: Several fixes applied to text, styles and figures captions. First final version released

v1.1: Heavily reformatting of the document

v1.2: Minor fixes

v1.3: Added an explanation of the "statistical variance", added infos about "ranges", heavily reformatted the "Management summary" of the pre-test (Appendix B)

v1.4: Minor modifications, formatting

v1.5: Proofreading

v1.6: Quality check

Release approval

Name	Role	Date
Kaan Erkan	Coordinator	03/07/2006

Table of contents

1. Executive Summary

The EU funded project tOSSad - towards Open Source Software adoption and dissemination - is a Coordination Action (CA) and its aims are to improve the outcomes of the Free / Open Source Software (F/OSS) communities throughout Europe by supporting the coordination and networking of these communities by means of state-of-the-art studies, national program initiations, usability cases, curriculum development and implementation of collaborative information portal and web based groupware.

The workpackage “F/OSS usability study” deals with sharing usability aspects and requirements among usability experts in order to help developers incorporate more user-centered design in the development process of F/OSS applications. This document presents the results achieved so far.

Usability is a term describing the *effectiveness*, *efficiency* and *satisfaction* with which users can achieve tasks (*ISO 9241-11*). Today, a large number of developed software does not meet users' needs or does not perform as expected. In order to address this problem, *users must be involved* in all stages of the development process - a user-centered design (UCD).

Software knowledge is based on techniques such as classifying users into various customer types, demographic segments and geographic regions. However, while this information is useful for marketing of the product, there is still a need for an analysis of the way individuals interact with a specific interface. For example, OpenOffice.org, a well-known open source office suite, is said to be lacking usability in some areas, and while the audience is well known, there is still room for improvement and a usability test can significantly contribute to the success of such a crucial software.

In this report, tOSSad workpackage 3 (F/OSS usability study) partners have tested 28 subjects (focus group) in order to analyse the usability issues of open source office suite OpenOffice.org 2.0. Our work has focused on doing interviews with the test subjects and taking test durations as they complete a predefined given test schema. Putting all the gathered data together, a complete picture of user interaction with OpenOffice.org has been built.

The purpose of this usability testing is to determine whether or not OpenOffice.org easily and quickly provides necessary guidance for the average users and users’ overall knowledge and perception of the software.

Our results shows that users have been much comfortable with the OpenOffice.org components “Calc” and “Writer” than with “Impress”. We think that this is related not only to a “usability” issue but also to several other factors. Word Processors and Spreadsheets, for example, share a very long history and during last twenty years they have been used, at various degree, by mostly all people working with a personal computer. Presentation, at the other end, is a much younger technology with no more than ten year of maturity, at least if we refer to applications used to prepare and show slides via a video-projector. At the other hand, most of the people's jobs involve doing their work mainly with text processing tool and does not require creation of presentations. For this reason, many of the users just do not use the presentation making tools. Furthermore, contexts where text-processing and/or

spreadsheet can be useful are much wider than the ones that could really benefit from presentation.

2. Introduction

> *"Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. Usability can also refer to the methods of measuring usability and the study of the principles behind an object's perceived efficiency or elegance"*[3].

A usability test is an open-ended session in which a test subject tries to complete certain objectives or tasks to help identify the application's strengths and weaknesses. Usability testing is required to produce a software application that focuses on target users' needs. The end result is a better understanding of user needs, an improved product and user satisfaction. Moreover, a usability test gathers user feedback and experience to create a product that is efficient, effective and easy to use.

While usability testing should be an iterative practice, run several times during the design and development life-cycle, in some cases can be acquired to show a product's shortcomings or pitfalls. In this report, we followed the latter case, since none of workpackage 3 partners of tOSSad has been involved during the 15+ years of OpenOffice.org development.

Most of the time, it is believed that the simplest usability test studies do not include real usability testing. Usually a usability expert audits the software and publishes a corresponding report, showing the lacking areas and possible amendment solutions. This tight-budget alternative is called a heuristic evaluation and does not include the focus groups or end users.

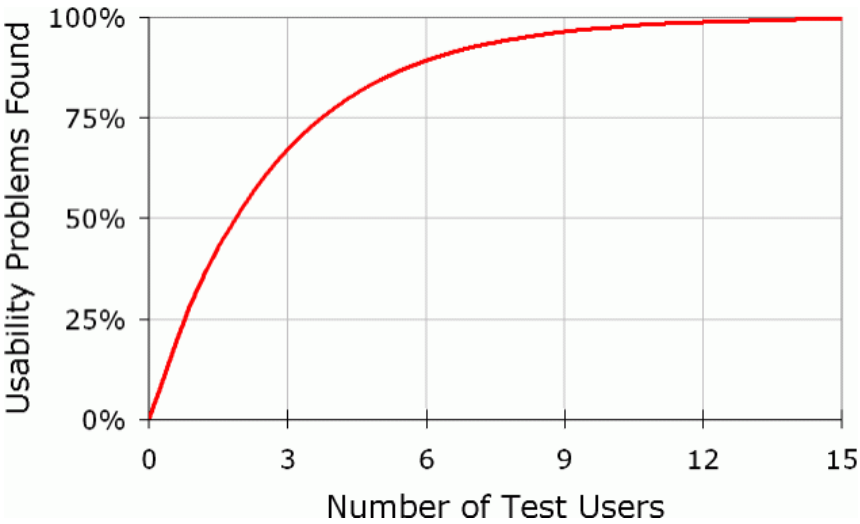

Figure 1: Usability problems found versus number of test users involved in the test

3 Wikipedia reference: http://en.wikipedia.org/wiki/Usability

It is believed that a test with at least 15 users can discover all usability problems, at least when testing the usability of a web-site[4]. In such a case, in order for the results to be accurate, we must observe representative users as they perform key tasks with the web-site. Moreover, testing with only 5-6 representative users will usually reveal about 85% of the usability problems (Ref: Figure 1 on page 7).

However, even if we believe that above assumptions can be easily extended to cover web site with a “common” navigation structure (low number of links and a relatively low navigation depth), we think that they're not easily applicable to software in general and, particularly, to a complex application suite like OpenOffice.org

OpenOffice.org is recognised as the largest open source project in the world[5], made up by more than 20 sub-projects, 30.000 program files and 9 million lines of source code[6]

Due to such a complexity, we are mostly sure that it is impossible to correctly define a unique set of test-subjects, even a very wide one, being able to tackle "all" the usability issues related to OpenOffice.org. User needs, user habits, skills, socio-economic level, age and lot of other factors heavily impact the way such users will "approach" a suite like OpenOffice.org. In other words, we think that it is not possibile to speak about OpenOffice.org "in general" but, on the contrary, we're convinced that OpenOffice.org presents itself in very different ways, depending of the "user-target": different targets will perceive OpenOffice.org in different ways and, as such, will raise the need of different sets of usability studies.

Based on above assumption, we decided to conduct our usability-test so that it will cover the most common "user-target": something in the middle between the very experienced user and the ones with no technical skills at all.

2.1. Content and Structure

This document is deliverable 15 of the tOSSad project and presents the work performed within tOSSad workpackage 3 and, in particular:

- Task 3.6: Establishing a F/OSS usability test including the selection of appropriate F/OSS components, the design of test scenarios and adoption of the test environment
- Task 3.7: Performing usability tests with independent users with various backgrounds and skills

This report is divided into four main sections:

1. **Executive summary and introduction**: This section gives a brief introduction to the rationale behind the project and the report.
2. **F/OSS test scenario**: Under this heading, the overall test scenarios are detailed

4 Nielsen, Jakob, and Landauer, Thomas K.: "A mathematical model of the finding of usability problems," Proceedings of ACM INTERCHI'93 Conference (Amsterdam, The Netherlands, 24-29 April 1993), pp. 206-213.

5 http://www.collab.net/customers/successstories/openoffice_story.pdf

6 http://www.openoffice.org/FAQs/build_faq.html

3. **Test outcomes**: The presentation of the major analysis of data collected during the test applications is given in this section.
4. **Conclusions and recommendations**: This section presents an overview of the outcomes and gives some recommendations to developers about future development of OpenOffice.org.
5. **Appendix A**: Includes the results of the usability questionnaires handed to test subjects.

2.2. tOSSad Project

tOSSad is a Coordination Action (CA) project funded by FP6-IST[7]. The project consortium consists of 19 partners from 15 European countries. The project started on February 1, 2005 and has a duration of 24 months.

The tOSSad project aims at improving the outcomes of the F/OSS communities throughout Europe through supporting the coordination and networking of these communities by means of state-of-the-art studies, national program initiations, usability cases, curriculum development and implementation of collaborative information portal and web based groupware.

The main objective of the tOSSad project is to start integrating and exploiting already formed methodologies, strategies, skills and technologies in F/OSS domain in order to help governmental bodies, educational institutions and SMEs (Small and Medium Enterprises) to share research results, establish synergies, build partnerships and possibly innovate in an enlarged Europe.

As an FP6-IST project, tOSSad is structured in the following 6 workpackages:

- WP1: F/OSS Study
- WP2: F/OSS National Programs
- **WP3: F/OSS Usability Study**
- WP4: F/OSS Curriculum Development
- WP5: Dissemination and Exploitation
- WP6: Management and Coordination Activities

2.3. Work Package 3: F/OSS Usability Study

The main goal of tOSSad workpackage 3 is to share usability aspects and requirements among usability experts in order to help developers complete their F/OSS projects on time and under budget by producing how-tos, tutorials, guidelines and carrying out F/OSS usability tests. This will help tackling the main usability obstacles in F/OSS and assist in enhancing usability in F/OSS.

As expected results of the whole WP3 activities, a set of “deliverables” have been or will be released:

7 The 6th Framework Programme web page can be reached from http://europa.eu.int/comm/research/fp6/index_en.html.
For more information on Information Society Technologies (IST), refer to http://www.cordis.lu/ist.

- D4: F/OSS Usability Workshop Report (released)
- D10: F/OSS Usability Report, Part A: Report on current usability, accessibility and acceptability status of F/OSS (released)
- D15: F/OSS Usability test results report (this report)
- D17: F/OSS Design for Usability Seminar Report
- D19: Usability guideline supporting developers to consider usability requirements and conduct usability test
- D20: F/OSS Usability Report, Part B: tomorrow's F/OSS usability requirements and recommendation for future F/OSS usability research directions

As a general policy, all the efforts needed to release the various deliverables, are divided into "tasks". Referring to WP3, here follows the list of related tasks:

- Task 3.1: Organisation of a workshop on usability, accessibility and testing of F/OSS
- Task 3.2: Making researches on the past and ongoing usability studies, initiatives and research projects
- Task 3.3: Conducting a F/OSS user survey
- Task 3.4: Analysing the survey and state of the art results and identifying F/OSS usability requirements and gaps
- Task 3.5: Research on tomorrow's F/OSS usability requirements and derivation of future usability research directions
- Task 3.6: Establishing a F/OSS usability test including the selection of appropriate F/OSS components, the design of test scenarios and adoption of the test environment
- Task 3.7: Performing usability tests with independent users with various backgrounds and skills
- Task 3.8: Developing a guideline including F/OSS usability testing and usability integration in the development process taking end user usability requirements revealment via mock-ups into account
- Task 3.9: Raising general awareness of usability principles within various F/OSS projects and the public
- Task 3.10: Conduction of a seminar for presenting and discussing the developed F/OSS usability recommendations, with regard to development and usability testing approaches

All of the deliverables mentioned above will be released under CreativeCommons license[8] and will be publicly available from the tOSSad website. This document constitutes deliverable 15 "F/OSS Usability Test Results Report".

8 http://creativecommons.org/

3. F/OSS Test Scenario

3.1. Introduction

F/OSS applications are quickly widening the number of utilisation environments: started in '90s with a strong focus on the “server-side” of computing (Apache, Sendmail, Bind, Postfix, etc.), they approached the “desktop-side” in early 2000 with both single applications (Mozilla, OpenOffice.org, Gimp, etc.) and whole sets of “desktop environments” (KDE[9], GNOME[10]). During the last couple of years, F/OSS applications are also entering the multimedia world at 360° degree: from fully functional VoIP solutions (Asterisk PBX[11]) to streaming and videoconferencing solutions (VideoLan[12]) to home multimedia platforms (MythTV[13]).

Although not yet recognised by the big masses, current and modern F/OSS applications as well as current and modern Linux distributions can effectively be used to fulfill the whole set of day-to-day activities without the need to maintain some proprietary environments (applications and/or operating systems).

Giving a clear picture of the “usability” issues related to such a complex scenario is, with no doubt, an extremely challenging task. Furthermore, the very high rate by which the most important F/OSS applications are currently being developed causes a F/OSS usability analysis to become even more complex to be performed.

As regarding the workpackage 3 activities, we decided to focus our usability tests on a specific software type and, to be more effective, we focused on “office automation” suites.

As every other software type approached by the F/OSS development community, office automation makes no distinction in terms of the number of different applications available for such a typology: Gnome-Office, KOffice, AbiWord and OpenOffice.org are some of the applications that quickly comes to mind.

Taking into account factors like development history, maturity, number of supported platforms, development rate and number and quality of localisations, we decided to focus our attention to the OpenOffice.org suite.

In the following paragraphs we are going to explain the reasons of such a choice and, also, the approach we have taken to test the usability of the OpenOffice.org suite.

3.2. The Rationale

Right after its release as a stable application on April 30, 2002[14], it was clear that OpenOffice.org would play a significant role in the process of F/OSS adoption by the

9 KDE web page, http://www.kde.org

10 GNOME web page, http://www.gnome.org

11 Asterisk web page, http://www.asterisk.org

12 http://www.videolan.org

13 http://www.mythtv.org

14 http://www.openoffice.org/about_us/ooo_release.html

“mass-market”. This is mainly because OpenOffice.org is both available for Microsoft and UNIX platforms (i.e. Linux, Solaris and Mac OSX).

OpenOffice.org for Microsoft Windows can play a very significant role, letting “standard” Windows users recognise the existence and the usefulness of the F/OSS world and, as such, could become the main “avenue” towards mass-market F/OSS adoption.

Although in the last couple of years, the Firefox browser played a very similar role and, while the number of Firefox downloads has surpassed 165 millions at the time of this writing[15], we strongly believe that office automation is still a key area in F/OSS applications and that the OpenOffice.org suite can gain huge market share during next years.

A big number of users could benefit from OpenOffice.org: secretaries, administrative staff, students, researchers and technical people. Basically everyone with the need to prepare text documents, make calculations and create presentations can fulfill such tasks using OpenOffice.org applications and, specifically, the spreadsheet (Calc), the word processor (Writer), the presentation software (Impress) and also the other utilities (Draw, Math). The compatibility of OpenOffice.org with other broad office formats makes it a viable alternative for everyday users.

As currently the de-facto standard office automation suite is Microsoft Office, we decided to have Microsoft Office users involved in the evaluation process of the OpenOffice.org usability level.

OpenOffice.org, as every other modern office automation suites, provides not only general features like basic formatting (bold, italic, font choice, etc.), text alignment (left, right, center, etc) and common editing features (cut/paste, open/save, etc), but also plenty of “complex” features (styles, cross-references, templates, wide programming API, etc.). As such, OpenOffice.org can be used with very different approaches, depending on the skills and experience of the user. To make things even more complicated, even a simple task, for example, applying bold style to some text, can be achieved in different ways: button bar icon (G icon), keyboard shortcut (<ctrl>+b), or from menu path (Format > Character > Character Style). Moreover, different user types might have different approaches (e.g.: technical users might prefer the keyboard shortcut approach while non-technical users typically prefer the button bar approach).

To be effective in our evaluation process and, specifically, in order to test the usability level of OpenOffice.org as it is perceived by the widest range of users, we decided to focus on “simple” and “common” activities: writing a simple text, formatting a simple spreadsheet and preparing a short presentation. As a secondary effect, choosing simple and common tasks could easily provide useful information to indirectly compare the usability of OpenOffice.org with other office automation tools.

3.3. Known Problems

In the previous paragraph we have briefly presented two of the difficulties that we were aware before performing the tests: different approaches by different target

15 http://www.spreadfirefox.com/

users and different approaches to achieve the same result.

In addition to those, also because of the particularities of the tOSSad project, we had to deal with other problems:

- **Global target**: tOSSad project includes 19 partners coming from 15 different countries with five partners directly involved in the usability test. As English language adoption levels vary a lot in these countries, we decided to conduct all the usability tests using native languages both in terms of test guidelines and software used. Hence, we decided to use OpenOffice.org 2.0 configured in local languages. OpenOffice.org localisations seems to be developed with various quality levels and, in some cases (e.g. Bulgaria and Slovenia), even if people did not speak English, they were used to use the software in English and found the usage of software presented in local language quite difficult.
- **Wide target**: tOSSad partners involved in the usability tests acted autonomously in selecting the test subjects and this resulted in a very heterogeneous subjects set. We had people ranging from young students or computer technicians to middle-age people with a low perception of the ICT issues. Even more complicated, people with the same profile but from different countries could perceive a different feeling about the usability issues due to the different levels of ICT usage in such countries;
- **Different interviewers**: In order to streamline the communication between interviewer and interviewee and to keep costs low, it was decided to have “local” interviewers. This choice introduced some risk-factors in the evaluation of test results as different interviewers could approach same issues in different ways. Time calculation, hints given to users, approach followed to fulfill single tasks, are all issues that could have been addressed differently between interviewers.

3.4. The overall “test scenario”

From a usability point of view, in order to be effective, test-subjects needed to fulfill a properly defined set of tasks. Those tasks were carefully selected so to result relatively simple, as compared to choosing very complex tasks (e.g. writing macros, applying complex styles, preparing templates, etc.) could have serious impacts on both the overall judgment and the usability perceived by not-very-experienced users.

To assure these and other requirements a pretest was designed and conducted many months before the final, overall usability test was finalised for all workpackage 3 (WP3) partners. This pretest scenario idea was designed in cooperation with the WP3 partners and was developed by IAT (University of Stuttgart) in close cooperation with the Technical University of Kufstein (FHS Kufstein), Austria in June 2005. Since OpenOffice.org version 2.0 was not yet available, the pretest was based on version 1.1.4.

The FHS Kufstein project group conducted 12 tests and wrote a detailed report (in German) and a management report in English (see Appendix B for more detail).

The pretest was translated into English, discussed with WP3 partners in detail and according to the outcomes and experience gathered during the pretest conduction the final usability test was developed.

The test scenario for the final usability test have been localised in German, English, Bulgarian, Turkish, Ukrainian and Italian.

In general both the pretest and the final test scenarios are based on identical tasks and concepts.

The scenario contains:

- guidelines for the moderator
- template for general questions for the subjects
- spreadsheet tasks
- text processing tasks
- presentation tasks
- questions for evaluating the accomplishment of the task
- template for taking the timing (duration) for each task
- template for the spreadsheet task
- sample text document and presentation

The guidelines for the moderator contain useful instructions on the procedure of doing the interview; important items such as mentioning the objective of the test, stimulating the test subject to think out loud, informing the subject on privacy issues as well as the duration of the test.

As our intention was to identify the overall OpenOffice.org usability as it is perceived by the “generic” users, and presuming that such users have no deep knowledge about any office automation tools, we decided to focus on basic functionalities:

- changing font-face and font-size
- setting text alignment (centered/right-aligned/left-aligned)
- adding frames and applying background colors to spreadsheet-cells and/or text-tables
- setting properties of frames (line intensity, line color)
- formatting (size, title) ready-made diagram
- applying basic formatting to diagrams (removing legend and other attributes)
- creating new, blank, text-documents
- including ready-made image files to text-documents
- including a spreadsheet area into text-document by a proper “cut-and-paste”
- applying and formatting captions to figure/diagrams
- preparing a “master-slide” to simplify the presentation creation
- adding text to presentation
- customising the enumeration symbol in a text-list

- including diagram to presentation by a proper “cut-and-paste” from spreadsheet
- adding objects to presentation (arrows, circles)

In order to better involve users in performing the mentioned activities, we decided to “embed” all such activities in the “test-scenario”: we asked users to image themselves as employees of a small industry and, as such, to properly act on a request by their company management.

As such, test subjects were given the following text:

> *You're working in a small industry which uses several equipments.*
>
> *Among such equipments three machines (“*Machine A*”, “*Machine B*” and “*Machine C*”) have been produced by the supplier “Machine Tools Inc.”.*
>
> *After carefully testing those three machines, you, as the company-controller, receive a raw spreadsheet file containing error frequencies encountered during the last four quarter.*
>
> *A quick look at the spreadsheet numbers reveals that “*Machine C*” exhibits a very high error frequency.*
>
> *Based on this problem, you decide:*
>
> *1) to improve the look of the data in spreadsheet, briefly reformatting related layout;*
>
> *2) to write a simple letter to the vendor (Machine Tools Inc.) stating that some corrective actions should quickly be taken;*

	B	C	D	E	F	G	H
1		Machine Type					
2		Machine A		Machine B		Machine C	
3		Minor Errors A	Major Errors A	Minor Errors B	Major Errors B	Minor Errors C	Major Errors C
4	1st Quarter 2004	4	2	9	2	14	4
5	2nd Quarter 2004	7	1	2	0	9	6
6	3rd Quarter 2005	3	1	5	0	7	2
7	4th Quarter 2005	6	3	1	1	16	4
8	Sum	20	7	17	3	46	16

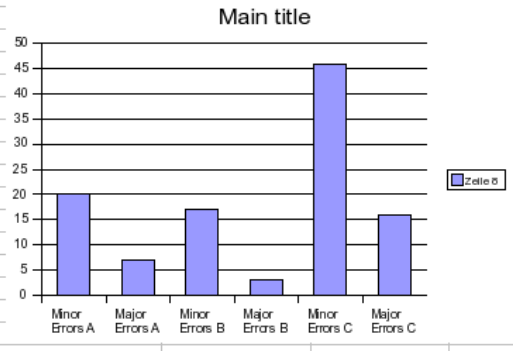

Figure 2: Base spreadsheet file

to prepare a short presentation (three slides) for the managing director to inform him about the problem.

In order to fulfill what is requested in points 1, 2 and 3, users were given a detailed lists of subtasks.

The intention was to have users easily understand the overall “concept” of the test-scenario. As stated in previous paragraphs, the goal is to have users performing what we think are basic and simple tasks: formatting a spreadsheet, writing a simple letter and creating a short presentation.

In the next three paragraphs we present the detailed task list for each of the three applications.

3.5. Spreadsheet Task

To perform the spreadsheet tasks, users were asked to open a ready-made spreadsheet (see figure 2 on page 15) and were asked to go through the following task-list:

Reformat the existing table as follows:

1. set the cell "Machine Type" to "bold, font size 14"

2. set the row of all three machine types to "bold centered"

3. set frames

a. of the row “Machine type” to frame intensity 2,5pt, color: “red”

b. of the row „Total“ to frame intensity 2,5pt, color: “red”

c. of the whole table to frame intensity 2,5pt, color: “red”

4. set background color of three machine types including heading of minor/major errors (row 2 and 3) to “light-grey”

5. set background color of the row “Machine type” to “red”

6. emphasise the sum of minor machine errors of machine C by using “red” coloration and larger font ("character size 14”)

Modify the diagram according to the following criteria:

7. enlarge the diagram

8. set the row “Machine C” to red and font size to "character size 14"

9. remove the legend

10. remove horizontal lines in the background

11. create heading "Machine Error Rate"

3.6. Word Processor Task

To perform the text processing task, users were asked to:

> *12. Create a blank text document.*
>
> *Format the given letter according to the following criteria:*
>
> *13. Insert the tOSSad logo in the top right position of the document.*
>
> *14. Write down the following text, formatted as a destination address: “*<put here a destination address of your choice>*”*
>
> *18. Use the following letter body text (set font to "Arial 12"):*
>
> *Dear Mr Miller,*
>
> *as agreed upon by phone, below the table with the machine data:*
>
> *<insert the table from the spreadsheet>*
>
> *Please send your response until January 20th, 2006. Thank you.*
> *Kind regards, Miller, Controlling, Corporate Client, Inc.*
>
> *19. Set caption of table to "Error frequencies of the machines by Machine Production, Inc."; italic, font Arial 10*

3.7. Presentation Task

To perform the text presentation task, users were asked to:

> *In order to have some material at hand for a discussion, create a presentation with 3 slides:*
>
> *20. Set up the a master slide so that on each slide the following elements should be alike:*
>
> - *image c:\tossad.jpg on the top right hand side;*
> - *title “Machine Errors - Analysis” on the top left hand side, font “Arial”, size 44, “bold”, “left aligned”*
> - *each page should have the page number in the bottom part*
>
> *21. slide I: Topic and date of the presentation "bold and large" (title page)*
>
> *22. slide II:*
>
> - *insert the diagram from the table of calculations*
> - *emphasise the number above the column of machine C by means of red circle with red Background color.*
>
> *23. slide III:*

- *insert a text field with square, red enumeration symbols (text: Arial, size 20, black)*
- *text “More than 50% of all errors occur at machine C.”*
- *text “Additionally, more than 50% of all major errors arise at machine C”*
- *text “From Q1 to Q4 a rise of the down-times can be noted*
- *insert a large red arrow near the above text field pointing to a new text field (red frame) and containing the recommendation "Suitable improvement measures are to be derived and accomplished!"*

3.8. Post-Test questionnaire

In order to get a complete picture of the subjects' judgment about OpenOffice.org, in addition to timing and comments registered during the execution of the test-scenario, we decided to prepare some questionnaires to be filled in by subjects as soon as they had completed the test-scenario task list.

The questionnaires can be grouped in two distinct sets:

- A first set made up by three identical usability related questionnaires, with nine questions specifically on each component Calc, Writer and Impress
- A second set with six shorter usability related questionnaires regarding OpenOffice.org 2 as a whole suite.

The outcomes of the first set gives us the possibility to directly compare Calc, Writer and Impress.

The following nine questions were submitted to subjects, asking them to rate each question from 1 to 7, with 1 being the worst rate and 7 the best.

1. “...The software is/is_not complicated to use...”
2. “...The software does not_offer/offers all features to efficiently master the given tasks...”
3. “...The software offers/does_not_offer a bad overview of its features...”
4. “...The software uses/does_not_use unclear terms, abbreviations or symbols in masks and menus...”
5. “...The software makes/does_not_make the navigation more difficult due to the non-unified design...”
6. “...The software shows/does_not_show major functionality differences compared to MS Office...”
7. “...The software does_not/contains all the features of MS Office, which are important to me...”
8. “...My first impression is: I do_not/like the software...”
9. “...I would not_use/use it for the accomplishment of my daily work...”

The exact questionnaire, as handed out to the subjects, is presented in Appendix A, on page 35.

Regarding the second set of questions, the idea was to directly get the subjects' first impression about the overall suite in terms of the following areas:

- **Conformity of Tasks** (4 questions): *Does the software support the accomplishment of your tasks so as being a user you can not do without?*
- **Self descriptiveness** (3 questions): *Does the software give enough explanations? Is it mostly understandable?*
- **Controllability** (4 questions): *Are you as a user able to influence your ways and methods of work with this software?*
- **Conformity of expectation** (5 questions): *Does the software meet your expectations and habits due to the unified and clear design?*
- **Error tolerance** (3 questions): *Does the software offer you an opportunity to achieve the intended result of work despite of incorrect inputs with no or with little amount of corrections effort?*
- **Adaptability** (2 questions): *Is the software arranged so that you can easily get used to it and does it also offer you the support if you wanted to learn new features?*

As for the first set, subjects have been asked to assign to each of the 21 questions a rate ranging from 1 (the lowest) to 7 (the highest). Tables 6 and table 7 on page 42 and 43 reports all the answers given by subjects.

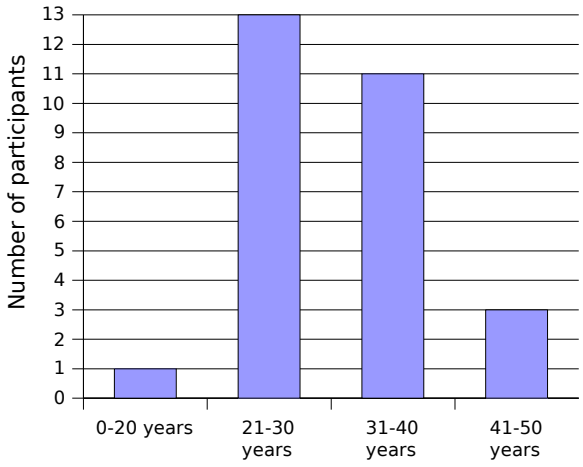

Figure 3: Age distribution of test-subjects

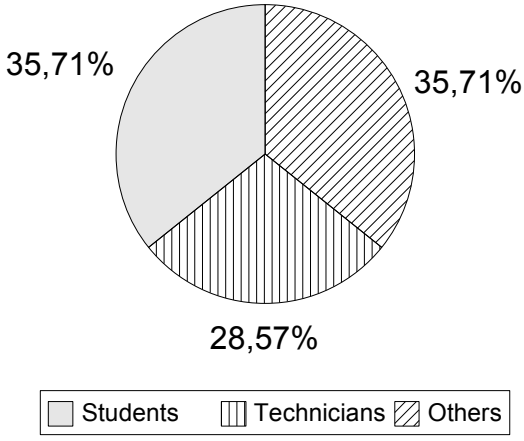

Figure 4: Breakdown of main area of work for tOSSad usability test-subjects

4. Test outcomes

4.1. Test Subjects

Test subjects have been carefully selected in 5 different countries from 28 people, of which 50% male and 50% female. Average age of the test subjects is 30,6 years. The test subjects have been labeled as the following:

- IAT1 ... IAT5: Representing 5 test subjects employed by University of Stuttgart
- BIS1 ... BIS5: Representing 5 test subjects employed by Internet Society Bulgaria
- VIE1 ... VIE5: Representing 5 test subjects employed by Viewrope
- ULI1 ... ULI5: Representing 5 test subjects employed by Ukrainian Institute for Business Informatics
- X1 ... X3: Representing 3 test subjects employed by XLAB
- PDA1...PDA5: Representing 5 test subjects employed by PDA Communications

Figure 4 below shows the age distribution of the participants. Note that majority of the test subjects are between 21 and 40 years old.

The breakdown of the area of work for the test subjects is given in figure 3. Note that there is a strict balance between three types of workers, i.e. students, technicians (directly working with computers) and others (secretary, sales, human resource etc).

It is interesting to note that half of the test subjects spend between 6 and 20 hours per week, using MS Office, with a mean value of 12,8 hours per week. This shows the subjects' control and at least basic domination of an office product. Moreover, half of the candidates spend more than 30 hours per week working with computers from where it can be concluded that these should have good IT skills.

Fortunately, supporting this statistics, 50% of the candidates consider themselves a very experienced MS Office user and only four candidates think that they don't have enough MS Office experience. Similarly, a previous experience on the software tested affects the outcome of the results. A higher experience would result in a biased statistics. In our scenario, 79% of candidates did not have previous OpenOffice.org experience.

4.2. Applications findings

4.2.1. General findings

Based on the time spent by test-subjects to complete each of the various tasks, we found that:

VOTE		Spreadsheet	Text Proc.	Presentation
1	- - -	1	1	10
2	- -	7	8	10
3	-	4	4	15
4	+ / -	22	23	47
5	+	53	46	60
6	+ +	103	83	58
7	+ + +	62	86	40

Table 1: Votes distribution between OO2 applications

- 6 of the 11 spreadsheet tasks were completed within 20 seconds, with an overall mean of 35 seconds per task
- Only 1 of the 5 word processor tasks were completed in less than 20 seconds, with an overall mean of 50 seconds per task
- the simplest presentation task was completed in 47 seconds with an overall mean of 178 seconds per task

It can be concluded that presentation tasks have been far more harder to complete by the test subjects than spreadsheet or word processor tasks. Moreover, the time required to finish the tasks fully reflects the completion percentages of the corresponding task: while 100% of users were able to fully complete both spreadsheet and text processing tasks, some users were unable to complete the presentation tasks.

To get a quick overview of how the time spent by subjects to fulfill the three set of tasks are distributed around the mean, the "statistical variance"[16] can be helpful: the highest the variance, the more dispersed are the values from the mean.

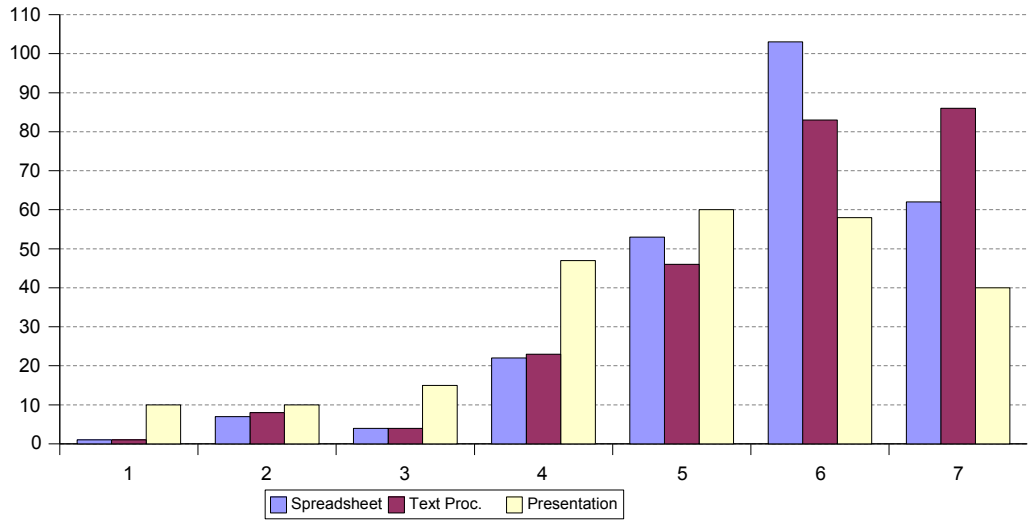

Figure 5: Graphical representation of "votes" distribution (from 1 [worst] to 7 [best])

Considering the time (in seconds) spent to perform the tasks, we have the spreadsheet application with the lowest variance (2972), the word processor with

16 For a detailed description of the "statistical variance", please refer to: http://en.wikipedia.org/wiki/Variance

4492 and the presentation with 25249. From this three numbers, we can see that subjects have a much more “similar” behavior when dealing with Text-Processing than when dealing with Presentation.

The fact that using the Presentation software is much more difficult than using the Text Processing and Spreadsheet is confirmed also by the post-test questionnaire. As for each of the three applications, subjects have been asked exactly the same questions, a general comparison can be obtained from the votes assigned by them to each application/question.

Based on results shown in Table 1 on page 21 and related diagram shown in figure 5 on page 21, we can see that Presentation is by far the hardest to use of the three applications having being evaluated much worser than the Text Processing and Spreadsheet, especially in the low-scale grades (from 1 ['---'] to 3 ['-']).

At the opposite side, we can see that Text Processing registered the maximum number of “top” votes (86 ['+++']), with Spreadsheet at 62 and Presentation at 40.

All three applications present at least one task whose timing is heavily different from the other tasks. Hence, we can assume that if a user knows a certain feature and [s]he has used such feature in the past, [s]he is able to fulfill the task within few seconds[17]; but if, on the contrary, [s]he has no experience in the required feature, a lot of time is needed, even if the task seems simple[18]. Furthermore, if users know how to fulfill the task in MS Office, they tend to search a similar way to accomplish such task in OpenOffice.org. However, even when the steps needed to perform such tasks are different between MS Office and OpenOffice.org, the time needed to perform such tasks with OpenOffice.org is generally smaller than if performing them without previous experience. This basically means that a previous experience with other Office Automation tools results in an easier adoption of OpenOffice.org.

86% of candidates claim that they are not have very prejudiced about adopting F/OSS Office automation solutions and 50% declared to not have any prejudice. 57% of users are satisfied with MS Office; 32% are “neutral” (not satisfied, nor dissatisfied) and 11% are dissatisfied.

Among the test subjects, only two users (7%) explicitly state to never resign from MS Office, while other 71% declared to be able to easily resign from MS Office and the other 22% declare themselves “neutral”.

4.2.2. Analysis of spreadsheet task

In this stage, the moderator opens a ready-made spreadsheet file and asks the users to performs the various tasks described in paragraph 3.5 on page 16.

A detailed analysis of the various time needed by users to perform each task, revealed the following results:

Very simple/immediate tasks:

- **Font-resize (mean of 7,5 seconds)**: All of the users had no problem

17 For example, applying bold formatting or centered alignment within both the text processing and the spreadsheet.

18 For example, applying frames to cells but with a certain width, or applying captions to figures

resizing text font. The tasks was always performed through the “font-size-list” available in the button-bar;

- **Applying text-styles (mean of 9,58 seconds)**: All of the users were able to quickly change text-styles, applying bold-face through the proper button provided in the application button-bar;
- **Resizing diagram (mean of 8,17 seconds)**: No users reported difficulties in resizing the diagram. Everyone quickly recognised the diagram as an “object” and, after a single click on the object, they properly performed the “resize” action by the proper combination of mouse-movement around the object borders;
- **Removing diagram legend (mean of 17,72 seconds)**: All of the users were able to remove the legend by properly selecting the object with two different single-click (the first to select the diagram-object; the second to select the legend within the diagram) and using the <DEL> key. Only three users needed more than 30 seconds to perform the action (90, 65, 35 seconds);
- **Changing diagram title (mean of 23,06 seconds)**: With the only exception of two users (from the previous set of three that had problems with the legend), everyone was able to change the diagram title within a reasonable amount of time;

Not so simple tasks:

- **Removing diagram horizontal lines (mean of 72 seconds)**: Test subjects had difficulties in making horizontal grid-lines being invisible. The main problem regarded the process of selection of the lines. Users did not have a

	Average Rate	
is complicated to use	5,46	is not complicated to use
does not offer all features to efficiently master the given tasks	5,75	does offer all features to efficiently master the given tasks
offers a bad overview of its features	5,54	offers a good overview of its features
uses unclear terms, abbreviations or symbols in masks and menus	5,46	uses clear terms, abbreviations or symbols in masks and menus
makes the navigation more difficult due to the non-unified design	5,46	facilitates the navigation due to the unified design
shows major functionality differences compared to MS Office	5,71	shows no functionality differences compared to MS Office
does not contain all the features of MS Office, which are important to me	6,14	does contain all the features of MS Office, which are important to me
I do not like the software (my first impression)	5,96	I like the software (my first impression)
I would not use it for the accomplishment of my daily work	5,64	I would use it for the accomplishment of my daily work
Median	5,68	Median

Figure 6: Answers of test subjects to Spreadsheet post-test questionnaire (Range is from 1/lowest, to 7/best)

clear understanding about the procedure to follow to select the various diagram objects and had difficulties in recognising that to select the horizontal lines it was needed to move the mouse exactly over the lines themselves.

Once the users were successful in selecting the lines, it was a matter of seconds to go through the path "*Right-Click > Properties*" and choose the "*style: invisible*" option;

- **Applying and formatting cell-borders (mean of 86 seconds)**: Although every user was quickly able (order of seconds) to apply "standard" borders to cells through the proper button provided in the button-bar, mostly all users had lots of difficulties in formatting such borders. In fact, as standard borders are formatted as black with 0.05 pts width, users were asked to format such borders as red with 2.5 pts width. It was not possible to perform such actions using only the button-bar[19], but instead it was needed to go through the *Format > Cells > Borders* menu path. This resulted in lots of difficulties for every user with only two of them being able to fulfill the task in less than 20 seconds, and all the other in requiring explicitly hints regarding the menu-path and, after that, much more time;

Difficult tasks:

- **Formatting (only) one diagram-bar (mean of 116 seconds)**: To emphasise the most important information from the diagram, users were requested to format one of the diagram bar with a red area while leaving the other bars unchanged. Such an action required a quite complex selection process: a double click to select the diagram object; a single click to select the graph; a single click to select all the bars and a final click to select the proper diagram bar. After this process, a "right-click" > "object-properties" > "area" was needed to correctly apply proper color to the bar area. Mostly all users experienced lots of difficulties performing the selection process: it was difficult to "understand" the correct sequence and, at the same time, to avoid confusion between "double-click"s and double "single-click"s.

Questionnaire outcomes:

Figure 6 gives an overview of the answers test subjects have given in the post-test questionnaire. All the questionnaires are out of 7, meaning that values to be filled vary from 0 to 7: the higher the numbers the more positive the results. Please refer to Appendix A (table 3 on page 39) for details regarding the whole test outcomes.

The highest mean value for the spreadsheet questions is 6,89 by BIS3 and the lowest is 2,56 by VIE2. The average mean value is 5.68.

4.2.3. Analysis of word processor task

In this stage the moderator asks the user to open a new blank document and properly act to add a ready-made logo, to cut-and-paste the spreadsheet file and to add some text.

In the analysis process of the time needed by users to complete each task, we took into account that users had a much different "keyboard typing-speed". Hence, we

19 We're aware that OpenOffice.org gives user the possibilities to customise the button-bar, as well as menus and lot of other application components. Anyway as our objective was to test Openoffice.org from the point of view of a "standard" user, we assumed that such a user does not generally knows how to perform such a customisation process and, hence, stick to default configuration.

decided not to consider the time needed by users in writing pure-text (sender address, destination address, body-text, etc.) as some users were very comfortable with the keyboard, and hence very fast in typing, while other users presented a very low typing-speed. As typing-speed is not correlated to OpenOffice.org usability, we simply decided to consider only the time spent on action not related to typesetting.

Here follows our results:

Very simple/immediate task:

- **Creating a new blank-document (mean of 14,28 seconds)**: All of the users had no problem in creating a new blank-document. Based on notes taken by some note-keepers, it came out that some user chose the “new” button in the button-bar, while some other users choose the “File > New > Text Document” menu-path and at least one user choose to go through the “Start > Programs > OpenOffice.org > Text Document” path. In any case, it resulted in an action easily performed;
- **Including the spreadsheet table**: Users had very few problems with the cut-and-paste approach to include the spreadsheet data within the text document. Unfortunately the mean of 90,28 seconds registered for this task is not useful as such time includes also the time needed to write some text (above and below the included table), and as said before, some users were very quick in typing such text, while other users were very slow with the keyboard.

Not so simple task:

- **Including an existing image (mean of 34,22 seconds)**: Every user was successful in including the existing logo (C:\tossad.jpg) within the document and positioning such logo near the top-right corner of the page. It came out that some users had trouble in locating the right item in the “insert” menu.

	Average rate	
is complicated to use	6	is not complicated to use
does not offer all features to efficiently master the given tasks	5,93	does offer all features to efficiently master the given tasks
offers a bad overview of its features	5,64	offers a good overview of its features
uses unclear terms, abbreviations or symbols in masks and menus	5,64	uses clear terms, abbreviations or symbols in masks and menus
makes the navigation more difficult due to the non-unified design	5,43	facilitates the navigation due to the unified design
shows major functionality differences compared to MS Office	5,75	shows no functionality differences compared to MS Office
does not contain all the features of MS Office, which are important to me	6,07	does contain all the features of MS Office, which are important to me
I do not like the software (my first impression)	5,91	I like the software (my first impression)
I would not use it for the accomplishment of my daily work	5,61	I would use it for the accomplishment of my daily work
Median	5,78	Median

Figure 7: Answers of test subjects to Text Processing post-test questionnaire (Range is from 1/lowest, to 7/best)

The reason may be that the “insert image” item is the 19th option within the “insert” menu and some of the users were not so patient to read all the available options: they simply moved to another menu after reading the first 5 to 10 options. At least one of the users chose to follow the drag-and-drop approach, dragging the image-file from the MS Windows “explorer” application to the document area of the OpenOffice.org window. As soon as the image was included, it was a matter of few seconds to resize it and move near the top-right corner of the page.

Difficult task:

- **Adding (and formatting) a caption to an object (mean of 86,11 seconds)**: After including data from the spreadsheet, users were requested to apply a caption to such object. Although applying captions might seem a common task, lot of users were unaware of such a feature. Hence, it came out that users knowing such a possibility were relatively “quick” in setting the caption while the other set of users were very slow and, in general, needed also some support from the moderator. This result is confirmed also by the very high variation (10567) that clearly shows that lots of users registered a time that is very “far” from them mean (86,11 seconds).

Questionnaire outcomes:

Figure 7 gives another overview of the answers the test subjects have given in the post-test questionnaire. The higher the numbers the more positive the results. Please refer to Appendix A (table 4 on page 40) for details regarding the whole test outcomes.

Other issues:

- **Software Assistant:** It is definitely worth to mention that during the preparation of the Text Processing test-scenario, we decided at first to let subjects create a new text document by the way of the Software Assistant. Our aims were to simplify the text document creation process as the Software Assistant offers the possibility to easily include a logo; to easily prepare the destination address area and to easily assign an overall layout to the document.

  Unfortunately, in Bulgaria, Germany and in Italy, tOSSad partners raised some problems while using the Software Assistant:

  - In some cases it appeared that it was taking too much time (more than 20 seconds) for the software assistant to load;
  - It was discovered also that there were some inconsistencies between the various localisations of OpenOffice.org 2.0 versions – in particular, in the menus;
  - In some cases, Software Assistant caused a general crash of the whole OpenOffice.org suite;
  - In one case the Software Assistant were not correctly installed prior to the usability test.

Due to the above problems, and since, for our purposes, the Text Processing Software Assistant gave no big advantage, we decided to redefine the first text processing task asking user to start a simple new blank document.

	Average Rate	
is complicated to use	4,96	is not complicated to use
does not offer all features to efficiently master the given tasks	5,41	does offer all features to efficiently master the given tasks
offers a bad overview of its features	4,6	offers a good overview of its features
uses unclear terms, abbreviations or symbols in masks and menus	5,08	uses clear terms, abbreviations or symbols in masks and menus
makes the navigation more difficult due to the non-unified design	4,93	facilitates the navigation due to the unified design
shows major functionality differences compared to MS Office	4,85	shows no functionality differences compared to MS Office
does not contain all the features of MS Office, which are important to me	5,04	does contain all the features of MS Office, which are important to me
I do not like the software (my first impression)	5,11	I like the software (my first impression)
I would not use it for the accomplishment of my daily work	4,67	I would use it for the accomplishment of my daily work
Median	4,96	Median

Figure 8: Answers of test subjects to Text Processing post-test questionnaire (Range is from 1/lowest, to 7/best)

4.2.4. Analysis of presentation software task

In this task, the subject is asked to create a presentation made up of three slides that share some common elements: an heading with a top-right logo and a footer with the slide number. To simplify the creation process, users were asked to prepare a “master slide” in order to avoid redundant steps.

Other than the master-slide preparation, test subjects had to insert a text field, modify the font face and size accordingly as indicated in the task sheet.

Not so simple task:

- **Adding text-field (47,82 seconds)**: Basically, with presentation, there were no very simple tasks. The quickest action performed was the addition of a text field in the first slide, reporting the presentation title. Despite its simplicity, it required 47,82 seconds in average;

Difficult tasks:

- **Preparing a master slide (uncompleted by users)**: Mostly all users were unable to correctly prepare the master slide. Many users did not know where to find the switch to master slide option and even with support from the moderator, users were unable to put the page number in the footer area of the master-slide. Even after choosing the menu-path “view” > “master” > “slide master”, although the page number was displayed on the bottom right corner in this view, once back to the “standard view” the page number was not displayed. Users with previous experience with OpenOffice.org version 1 found difficulties as well: they found lots of differences in terms of behaviors between OpenOffice.org 2 and OpenOffice.org 1, at least regarding the

Presentation.

- **Adding objects to slide (218 secs for circle, 268 secs for arrow):** In order to prepare slide n° 2, users were asked to insert a little circle to emphasise a certain information. In slide n° 3 users were asked to add an arrow to connect two distinct text areas. Regarding the circle, only one user was able to finish the task in less that one minute (50 seconds). All the others required much more time, with three users requiring more than 10 minutes. Regarding the circle, the main source of difficulties was the need to make the circle transparent as some of the users did not know this functionality.
  Same considerations also apply to the “arrow” object, with users encountering lot of problems in recognising the proper icon in the “design toolbar” and acting properly.

Figure 8 gives an overview of what answers test subjects have given for the post-test questionnaire. Please refer to Appendix A (table 5 on page 41) for details.

One significant and dramatic decrease in the rating can be seen in the third statement, asking the users whether OpenOffice.org Impress offers a good overview of its features. However, second question which has the highest ranking, asking whether OpenOffice.org Impress offers all features to efficiently master the given tasks or not, has received a 77.25% - which looks like a contradiction at first sight. A conclusion from these two items can be drawn as follows: OpenOffice.org Impress provides necessary infrastructure for necessary tasks to be completed, however these items are hidden, not well thought out or unreachable.

4.3. User comments

While performing the various tasks, test-subjects were given the possibility to give comments regarding applications and/or the whole OpenOffice.org environment.

Here follows a summary of the comments.

4.3.1. Comments about Spreadsheet - Calc

Two comments were registered by note takers regarding Calc. Both were reported during tests conducted in Germany:

- *“...It's complicated to set frames in OpenOffice.org Calc...”*
  We deeply discussed such a problem in previous paragraphs and observed that even if applying frames is a simple task, especially using the proper button bar, the customisation of such frames is a bit difficult.
- *“...Setting of background color does not "stay", always returns to "no color", unlike Microsoft Office...”*
  Test subject would have preferred that once a background color has been applied to a cell with the proper button bar, such a background color could be applied also to other cells without the need to select the color once more from the drop down color palette.

4.3.2. Comments about Text Processing – Writer

Five comments were registered by note takers regarding Writer during tests

conducted in Germany and in Ukraine:

- *"...OpenOffice.org does not insert the table within the borders of the page but larger, and this causes frustration..."*
  The subject refers to the cut-and-paste operation of the Calc tables within the Writer sheet. The resulting object in Writer does not fit within the text margins and, instead of being properly resized, exceeds to the left and right borders of the page, forcing user to explicitly resize the object.
- *"...the auto complete function is very useful..."*
  The comment is clear: The user really appreciates the writer feature by which some word can be written by typing only the first characters and letting writer to suggest a completion. In order to accept the suggestion, an <enter> key needs to be pressed. Any other key will drop away the suggestion leaving the user free to complete the word by himself.
- *"...The icon metaphor for text in MS is "A" (in German), unlike the "T"in OpenOffice.org 2..."*
  In the German version of any MS product the button-icon for creating a text field or for editing text, displays an "A" (for "A"lphabet). OpenOffice.org 2 uses a "T" (for "T"ext). Due to this, some german users had the problem of not finding the function because of non-familiarity being used to something else.
- *"...Ukrainian spell checking is lacking within the software..."*
  Test-subject referred to some problems concerning the Ukrainian localisation of the software. We have briefly discussed localisation issues, reporting that their quality not only cannot be guaranteed, but also is much different from country to country. Ukrainian version of Openoffice.org 2, at the moment of this writing, seems to have problems.

4.3.3. Comments about Presentation – Impress

Test subjects gave the following comments regarding the use of presentation software.

- *"...Generally speaking, views are different and therefore strange compared to MS Powerpoint views. This may be due to the German translation of ''Folienbereich''..."*
  OpenOffice.org 2 has many different possible views and the translation into German is not very intuitive. Therefore getting used to those views is a bit frustrating.
- *"...It's been reported that if slide overview is inactive, it is very hard to find the "normal" view..."*
  One test-subject, with previous OpenOffice.org 1 experience, found it much easier in version 2 to select the different views as compared to OpenOffice.org 1 where (the "view" menu is shown on top of the right scrollbar by the way of 6 little icons, and in OpenOffice.org 2 they can be easily selected through different visible tabs displayed on top of the working area, just under the button bars.
- *"...One test subject found that scrolling between slides is strange compared to MS Office, which can be realised by slide overview or keyboard..."*
  In the normal "view" one test subject was uncomfortable using the <Page-UP> and <Page-DOWN> keys to move forward or backward through slides. With a so

called wheel-mouse, it would be useful to have the mouse wheel as a tool to skip forward or backward. Unfortunately, in the default configuration, the mouse wheel generates only a vertical movement of the slide within the application windows: a mostly useless feature as users typically work with the slide fully positioned within the application window and they need to scroll up and down only when zooming is activated.

4.3.4. Other comments

Other than the findings above, the majority of test subjects found the OpenOffice.org program easy to understand and use, being similar to Microsoft Office counterparts that they usually use.

One of the subjects (VIE4) did not find the programs very “exciting” but, at the same time, she defined them as being functional and easy to use. This test person had very low computer experience and no experience with OpenOffice.org.

While most of the tests were finished in less than one hour, it took one test subject (VIE2) 3.5 hours. The main reason with this prolonged duration is that the subject felt uncomfortable with the menus, resulting in an alienation during the test process.

Users' backgrounds resulted in different outcomes. One of the test users found the context menus inadequate to use (ULI), whereas another test subject reported a good context sensitivity because of heavy use of right mouse button. Additionally, one of the subjects did not make use of the right mouse button, suffering from context sensitivity.

	Simple Tasks	Not so simple tasks	Difficult tasks
Calc	- Font-Resize - Applying Text Styles (bold, italic, underlined) - Resizing objects (eg: diagram) - Removing diagram components (legend) - Changing diagram titles	- Removing diagram horizontal lines - Applying and formatting cell-borders	- Formatting only one diagram bar
Writer	- Creating a new blank document - including a spreadsheet area	- including an existing image	- adding and formatting caption to objects
Impress		- adding text-fields	- preparing a master slide - adding objects (circles, arrow) to a slide

Table 2: Quick look of test-results

5. Conclusions and Recommendations

In table 2 we have outlined the level of complexity of our test. The difference between “Calc” and “Impress” can immediately be recognised with the former resulting much “simpler” then the latter. Lots of objections can be raised to this assertion. The first two that came up are the following:

- The first three Calc simple-tasks can be applied also to Writer and Impress resulting in simple-tasks as well.
- Test subjects were asked to work with Calc, but only in terms of “formatting”. None of the tasks were directly related to Calc core functionalities: numbers and formulas management.

Other points could be easily added as well.

It is clear from our results that users are much more comfortable with Calc and Writer than with Impress. We think that this is related not only to the usability issue but also to several other factors. Word Processors and Spreadsheets, for example, share a very long history and during last twenty years they have been used, at various degree, by most of the people working with a personal computer. Presentations, at the other end, are a much younger technology with no more than ten year of maturity, at least if we refer to applications used to prepare and show slides by the way of a video-projector. Furthermore, contexts where text processing and/or spreadsheet can be useful are much wider than the ones which could really benefit from a presentation.

In the end, we think that general users have a basic knowledge about text processing and spreadsheets; a knowledge that they lack when referred to presentations. This aspect should explain the reason why tasks both in Calc and Writer were declared to be simple but not within Impress.

Things change when referring to difficult tasks, and hence to tasks usually not performed by basic users. From this point of view, we register similar results for all the three applications. Even if tasks seem simple or basic, they required lot of time to be performed and, in one case (preparing a master slide with Impress), users were mostly unable to complete it. It could be said that such difficulties are related to a general lack of usability, but from our point of view, several other factors had a serious impact on such results. User skills and familiarity towards the various applications might have an high impact on results: PDA1 and PDA2, for example, needed respectively 210 and 220 seconds to add and format a caption to a Writer object. Can we derive from this that, the “Adding caption” feature of Writer is not usable? We could answer “yes” if we consider only the time needed (more than three minutes are definitely too much), but we could also answer “no” if we consider that both candidates were not aware about captions as a feature, and also did not have any previous experience in applying captions (not only with OpenOffice.org, but in general). Regardless of this total lack of knowledge, they were able to apply and format the caption, although in more than three minutes time. They needed three minutes to “learn” about a problem (applying caption), to “figure out” what could be a solution (insert something), to search the interface (menu and button-bar) for such a solution and to properly use the feature.

With above observations in mind, we have tried to go further in the analysis process

of the “usability” issues, and as such, we have registered that:

- Correctly managing the master slide with Impress presents a lack in usability. Users who knew about the master slide concept found difficult to switch to such view. Furthermore, even skilled users and users with previous OpenOffice.org 1 experience were unable to add the page number in the footer of the slide. It should be noted that even if users quickly recognised the Impress interface much similar to the MS office counterpart, most of the subjects did not have previous experience with the master slide concept; this means that there is also a difficult-task factor that should be taken into account when evaluating usability issues;
- In order to perform some tasks correctly, users needed to search for some particular menu-items (i.e. Insert > Image > From File) and the length of the “modify” and “Insert” menu resulted in some trouble for the user;
- Some actions require a weird selection process with a combination of both double and single clicks. Formatting a single bar of a diagram object is an example. Although we believe that such an action is not very common and that relatively few users (especially the less skilled ones) need it, the selection process could be optimised;
- After successfully adding the caption to the diagram, users had problems in applying italics-style to the caption text. As they were perfectly able to apply italics or bold style to normal text, such difficulties were generated by the fact that, as soon as the caption is added (after the *Insert* > *Caption* dialogue) the whole object is selected, and to successfully apply styles to caption-text users need first to “de-select” the whole object (clicking somewhere else, outside the object), and than to re-select only the caption text. This was a difficult process for several of the test-subjects;
- The default setting of menu disposition, menu option and various button bar could benefit from some changes. Tables/Cells frames, for example, can be added but cannot be formatted (width/colors) using only buttons in the button-bar, at least in the default configuration of the button-bar. Anyway, such formatting buttons can be easily added to Calc, but normal users are typically unable to go through such a personalisation process.

Another point that is of some interest is that, despite the difficulties in performing some tasks, none of the users used the help system searching for help. This, obviously, does not mean that the help system is not important; it only means that something different could be thought trying to support users in performing difficult tasks, but at the same time, huge care must be taken in order to not “bother” user with useless information or questions.

Speaking about OpenOffice.org usability in a broader way, we are unable to give exact information about complex or important functionalities: as we said above, our tests were targeted to the general users, performing also general tasks.

Measuring the “usability” level of any OpenOffice.org feature for any OpenOffice.org target user is a very challenging task and only a wide set of different and targeted study can raise most of the related usability issues. From our point of view, any further refinement of our study cannot be performed without taking into account factors like:

- **Office automation skills of test-subjects**: Each of the OpenOffice.org features is best tailored to a certain set of users (users with no OpenOffice.org 2.0 experience; users with minimal OpenOffice.org 2.0 experience; users very experienced). To be effective, the measurement of the usability level of each features has to be performed only when such feature is used by the target users. Having experienced users performing simple tasks and/or having low-skilled users performing complex tasks can seriously impact usability results;
- **Feature complexity**: As previously mentioned,OpenOffice.org is not only a very complex suite, but it is also so versatile that it can be used even by unexperienced users. Instead of trying to measure the general usability level of the whole suite, it could be useful to test only the usability of single functionalities. Even if it sounds reductive, we think that it could bring out interesting results. Measuring the usability of complex feature like “automatic generation of table-of-contents”, “usage of bookmarks and cross-reference”, “document-template management”, “macros editing and execution” and so on, could arise interesting points both for the user community and the developers. Even much simpler features like tabulators usage, paragraph styles, footnotes, header/footer management and so on, could heavily benefit from dedicated usability studies especially when performed with a proper set of target users.

Looking at previous versions, we believe that OpenOffice.org version 2 has undergone a major user interface change. For example, the multi-pane view provides all important tools and windows through one coherent, integrated, and simple user interface. Moreover, in this version, important new ease-of-use features, based on extensive research in usability labs, have been introduced to make sure the software behaves the way users expect it to - for example, a new high-level table menu option in Writer[20]. However, as previously stated, there are some internal inconsistencies in OpenOffice.org that users feel uncomfortable. Once these small glitches are fixed, OpenOffice.org can be a leading, usable and free office suite that can satisfy end users and corporations.

20 http://www.apple.com/downloads/macosx/productivity_tools/openofficeorg.html

6. Appendix A – Usability "questionnaire"

6.1. "General questions to the subjects"

How many hours per week do you work with MS Office at an average?	.....	Hours
How many hours per week do you work with computers at an average?	.....	Hours
Are you an experienced MS Office user?	very bad **o o o o o o o** very well	
Do you have an experience in working with OpenOffice.org?	yes **o** **o** no	

	---	--	-	-/+	+	++	+++	
I am very skeptical towards open Source office solutions	❑	❑	❑	❑	❑	❑	❑	I have no prejudices against open source office solutions
I am very dissatisfied with MS Office	❑	❑	❑	❑	❑	❑	❑	I am a convinced MS Office user
I would never resign from using MS Office	❑	❑	❑	❑	❑	❑	❑	I could easily resign from using MS Office

What is your profession? (for students the course of studies and semester)	.....	
How old are you?	.....	Years
Gender:	.....	m/f

6.2. "Applications analysis and evaluation"

The software...	---	--	-	-/+	+	++	+++	*The software...*
is complicated to use	❑	❑	❑	❑	❑	❑	❑	is not complicated to use
does not offer all features to efficiently master the given tasks	❑	❑	❑	❑	❑	❑	❑	does offer all features to efficiently master the given tasks
offers a bad overview of its features	❑	❑	❑	❑	❑	❑	❑	offers a good overview of its features
uses unclear terms, abbreviations or symbols in masks and menus	❑	❑	❑	❑	❑	❑	❑	uses clear terms, abbreviations or symbols in masks and menus
makes the navigation more difficult due to the non-unified design	❑	❑	❑	❑	❑	❑	❑	facilitates the navigation due to the unified design
shows major functionality differences compared to MS Office	❑	❑	❑	❑	❑	❑	❑	shows no functionality differences compared to MS Office
does not contain all the features of MS Office, which are important to me	❑	❑	❑	❑	❑	❑	❑	does contain all the features of MS Office, which are important to me
In General:								
I do not like the software (my first impression)	❑	❑	❑	❑	❑	❑	❑	I like the software (my first impression)
I would not use it for the accomplishment of my daily work	❑	❑	❑	❑	❑	❑	❑	I would use it for the accomplishment of my daily work

6.3. "Overall Evaluation of the Software"

6.3.1. Conformity of Tasks

Does the software support the accomplishment of your tasks so as being a user you can not do without?

The software...	---	--	-	-/+	+	++	+++	*The software...*
is complicated to use	❑	❑	❑	❑	❑	❑	❑	is not complicated to use
does not offer all features to efficiently master the given tasks	❑	❑	❑	❑	❑	❑	❑	does offer all features to efficiently master the given tasks
requires redundant inputs	❑	❑	❑	❑	❑	❑	❑	requires no redundant inputs
is not tailored well to the work requirements	❑	❑	❑	❑	❑	❑	❑	is tailored well to the work requirements

6.3.2. Self descriptiveness

Does the software give enough explanations? Is it mostly understandable?

The software	---	--	-	-/+	+	++	+++	*The software*
offers a bad overview of its features	❑	❑	❑	❑	❑	❑	❑	offers a good overview of its features
uses unclear terms, abbreviations or symbols in masks and menus	❑	❑	❑	❑	❑	❑	❑	uses clear terms, abbreviations or symbols in masks and menus
does not offer situation-specific explanations, which really help to accomplish the work	❑	❑	❑	❑	❑	❑	❑	does offer situation-specific explanations, which really help to accomplish the work

6.3.3. Controllability

Are you as a user able to influence your ways and methods of work with this software?

The software	---	--	-	-/+	+	++	+++	*The software*
does not offer a possibility to interrupt the work at any point and continue later without losses	❑	❑	❑	❑	❑	❑	❑	does offer a possibility to interrupt the work at any point and continue later without losses
does enforce an unnecessarily rigid adherence of working steps	❑	❑	❑	❑	❑	❑	❑	does not enforces an unnecessarily rigid adherence of working steps
does not enable the user to switch easily between menus and masks	❑	❑	❑	❑	❑	❑	❑	does enable the user to switch easily between menus and masks
does enforce unnecessary work interruptions	❑	❑	❑	❑	❑	❑	❑	does not enforces unnecessary work interruptions

6.3.4. Conformity of expectation

Does the software meet your expectations and habits due to the unified and clear design?

The software	---	--	-	-/+	+	++	+++	*The software*
makes the navigation more difficult due to the non-unified design	❑	❑	❑	❑	❑	❑	❑	facilitates the navigation due to the unified design
does not inform whether an input was successful or not	❑	❑	❑	❑	❑	❑	❑	does inform whether an input was successful or not
does not give detailed information about what you have already done	❑	❑	❑	❑	❑	❑	❑	does give detailed information about what you have already done
reacts with an operating time which is difficult to foresee	❑	❑	❑	❑	❑	❑	❑	reacts with an operating time which is easy to foresee
cannot be used according to an unified principle	❑	❑	❑	❑	❑	❑	❑	can be used according to an unified principle

6.3.5. Error Tolerance

Does the software offer you an opportunity to achieve the intended result of work despite of incorrect inputs with no or with little amount of corrections effort?

The software	---	--	-	-/+	+	++	+++	*The software*
is designed in such a way that minor errors could have serious consequences	❑	❑	❑	❑	❑	❑	❑	is designed in such a way that minor errors will not have serious consequences
delays information about incorrect inputs too much	❑	❑	❑	❑	❑	❑	❑	give information about incorrect inputs right away
provides unclear error messages	❑	❑	❑	❑	❑	❑	❑	provides clear error messages

6.3.6. Adaptability

Is the software arranged so that you can easily get used to it and does it also offer you the support if you wanted to learn new features?

The software	---	--	-	-/+	+	++	+++	*The software*
requires a lot of time to learn and understand	❑	❑	❑	❑	❑	❑	❑	requires little time to learn and understand
does not inspire to try out new features	❑	❑	❑	❑	❑	❑	❑	does inspire to try out new features

									Questions regarding „Spreadsheet“																								Evaluation	
									IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
The software...	***---***	***--***	***-***	***-/+***	***+***	***++***	***+++***	***The software...***																												
is complicated to use								is not complicated to use	6	6	5	6	6	5	2	6	5	6	6	6	6	6	6	4	4	4	6	6	6	7	5	1	6	7	7	7	5,46	1,96
does not offer all features to efficiently master the given tasks								does offer all features to efficiently master the given tasks	6	7	5	6	6	5	4	6	4	6	4	5	5	5	4	6	6	6	7	5	7	7	6	7	7	7	6	6	5,75	1,01
offers a bad overview of its features								offers a good overview of its features	5	6	5	6	5	5	2	7	6	6	5	6	6	6	5	6	7	7	5	4	6	7	5	5	6	7	7	2	5,54	1,67
uses unclear terms, abbreviations or symbols in masks and menus								uses clear terms, abbreviations or symbols in masks and menus	5	6	5	7	6	4	2	6	6	6	4	6	5	5	4	4	6	6	5	5	6	7	5	7	6	6	6	7	5,46	1,29
makes the navigation more difficult due to the non-unified design								facilitates the navigation due to the unified design	6	7	5	7	6	4	2	4	6	4	5	5	5	6	5	6	5	6	5	5	5	7	5	6	6	7	7	6	5,46	1,29
shows major functionality differences compared to MS Office								shows no functionality differences compared to MS Office	6	6	7	6	5	5	3	3	5	4	6	7	6	6	5	6	6	6	5	5	7	7	6	7	7	7	4	7	5,71	1,4
does not contain all the features of MS Office, which are important to me								does contain all the features of MS Office, which are important to me	7	7	7	7	7	6	4	5	4	5	6	7	6	6	5	7	6	6	6	6	6	7	6	7	6	7	7	6	6,14	0,79
I do not like the software (my first impression)								I like the software (my first impression)	6	6	6	6	7	6	2	6	6	6	7	7	6	6	6	6	6	7	7	4	7	7	5	7	5	7	6	4	5,96	1,29
I would not use it for the accomplishment of my daily work								I would use it for the accomplishment of my daily work	7	7	6	7	6	6	2	6	5	6	5	5	5	5	3	6	6	6	6	6	7	5	3	7	7	7	7	4	5,64	1,79
								Mean	6	6,44	5,67	6,44	6	5,11	2,56	5,44	5,22	5,44	5,33	6	5,56	5,67	4,78	5,67	5,78	6	5,78	5,11	6,33	6,78	5,11	6	6,22	6,89	6,33	5,44	**5,68**	
								Variation	0,5	0,28	0,75	0,28	0,5	0,61	0,78	1,53	0,69	0,78	1	0,75	0,28	0,25	0,94	1	0,69	0,75	0,69	0,61	0,5	0,44	0,86	4	0,44	0,11	1	3,03		

Table 3: Answers of test subjects to "Spreadsheet" questions

									Questions regarding „Text Processing“																										Evaluation	
									IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
The software…	---	--	-	-/+	+	++	+++	*The software…*																													
is complicated to use								is not complicated to use	6	6	6	5	5	7	4	7	2	4	7	7	6	6	6	4	6	6	7	7	6	7	6	7	7	7	7	7	6	1,56
does not offer all features to efficiently master the given tasks								does offer all features to efficiently master the given tasks	6	6	7	7	6	7	4	7	1	4	6	5	6	5	5	7	6	6	7	5	7	7	5	6	7	7	7	7	5,93	1,85
offers a bad overview of its features								offers a good overview of its features	6	6	6	5	6	7	4	7	3	4	7	6	5	5	5	5	6	6	6	4	7	7	5	5	7	7	7	4	5,64	1,35
uses unclear terms, abbreviations or symbols in masks and menus								uses clear terms, abbreviations or symbols in masks and menus	6	6	6	6	6	7	3	6	2	3	7	6	5	5	5	6	6	6	5	4	7	7	5	6	6	7	7	7	5,64	1,72
makes the navigation more difficult due to the non-unified design								facilitates the navigation due to the unified design	6	7	6	6	7	5	4	4	2	4	6	6	5	5	5	5	5	5	5	4	5	7	5	6	6	7	7	7	5,43	1,44
shows major functionality differences compared to MS Office								shows no functionality differences compared to MS Office	7	7	6	5	5	6	4	6	2	4	5	7	6	6	6	4	5	5	7	5	6	7	6	7	7	7	7	6	5,75	1,53
does not contain all the features of MS Office, which are important to me								does contain all the features of MS Office, which are important to me	7	7	6	7	7	7	5	6	2	4	6	7	6	6	6	6	6	6	7	6	7	7	6	6	7	7	7	3	6,07	1,55
I do not like the software (my first impression)								I like the software (my first impression)	7	7	5	5	6	7	4,5	6	2	4	7	7	6	6	7	6	6	6	7	4	7	7	5	6	7	7	7	4	5,91	1,67
I would not use it for the accomplishment of my daily work								I would use it for the accomplishment of my daily work	7	7	6	4	6	7	5	5	2	4	5	6	5	6	5	5	6	6	7	6	7	5	2	6	7	7	7	6	5,61	1,88
								Mean	6,44	6,56	6	5,56	6	6,67	4,17	6	2	3,89	6,22	6,33	5,56	5,56	5,56	5,33	5,78	5,78	6,44	5	6,56	6,78	5	6,11	6,78	7	7	5,67	**5,78**	
								Variation	0,28	0,28	0,25	1,03	0,5	0,5	0,38	1	0,25	0,11	0,69	0,5	0,28	0,28	0,53	1	0,19	0,19	0,78	1,25	0,53	0,44	1,5	0,36	0,19	0	0	2,5		

Table 4: Answers of test subjects to "Text Processing" questions

									Questions regarding „Presentation“																										Evaluation	
									IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
The software…	---	--	-	-/+	+	++	+++	*The software…*																													
is complicated to use								is not complicated to use	3	4	4	4	3	7	3	7	1	6	6	6	6	5	6	6	7	7	5	3	7	7	5	2	4	4	-	6	4,96	2,96
does not offer all features to efficiently master the given tasks								does offer all features to efficiently master the given tasks	2	6	6	4	4	7	4	7	1	6	6	5	5	5	4	6	7	6	6	4	7	7	5	5	7	7	-	7	5,41	2,48
offers a bad overview of its features								offers a good overview of its features	2	6	6	4	4	6	3	6	1	5	6	5	5	-	-	3	7	4	5	4	7	5	5	4	3	4	-	5	4,60	2,17
uses unclear terms, abbreviations or symbols in masks and menus								uses clear terms, abbreviations or symbols in masks and menus	2	6	6	5	5	7	3	6	1	5	-	5	5	5	5	4	6	6	6	4	6	7	5	2	7	6	-	7	5,08	2,55
makes the navigation more difficult due to the non-unified design								facilitates the navigation due to the unified design	4	6	6	5	7	6	4	5	1	4	5	6	4	5	4	4	6	5	6	4	7	7	6	3	2	4	-	7	4,93	2,3
shows major functionality differences compared to MS Office								shows no functionality differences compared to MS Office	2	4	5	5	2	5	4	5	1	4	4	5	5	4	4	6	5	5	6	6	7	5	5	7	7	7	-	6	4,85	2,28
does not contain all the features of MS Office, which are important to me								does contain all the features of MS Office, which are important to me	2	6	3	7	6	5	5	6	1	4	4	5	5	4	4	5	5	5	6	5	7	7	6	4	6	7	-	6	5,04	2,19
I do not like the software (my first impression)								I like the software (my first impression)	3	4	5	5	4	6	4	6	1	5	5	6	6	5	5	5	6	6	7	4	7	7	6	2	5	7	-	6	5,11	2,18
I would not use it for the accomplishment of my daily work								I would use it for the accomplishment of my daily work	3	6	5	4	4	6	5	5	1	5	4	4	4	3	3	4	6	5	7	6	7	5	3	1	7	7	-	6	4,67	2,77
								Mean	2,56	5,33	5,11	4,78	4,33	6,11	3,89	5,89	1	4,89	5	5,22	5	4,5	4,38	4,78	6,11	5,44	6	4,44	6,89	6,33	5,11	3,33	5,33	5,89		6,22	**4,96**	
								Variation	0,53	1	1,11	0,94	2,25	0,61	0,61	0,61	0	0,61	0,86	0,44	0,5	0,57	0,84	1,19	0,61	0,78	0,5	1,03	0,11	1	0,86	3,5	3,75	2,11		0,44		

Table 5: Answers of test subjects to "Presentation" questions

Conformity of Tasks

Does the software support the accomplishment of your tasks so as being a user you can not do without?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
is complicated to use	1	2	3	4	5	6	7	is not complicated to use	5	5	5	6	6	6	3	7	3	5	6	6	5	6	6	4	6	6	6	5	7	7	6	5	6	7	6	7	**5,64**	**1,13**
does not offer all features to efficiently master the given tasks	1	2	3	4	5	6	7	does offer all features to efficiently master the given tasks	5	6	5	5	6	6	3	7	2	5	5	6	5	5	5	6	6	6	7	5	7	7	5	5	6	7	7	7	**5,61**	**1,43**
requires redundant inputs	1	2	3	4	5	6	7	requires no redundant inputs	4	6	6	6	7	6	5	6	2	5	6	6	6	5	5	4	4	5	7	4	6	7	6	5	2	7	6	7	**5,39**	**1,8**
is not tailored well to the work requirements	1	2	3	4	5	6	7	is tailored well to the work requirements	6	6	5	6	6	6	5	6	2	5	5	6	6	6	5	5	6	6	7	6	6	7	6	5	6	6	5	6	**5,64**	**0,83**
								Mean	5	5,75	5,25	5,75	6,25	6	4	6,5	2,25	5	5,5	6	5,5	5,5	5,25	4,75	5,5	5,75	6,75	5	6,5	7	5,75	5	5	6,75	6	6,75		

Self descriptiveness

Does the software give enough explanations? Is it mostly understandable?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
offers a bad overview of its features	1	2	3	4	5	6	7	offers a good overview of its features	5	6	6	6	6	6	3	7	3	4	6	6	5	6	5	4	6	6	6	6	7	7	4	6	6	7	4	5	**5,50**	**1,3**
uses unclear terms, abbreviations or symbols in masks and menus	1	2	3	4	5	6	7	uses clear terms, abbreviations or symbols in masks and menus	5	6	6	5	7	6	3	6	3	4	6	6	5	6	5	5	6	5	6	6	6	7	4	6	6	7	4	4	**5,39**	**1,21**
situation-specific explanations, which really help to accomplish the	1	2	3	4	5	6	7	situation-specific explanations, which really help to accomplish the	5	6	6	6	6	6	2	5	3	3	6	6	6	6	5	5	4	4	7	4	6	7	5	4	2	4	5	4	**4,93**	**1,85**
								Mean	5	6	6	5,67	6,33	6	2,67	6	3	3,67	6	6	5,33	6	5	4,67	5,33	5	6,33	5,33	6,33	7	4,33	5,33	4,67	6	4,33	4,33		

Controllability

Are you as a user able to influence your ways and methods of work with this software?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
does not offer a possibility to interrupt the work at any point and continue later without losses	1	2	3	4	5	6	7	does offer a possibility to interrupt the work at any point and continue later without losses	7	7	7	7	7	6	6	6	4	5	6	6	6	5	6	5	6	5	7	6	6	6	5	4	4	7	4	7	**5,82**	**1,04**
does enforce an unnecessarily rigid adherence of working steps	1	2	3	4	5	6	7	does not enforces an unnecessarily rigid adherence of working steps	6	7	7	7	7	7	6	7	3	4	5	5	6	5	5	5	5	5	6	5	6	7	5	4	4	6	7	4	**5,57**	**1,37**
the user to switch easily between menus and	1	2	3	4	5	6	7	does enable the user to switch easily between menus and masks	6	7	7	7	7	7	6	7	3	5	6	5	6	6	5	6	6	6	6	5	6	7	6	7	4	7	7	7	**6,07**	**1,03**
does enforce unnecessary work interruptions	1	2	3	4	5	6	7	does not enforces unnecessary work interruptions	6	6	7	7	7	4	4	6	3	4	6	6	6	6	5	5	6	6	6	6	6	7	6	4	3	4	4	7	**5,46**	**1,52**
								Mean	6,25	6,75	7	7	7	6	5,5	6,5	3,25	4,5	5,75	5,5	6	5,5	5,25	5,25	5,75	5,5	6,25	5,5	6	6,75	5,5	4,75	3,75	6	5,5	6,25		

Table 6: Answers to OpenOffice.org "Conformity of Tasks", "Self descriptiveness" and "Controllability" questionnaire

Conformity of expectation

Does the software meet your expectations and habits due to the unified and clear design?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
navigation more difficult due to the non-unified	1	2	3	4	5	6	7	facilitates the navigation due to the unified design	6	7	6	5	7	6	4	6	3	4	6	5	6	5	5	4	6	6	6	5	5	7	5	7	6	4	7	6	**5,54**	**1,15**
does not inform whether an input was successful or not	1	2	3	4	5	6	7	does inform whether an input was successful or not	4	5	6	7	6	6	4	6	4	5	5	6	6	6	5	4	5	6	6	5	5	7	5	4	5	6	-	4	**5,30**	**0,83**
detailed information about what you have	1	2	3	4	5	6	7	detailed information about what you have	6	3	5	7	7	6	4	6	3	5	5	6	6	6	5	4	6	5	6	4	5	7	5	4	5	-	-	-	**5,24**	**1,27**
reacts with an operating time which is difficult to foresee	1	2	3	4	5	6	7	reacts with an operating time which is easy to foresee	6	6	6	6	7	6,5	5	6	4	5	5	6	6	6	5	2	5	6	5	4	5	7	5	6	1	-	7	1	**5,17**	**2,56**
cannot be used according to an unified principle	1	2	3	4	5	6	7	can be used according to an unified principle	6	6	6	6	7	7	5	7	4	4	6	7	6	6	5	5	6	6	5	5	6	7	6	7	6	-	7	7	**5,96**	**0,81**
								Mean	5,6	5,4	5,8	6,2	6,8	6,3	4,4	6,2	3,6	4,6	5,4	6	6	5,8	5	3,8	5,6	5,8	5,6	4,6	5,2	7	5,2	5,6	4,6	5	7	4,5		

Error Tolerance

Does the software offer you an opportunity to achieve the intended result of work despite of incorrect inputs with no or with little amount of corrections effort?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
such a way that minor errors could have serious	1	2	3	4	5	6	7	such a way that minor errors will not have serious	6	6	6	7	7	5	5	5	4	5	6	5	6	6	5	3	6	6	6	5	6	7	5	3	4	-	-	-	**5,40**	**1,17**
delays information about incorrect inputs too much	1	2	3	4	5	6	7	give information about incorrect inputs right away	6	5	6	6	7	7	6	4	3	5	6	5	6	6	5	4	5	6	6	5	5	7	5	2	4	-	-	-	**5,28**	**1,46**
provides unclear error messages	1	2	3	4	5	6	7	provides clear error messages	7	4	6	6	7	7	7	4	4	5	6	6	7	6	5	4	7	6	6	4	5	7	5	2	6	-	-	-	**5,56**	**1,76**
								Mean	6,33	5	6	6,33	7	6,33	6	4,33	3,67	5	6	5,33	6,33	6	5	3,67	6	6	6	4,67	5,33	7	5	2,33	4,67	-	-	-		

Adaptability

Is the software arranged so that you can easily get used to it and does it also offer you the support if you wanted to learn new features?

The software	---	--	-	-/+	+	++	+++	*The software*	IAT 1	IAT 2	IAT 3	IAT 4	IAT 5	VIE 1	VIE 2	VIE 3	VIE 4	VIE 5	ULI 1	ULI 2	ULI 3	ULI 4	ULI 5	XL1	XL2	XL3	PDA1	PDA2	PDA3	PDA4	PDA5	BIS 1	BIS 2	BIS 3	BIS 4	BIS 5	Average	Variation
requires a lot of time to learn and understand	1	2	3	4	5	6	7	requires little time to learn and understand	6	6	5	6	6	6	2	7	3	5	6	6	6	6	5	6	7	6	6	3	6	7	6	7	5	7	7	7	**5,75**	**1,6**
does not inspire to try out new features	1	2	3	4	5	6	7	does inspire to try out new features	7	7	6	7	7	6	4	6	4	5	5	6	6	6	5	4	7	6	5	4	5	5	5	4	6	7	7	5	**5,61**	**1,14**
								Mean	6,5	6,5	5,5	6,5	6,5	6	3	6,5	3,5	5	5,5	6	6	6	5	5	7	6	5,5	3,5	5,5	6	5,5	5,5	5,5	7	7	6		

Table 7: Answers to OpenOffice "Conformity of expectation", "Error Tolerance" and "Adaptability" questionnaire

7. Appendix B – Management Summary of Pretest

To improve the quality of this study, a pretest was designed and conducted many months before the final, overall usability test was finalised for all WP3 partners.

Pretest was developed in june 2005 by IAT (University of Stuttgart) in close cooperation with the Technical University of Kufstein (FHS Kufstein – Austria) and with the WP3 partners. Since OpenOffice.org version 2.0 was not yet available, the pretest was based on version 1.1.4.

The FHS Kufstein project group conducted 12 tests and wrote a detailed report (in German) and a management report in English. Here below we report the integral version of the management-report.

Management Summary of Pretest

Introduction

Open source software is gaining ground against the all dominant Microsoft products. The differences between open source products and commercial products are that they are developed by a large community which all contribute to the final product and that open source products are available for free. This development started with professional applications but now also reaches the public mass with products for word processing and spreadsheet analysis.

Study

The project group of the FHS-Kufstein (in cooperation with the IAT (University of Stuttgart)) was the first group to start with the usability test of OpenOffice.org 1.1.4 and to maintain a standard testing throughout Europe. They were given tasks which the test persons should perform. In these tasks the test person had to simulate the work of an average employee which included word processing, spreadsheet analysis and a presentation. In addition the test persons were asked questions about the specific task but also about their general impression.

For the study twelve test persons were found with no or little knowledge about OpenOffice. Six of these twelve were students of the FHS-Kufstein, the other six were professional users who use Office products in their daily work life.

Results

Nearly all tasks were solved by the test persons within 1 hour. The major problems were:

- *Different expressions compared to Microsoft Office (e.g. “Autopilot” for assistant)*
- *Missing or different looking icons*
- *Problems connected with selecting objects with the mouse*
- *Complex menus/assistants*
- *Never done such a task with any office product*

Conclusion

Only four of the test persons stated that they could not work without Microsoft Office. So there is a possibility for OpenOffice.org to become an alternative for the remaining 8 test persons. In addition the new Version of OpenOffice.org (2.0 beta) solves some of the problems which were found in this test.

But the users only saw the specific tasks and not if OpenOffice.org contains all they need and it is becoming similar to Microsoft which could prevent it from becoming better.