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Note: As requested by the CEC, we are providing a shorter final report in HTML format, suitable for use in promoting the project. This shorter report can be found at http://web4health.info/documentation/D-7-4-short-final-report.html. Below is the full final report, giving much more details than the shorter html version of the report.

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1. Executive Summary

The KOM2002 project has developed a psychiatric-psychological web site providing tools for visitors to find answers to their questions through a subject tree, a natural-language question-answering system and an ask-the-expert area where individual personal answers are provided.

The project has produced a web site with more than 800 answers to common questions in the psychology-psychiatry area. Most of the answers are available in English, Swedish and German, many of them also in Italian and Greek.

The multi-lingual development tools have worked as intended and made it easy to develop the web site with similar answers in several languages.

The web site has more than 80 000 unique visitors per month. Since the opening of the web site in July 2003, the server has had more than ten million hits and delivered more than two million web pages to its visitors – this is much more than we planned for and expected.

Visitors are in general satisfied, 58 % found the web site useful and only 11 % not useful.

Recall of the natural-language question-answering was 85 %, as measured on a random sample of actual user questions asked.

2. Time Line

Table 1: Time line of project milestones

Date	Action
July 2002	Start of project.
Already before July 2002	First version of software ready.
September 2002	Main project web site and project presentation ready, see deliverable D0.1 and D0.2.
September 2002	Prototype service started, see D1.2, D2.2 and D5.1.
July 2003	English web site opened See D2.3, D3.1.
November 2003	German web site opened.
March 2004	Swedish and Italian web site opened.
June 2004	Greek web site opened.
End of June 2004	End of EU-funded phase of the project, See D 3.2.

3. Medical Content Report

3.1. FAQ Development

One of the main tasks of the project was to develop informational texts on mental health and psychological problems. We have also tried to provide texts which can help people solve real world problems, rather than just a standardized description of disorders and treatments. We have also received praise for this, from users who write that our site does not only repeat the information on all other medical info sites, but gives more useful advice.

All of our content providers are medical practitioners with exams in medicine or psychology. Many of them are also psychotherapists. Such content providers have proved very valuable,

since their large experience of actual problems of patients, makes it easier for them to write texts which directly relate to real problems of real people and their solution.

The following table (from deliverable D 3.2) contains the total number of FAQ's produced until May 2004 and available in Greek, German, English, Italian and Swedish.

Table 2: FAQ production statistics

Language	Greek	German	English	Italian	Swedish
Number of written (and translated if originally in another language) FAQ's	317	612	899	479	756
FAQ's which do not have text yet	1	1	2	0	2
Number of searchable FAQ's using the Natural Language Question Answering System	28	577	852	121	703
Number of FAQ's written but not yet searchable[1]	288	34	45	358	51
Number of FAQ's written and in the subject tree	271	120	831	0	691
Number of FAQ's written and not in the subject tree	45	491	66	479	63
Number of FAQ's in the subject tree but not available in this language (users will be shown the English text instead)	209	105	6	0	0

[1] When the cross-lingual natural-language question-answering system (see chapter 4.6 on page 12) is taken into production, all FAQs which are available for search in English will automatically become available for search in all other languages.

This table (from deliverable D 3.2) instead shows the number of FAQ's in May 2004 in different topical areas for each language.

Table 3: FAQ distribution in topical areas

Language	Greek	German	English	Italian	Swedish
Addictive disorders	30	32	94	15	43
ADHD, ADD, etc.		81	49	9	44
Anxiety disorders	37	45	36	10	26
Somatic disorders and symptoms	99	18	58	13	23
Mood disorders (depression, bipolar disorder, etc.)	38	119	106	35	100
Borderline disorder		11	15	3	15
Children and child are		14	25	18	24
Eating disorders	16	105	211	122	209
Presentations of project experts		1	4	1	2
General health issues		1	2	8	2
Healthy life, relational problems, etc.	2	29	59	91	59
Links to other web sites	1	1	1	1	1
Phobia	17	16	6	7	6
Information about the web site, user privacy, etc.	2	12	26	8	17
Other psychological issues	43	37	38	12	32
Sexual disorders and problems	15	40	109	104	102
Sleep disorders	1	19	18	6	16
Somatic aspects of psychiatric disorders	1	20	25	3	17
Therapeutic methods	14	10	15	13	16

Here is a comparison between the percentage of FAQs written and questions asked in the ask-the-expert service. One can see that our answers are well distributed according to user needs, except that we have too little about healthy living and relations than users ask about. (The same result is true for questions to the natural-language question-answering system, see Table 8 on page 16).

Table 4: Comparison of FAQs written and ask-the-expert questions

	FAQs	Questions
Addictive disorders except eating disorders	7%	4%
Eating disorders	22%	24%
ADHD, ADD, Damp	6%	2%
Anxiety, phobia	7%	5%
Depression, bipolar disorder	13%	8%
Personality disorders	1%	5%
Child care	3%	3%
Healthy living, relations	8%	16%
Psychosis, hallucinations, etc.	5%	3%
Sexual disorders	12%	16%
Sleeping problems, insomnia	2%	1%
Somatic illnesses	2%	5%
Medicines	7%	4%
Therapeutic methods	2%	4%
Project description	2%	0%

3.2. Cooperation Between Partners

3.2.1. Cooperation Between Medical Partners

Cooperation between partners has been done in several forms:

1. Development of quality guidelines [D1.3], a naming plan [D2.1C], a content plan [D2.1], a Monitoring, rating and logging plan [D4.1].
2. Most FAQs have been written by one partner, and peer reviewed (in their English-translated version) by another partner.
3. Most of the FAQs have been manually translated, by their originator, to English, and a large part of them have then been manually translated to other project languages. This translation has either been done by a medical expert, or the translation result has been checked by a medical expert. Sometimes, this has caused revisions in the translated versions, and sometimes the revisions have been carried back to the English version (with permission from the original author).
4. General principles of how to write the FAQs have been discussed at project meetings and through e-mail between partners.

3.2.2. Cooperation Between Medical and Technical Partners

The development team at KTH, responsible for all the software except the machine translation software, has made a number of extensions to the software based on requirements from medical partners and users. A selection of the most important changes are listed in chapter 5 of deliverable D5.3.

KTH has also developed user manuals and held tutorials at project meetings, to teach the medical partners usage of the software.

Systran has provided lists of terms which need help from the medical partners to get the right translation in a medical/psychological context, and the medical partners have provided this. The improved translation engine, based on this work, gives much better translation for texts in the area of this project.

3.2.3. Cooperation Between Commercial and Other Partners

Several long sessions have been held at project meetings to discuss in detail commercial exploitation of the results. The result of this work is reported in chapter 5.3 on page 14 of this report and more fully in deliverable D6.2.

3.3. European Dimension and Cultural Diversity

The original FAQ and its English version is provided by its originator. The translation to other project languages is done by (or supervised by) a medical expert in the target language. This expert has final responsibility for the text as presented in that language, and can make adjustments to cultural differences when necessary.

However, we have found that only a few of the FAQs had to be modified for different regions. Most of the content has been equally suitable in all regions – it seems as if human psychology is not as cultural-dependent as one might think.

Here is an overview of those FAQs which most often had to be modified because of different culture and other regional differences:

1. FAQs containing references to where help can be found, such as links to societies for people with different disorders, etc.
2. FAQs describing legal control of human behaviour, mostly as relates to sex.
3. FAQs on substance abuse, where the general view in society varies a lot. An original FAQ, written by our Dutch partner, had the title “What should parents do when their children start using narcotics”, while the Swedish translation changed this title to “What should parents do if their children start using narcotics”. The Dutch FAQ recommended that parents reach an agreement with their children, such as only use hash during weekends, and never use hash before doing your homework. In this particular case, one way of getting the FAQ more acceptable to the Swedish, more restrictive view of substance abuse, was to replace “hash” with “alcohol” in the text, since the Swedish culture is more permissive towards alcohol use than towards narcotics use.

Apart from these differences, most FAQs did not have to be adjusted between language regions. For example, one might believe that there are different views of child raising in different culture, but we had no needs to make any such adjustments.

A related issue has occurred in answering ask-the-expert questions. Here, we get questions from all over the world. In the case of North American culture, we had help from an American-born psychotherapist who sometimes pointed out things which should be changed in answers to questions from American users. More difficult was the case of questions from people in places like India. For example, the advise which we in Europe might give to a woman with an unsatisfactory marriage might not at all be the right advice in the Indian culture. In such cases, we either declined to answer the question, ore wrote the text very carefully.

3.4. Medical Quality

Early in the project, we developed a medical quality guideline [deliverable D1.3, see also deliverable D1.3B], we have also got our website accepted by the Health on the Net organisations which checks medical web sites for mainly certain formal quality aspects. Important for medical quality is also the peer reviewing process we have adopted.

One ideal for medical quality on the net is to base it on published research results. However, there does not always exist research on all the questions our users ask about. So many of our answers are also based on the experience of qualified psychotherapists among our experts, in addition to results proven by scientific research.

Where possible, we do include references and there is a references link in every FAQ shown to users.

3.5. Risks

We contemplated many kinds of risks which might occur to our project, but until now no serious incidence has occurred. An initial discussion of risks is done in D0.3. Examples of possible risks:

1. Marauders might sabotage discussions in forums through inappropriate writing. To reduce this risk, we wrote rules for usage of our system and planned to block users misusing it. However, we never had to block any user.
2. Misunderstood advice might cause serious problems. We did, for example, once get an ask-the-expert question from a person saying he felt like he wanted to murder someone, and we decided not to answer that question at all. We did in the beginning decide to refuse answers to questions about suicide, because of the risks. However, in practice this did not work and our experts have answered such questions. We have however implemented a special function in the natural-language question-answering systems so that questions relating to suicide or violence get a restricted set of answers, and always get an answer recommending seeking immediate professional help. Thus, the question “What should I do, no one likes me” will give more answers which are not given for the question “Should I kill myself, no one likes me”. This decision and implementation has its pros and cons, but that is the way we did it.
3. There might be a risk that personal information about our users is made public or available to people who should not see it. To counteract this risk, we have implemented use of SSL encryption for user login and registration, and we make all questions totally anonymous, as suggested by the midterm review. Ask-the-expert questions are always monitored by our medical experts before publication, and they will then remove any personally identifying information which the user might thoughtlessly divulge in the text of their questions.

4. Technology Report

An overview of the user interface of our software is given in deliverable D5.3.

4.1. Natural-Language Question-Answering

4.1.1. Types of Systems

There are three main types of natural language question-answering systems:

1. Systems based on full syntactic and semantic analysis of the questions, usually combined with a semantic knowledge data base like the semantic web.

2. Systems based on one or more templates for each answer, which are matched against the user questions. The templates can be seen as a kind of miniature semantic view of the immediate environment of the answer.
3. Free text search tools like Alkaline or Google.

Each type of system has its pros and cons:

Table 5: Pros and cons of different types of informational retrieval techniques

	Full semantic analysis systems	Template-based systems	Free text search systems
Work needed to develop system and knowledge data base	Very large	Large	Small
Ability to cover multiple semantic views of the same content	Problematic	Easy	Easy
Precision: Number of answers which are relevant	Very good	Good	Less good
Recall: Percentage of relevant answers found.	Good	Good	Very good

It is therefore not correct to say that systems using full syntactic and semantic analysis are more modern and state of the art. Different systems are suitable for different needs. Also, there is a general principle that it is better to use simpler system designs, rather than more complex design, if the simpler design works equally well. More complex is not always better or more modern! In addition to this, applying full syntactic and semantic analysis (deep natural language processing) is a compute-intensive and time consuming process, especially when it comes to Web documents [Ferret O. et al. 2001]. This conflicts with the fact that Web users expect quick answers when consulting information on the Web.

In our project, we use template-based systems as our major natural-language question-answering system [D2.2A, D2.2B, D2.2C], but we also provide a free text search system as an option on the advanced search page.

We have sent a proposal to the 15 May 2004 eContent call for a continuation of our work, in a new project. In this new project, we will experiment with also a semantic web based version of our system, and we will also try out cross-lingual question-answering. When this is written, we do not yet know if this new proposal will get funded or not.

Our experience is that the template-based natural-language question-answering system we use works well. When people do not get answers to their question in our data base, this is usually because there exists no answer, not because of a failure of the question-answering engine to find the answer.

4.1.2. Stepwise Refinement

In order to improve the quality of the natural-language question-answering system, we have used a method of step-wise refinement. By this is meant that we have scanned logs of questions written to the natural-language question-answering system, checking if the user got a good answer or not. If no good answer was provided, this could be for three reasons:

Table 6: Example of stepwise refinement cases

No answer exists in our data base	The question is within the intended scope of our data base	The question is added to a list of FAQ topics which should be written by our medical experts
No	No	Usually not answered. Sometimes we provide answers to common such questions, or references to where an answer can be found.
No	Yes	The question is put on a list of new topics, which our medical experts should write FAQs about.
Yes	Yes	The matching templates are modified, so that future similar questions will get the existing answer(s).

This work was done from the opening of our site in July 2003 and is still continuing. The percentage of questions, to which the system believed that it could not find a good answer, was 15,3 % in September 2003, 12,1 % in December 2003 and 10,6 % in May 2004, indicating that this work did in fact improve the functionality of the system.

This is described in more detail in deliverable D 4.2 and D4.3.

4.2. Multi-lingual Content Development

4.2.1. Content Management Software

The multi-lingual content development system which was developed by KTH for this project has many of the same facilities as other content management systems, but has two particular capabilities which are not so common in other systems, multi-linguality and forum capability.

For every FAQ, a version can be created in multiple languages, and it is very easy to move from the version in one language to the version in another language. A special translation window is also available [D3.1], where the FAQ is shown in one language to the right and another language to the left. This window makes translation easier, and also makes it easier to propagate a change made in one language to the FAQ in other languages.

A special facility is that for the translation window, the result side is automatically filled with Systran machine-translations. The human translator can then choose to either use the Systran translation as a basis for making a better manual translation, or can choose to do a complete new translation not using the Systran input as a basis. Some of our translators prefer one of these methods, some the other, this seems to be a matter of personal taste.

For more details about the content management software, see deliverables D5.1A, D5.1B and deliverable D3.2.

The university of Ioannina made an analysis of the views of the software, reported in deliverable D7.2 chapter 4.1. Most partners were satisfied with it, although of course some of them would have preferred a WYSIWYG interface for editing. Six of seven respondents used the software and found it OK. However, some of the functions of the software were not very much used. Tools for writing FAQs and reviewing other partner's FAQs were used, but tools for discussion of FAQs within the content management system were not very much used. One main reason for this is that the “News” page was too complex, making it difficult to see if a partner had made a comment on an FAQ.

4.2.2. Editing

There are two options for editing new FAQs in our system, translations of FAQs and modifications of FAQs:

Table 7: Pros and cons of different editing methods

Method	Advantages	Disadvantages
The new text is written in direct interaction, through a web interface, with the content management system.	Fast, direct interactivity with the data base.	Author must see and use HTML tags in the edited text.
The new text is written using a WYSIWYG web editor such as Dreamweaver. The content management system has facilities for exporting FAQs to a format suitable for editing with Dreamweaver and importing the results after editing. Alternatively, the editor can edit with Dreamweaver and cut and paste the results into our system.	Author can see text as it will be shown to users, and need not think about using HTML tags.	Slower turn-around since texts must be exported for editing and then imported again after editing.

In practice, some of our medical expert used the Dreamweaver method in the beginning, but most of them switched to the direct interactive mode later on. The HTML code in the text of the FAQs is not very complex, for a few very complex FAQs, technical experts helped with the HTML coding.

To combine the advantages of both approaches would require a content-management system with built-in WYSIWYG HTML editing, which is more than we could develop ourselves within the project, but an alternative would have of course been to buy licenses for an existing software and adapt it to our tasks. Since we already had a content-management system of our own at the start of the project (and promise to use it in the contract with the CEC), we did not explore whether such a software exists, and in particular if existing softwares supports multi-linguality in the way we needed.

4.3. Forums

The forum software is used for several purposes:

1. Forums for internal usage in the project, such as collections of non-public documents, lists of FAQs which need to be written, etc.
2. Forums for internal usage and associated with each FAQ, and where the experts can discuss this particular FAQ.
3. Forums for any user of our system, where they can discuss issues within the scope of our data base.
4. Ask-the-expert area, see section 4.4 on page 12.

The forum software also has an option, where a user can get regular e-mails when new things have been added to forums of interest to this user.

Technically, the system has been working well. One problem, however, has been that the reports of what is new to a user contain both new or modified FAQs, and new comments in

discussion forums. It would be better if these reports made a more clear separation of these news. This is something we will modify in the future.

Forum contributions can be provided in more than one language, with manual or machine translation. We have, however, not used automatic machine translation of forums except in a special forum for the testing of fully-automatic multi-lingual forums with machine translation.

4.4. Chats

The forum software also supports chats, but this has only been used for internal chats between project partners, not for chats for external users.

4.5. Ask the Expert

The ask-the-expert functionality is based on the forum software, where the ask-the-expert area is a so-called *moderated* forum, meaning that contributions are not published until they have been approved by one of the moderators. Thus, a question is not published until a medical expert has written an answer to it.

A medical expert can save drafts of answers under development in two formats, one format where the draft is only visible to the author, and one format where the draft is visible to all medical experts.

All questions are published anonymously, the author name of the questioner is replaced by asterisks. The answer is non-anonymous, the name of the medical expert writing the answer is shown.

Since none of our medical experts has English as their native language, some of them have been using translators to translate their answers to ask-the-expert questions to English. To streamline this work, a work-flow system is used which keeps track of how an answer goes through several stages such as (1) origination, (2) translation, (3) approval by author, (4) approval by another expert, before it is published.

A selection of the answers in the ask-the-expert area have been converted to FAQs, so that the FAQ data base is improved based on issues which users ask questions on. We have started to develop a tool to make this conversion easier to perform, this is not ready yet when this is written.

The ask-the-expert system, like all modules of our software, supports multi-linguality, with the option to provide translations in multiple languages. Systran machine-translations are not provided automatically to users, but can be used as an aid for human translators.

4.6. Machine Translation Technology

Systran machine-translation technology is used in the following ways:

1. Machine-translations are provided as input to the human translators when translating FAQs and other texts to different languages.
2. We have experimented with a forum, in which all contributions are automatically translated between languages, so that each participant can read the contributions in their own language. This facility has however not been used enough to be able to evaluate its usefulness.
3. We have developed a cross-lingual variant of the question-answering system. In this variant, questions in other languages than English are translated to English, and sent to the English natural-language question-answering machine. Tests (done by some students at Stockholm University as part of their Master's thesis work, see [Capella 2004], [Sjödin 2004]) with this tool indicate that it does work and gives quite good

results. The main advantage with this is that the time-consuming work of producing question templates need not be repeated for each language, and that step-wise refinement (see chapter 4.1.2 on page 9) done for one language will be available for all languages, and that the expertise on writing such templates need not be developed for all languages. A first version of this facility was ready in May 2004. When this is written (August 2004) this software works but has not yet been taken into production usage, but we hope to do this soon. Note that this development was not part of the CEC contract for this project, and will not be finalized until after the end of the CEC contract period.

The machine-translation engine has, in cooperation between Systran and the medical partners, been extended with a special vocabulary to better suit texts in our topical area. A prototype translation engine from English to Swedish has also been developed. This is reported more fully in D8.1, D8.2, D8.3, D8.4 and D8.5.

5. Dissemination

5.1. Professional Community Dissemination

KOM 2002 / web4health was presented at several national and international conferences.

The project team received a lot of positive feedback at the **MEDNET 2003** (World conference on Internet and Medicine, HON Geneva) and the **12th AEP (Association of European Psychiatrists) Congress 2004** in Geneva. Especially experts from Eastern Europe showed strong interest in this tool to disseminate public health information with our unique tool. We connected to different European health organisations and leading European psychiatrists in the area of mental health and eHealth to exchange experiences and offer the tool for further collaboration. Our project was elected project of the month April (to June) of the **content-village.org**.

Kindly supported by this eContent project group we prepared press releases on a European and national level to increase international awareness of our project and disseminate information concerning our project for other European organisations and governments. This gave us the opportunity to contacts with our national ministries of health for further projects and options of collaboration with other groups of the eContent program from different European countries.

As one of 32 finalists of the ***eEurope Awards for eHealth – 2004***, Web4Health was presented at the **High-Level European eHealth Conference and Exhibition** in Cork, Ireland organised by the Irish Presidency from 5-6 May 2004 (Theme 1: *e*Health Information tools and services for citizens). This conference included European press media and further contacts for collaboration within the enlarged European community.

Several new business contacts were established in a new European business network **OpenBC** an European based on-line networking platform for professionals in the eContent business and marketing with more than 2000 business members.

A paper at the E-learn conference: http://www.aace.org/conf/elearn/call.htm was presented, based on the evaluation of Web4health made by the psychology student Minna Forsell [Minna 2004].

5.2. Search Engine Optimization

The term “Search Engine Optimization” (SEO) is used for a number of activities which can be done by the owner of a web site to increase traffic to the web site from search engines like

Google. Some use of such techniques can be unethical. The search engines attempt to show searchers the best and most relevant pages in relation to a query, and using Some SEO techniques might be seen as cheating the search engines into giving undue high position for your web pages. This kind of cheating is known as search engine spamming.

On the other hand, our statistics [D6.2] on how our web site is used show that 25 % of all page views on our web site are the immediate result of searches in search engines like Google, while only 5 % of all page views are the immediate results of use of our own natural-language question-answering system. Thus, it is five times more important that people using search engines like Google find the right page in our site, than to improve our own natural-language question-answering system. If SEO is interpreted as helping Google direct people to a page with the information they search for, then SEO is thus highly important and not unethical.

In general, we have avoided unethical SEO methods and mainly used the following two ethically acceptable methods:

1. Writing to the owners of other high-quality web sites in our area, proposing link exchanges, where we link to their site and they link to our site. Search engines use external links from other high-quality sites when rating a web site.
2. Carefully checking the titles of our pages against a data base of common queries made by users. This data base, named WordTracker, is available for a subscription price. This was very important. As an example, one our pages had the title “How children react to trauma”, and no item in the WordTracker data base of more than 2 million queries contain a query matching that phrase. However “Child abuse” and “Effects of child abuse” and “Child abuse effects” are very common queries according to WordTracker. Thus, we changed the title of that page to ”How Children React to Trauma and Psychological Effects of Child Abuse” and also included “Effects of child abuse” in the title of two other FAQs with information on this issue. In this way, our site would get more visitors.

This work seems to have been very successful, since already two months after the opening of our web site, we had more than 40000 visitors per month, and at the end of the project, we had more than 80000 visitors per month (see chapter 6.4 on page 16).

5.3. Funding After the Project End

The project has had two long sessions at project meetings, discussing funding after the end of the EU-funded phase of the project, based on the work done by our commercial partners, NetDoktor and Systran, as reported in deliverables D6.1 and D6.2.

Web sites like ours can earn income to cover its costs in several ways:

1. Advertisements on the web site.
2. Charging for use of the natural-language question-answering system.
3. Charging for individual, personal answers in the ask-the-expert area.
4. Funding from the governments in the different countries, which sometimes fund health sites with the aim of reducing the cost of manual health care and improving the health of their citizens.
5. Funding through cooperation with pharmaceutical companies.

This has been discussed much within the project. When discussing this, one should however note that we have at present about 80000 visitors per month to our web site. If you total all the costs of the KOM2002 project (sum of funding by EU and partners), and divide this by the number of visitors, you get a cost of about one euro per visitor. This can be compared with the cost of traditional medical services, where the typical cost of a single visit from a patient to a

medical doctor or psychotherapist is about 50-100 euro. Of course a web site cannot replace a personal visit to a doctor. On the other hand, our web site might sometimes give more value than a doctor because of the high competence of our specialists. In total, a web site like our is probably very cost-effective in furthering health. The most expensive function in cost per user is the ask-the-expert service, but only 0,5 % of all visitors to our web site use this service. Of the remaining 99,5 %, a majority are helped by our FAQs.

If we started to charge for use of our services, it is probable that the number of visitors to our web site would go down to perhaps one percent of what we have today. The value for the health of European citizens would then be only one percent of the value if the web site is available free of cost.

Because of this, the medical partners have been reluctant to start charging. The only commercial funding we have at present is advertisements provided by Google Adwords. We do not, however, accept advertisement from online pharmacies. In the first seven months of using such ads (January to July 2004) 977 048 people have seen the Google ads on our pages, and 12 723 of these have clicked on the ads. Our earnings from this is a total of 1876 euro or 0,15 euro per click (Google pays per click on ads, not per displays of them). This is enough to cover the technical costs to keep the server running, but not to finance future contributions from the medical partners.

Several of the medical partners have however chosen to continue to participate, with reduced volume, without funding. This is especially true for those medical partners who have a private psychotherapeutic practice. They feel that they get enough new patients from people visiting our web site to make their participation worthwhile.

In total, the value for European health is probably higher if we do not charge for our services, even if this means a very low-buget operation with little development of new FAQs.

6. Usage Statistics and Evaluations

6.1. Existing Content Evaluation

Existing content was evaluated in D 1.1.

6.2. Evaluation tools

To support evaluation, a number of tools were developed to produce logs of usage in format suitable for evaluation [D4.1]. One such format is a list of all questions asked to the natural-language question-answering system and the system response to them. Another such format is a format which follows a visitor from page to page and gives a view of how visitors behave when using the site. All these logs are completely anonymous.

6.3. User Needs

A psychology student at Stockholm University has made an investigation of the user needs by letting 22 users, 12 patients in psychotherapy and 10 visitors at a racket hall try out the system, while she observed their usage and how it worked for them [Forsell 2003], [Forsell 2004]. Especially the Swedish-language version of her report, [Forsell 2003] contains much valuable insight into user needs. One important finding is that some users only want to click forward all the time, not using the “Back” button in their web browsers, and that some prefer to use the natural-language question-answering engine, others prefer to find information by just clicking.

Based on her results, we have made some important redesigns, especially the introduction of two new buttons “Find a few related answers” and “Find many related answers” on each FAQ. These buttons mean that users can always move forward by just clicking, until they find what they are looking for.

Another way of checking user needs is to compare the questions written by users in the ask-the-expert area and to the natural-language question-answering system, with the information we actually have available in our FAQs. Such a comparison shows that our FAQs quite well cover the issues people want information on. However, in one particular area, we had less FAQs than users asked for. This particular area was on personal relations, family relations, conflict, violence and love in personal relations. Because of this, we have taken a number of answers in the ask-the-expert area and converted them into FAQs in order to better cover the issues. We will continue this work also after the end of the EU-funded phase of the project.

The table below compares the percentage of the FAQs with the percentage of question in different areas in May 2004. The table shows that the FAQs roughly cover the same areas, that people ask questions about, but that we still have less FAQs on personal relations than what people ask about, so we should continue to improve our FAQ collection in that area (See also Table 4 on page 6, which shows similar results for ask-the-expert questions).

Table 8: Percentage of FAQs written versus percentage of questions asked

Topical area	Percentage of the FAQs (May 2004)	Percentage of the questions asked in the natural-language question-answering system (December 2003)
Addiction, substance abuse	7%	4%
ADHD	6%	2%
Anxiety, phobia	7%	5%
Somatic problems, psychotropic drugs	9%	9%
Depression, bipolar disorder	13%	8%
personality	1%	5%
Child care	3%	3%
Eating disorders	22%	24%
Relations (personal, marital, sexual)	8%	16%
project	2%	0%
Severe psychiatric disorders	5%	3%
Sexual disorders	12%	16%
Sleeping problems, insomnia	2%	1%
Therapy methods	2%	4%

6.4. Usage Overview and Statistics

Statistics of usage of web pages is commonly described using the following terms:

Table 9: Access statistics

Description	Term	Value for our site in July 2004	Total from July 2003 until June 2004
The transmission of a single file from server to user. Since one web page often includes many files (each graphic is a separate file) this is larger than the number of pages.	Number of hits	1 449 528	10 576 788
Number of web pages sent from server to user.	Number of page downloads	287 734	2 041 604
Number of unique visitors to the site. A visitor is regarded as the same, if the user has a new interaction with the site within 30 minutes. A person who comes back once every day will thus be counted as a new visitor each day.	Number of visitors to the static pages on the web site and to the forum and ask-the-expert areas.	85 597	609 079
	Number of visitors to the natural-language question-answering system	9 525	83 429
Statistics from the ask-the-expert system.	Number of ask-the-expert questions	212	~2700

From the above statistics one can conclude that an average visitor sees 3,4 pages, and that 13,6 % of all visitors use the natural-language question-answering system but only about 0,5 % of all visitors ask an ask-the-expert question.

All these statistics are approximate for, among others, the following reasons:

Table 10: Error causes in access statistics

Reason for incorrectness	Effect
All visitors are not people. Some of them are robots, like the web crawler robots used by search engines like Google to collect information for its data base.	Too high estimated number of real users. However, robots tend to visit each page once, so the large difference in number of visitors between our different pages indicates that this error is not large.
Files are often cached on the way from server to user, both in proxy caches in the network and local caches in the recipient computer.	Too low estimated number of real users.

The development of number of visitors over time is as follows:

Figure 1: Growth of number of users July 2003-June 2004

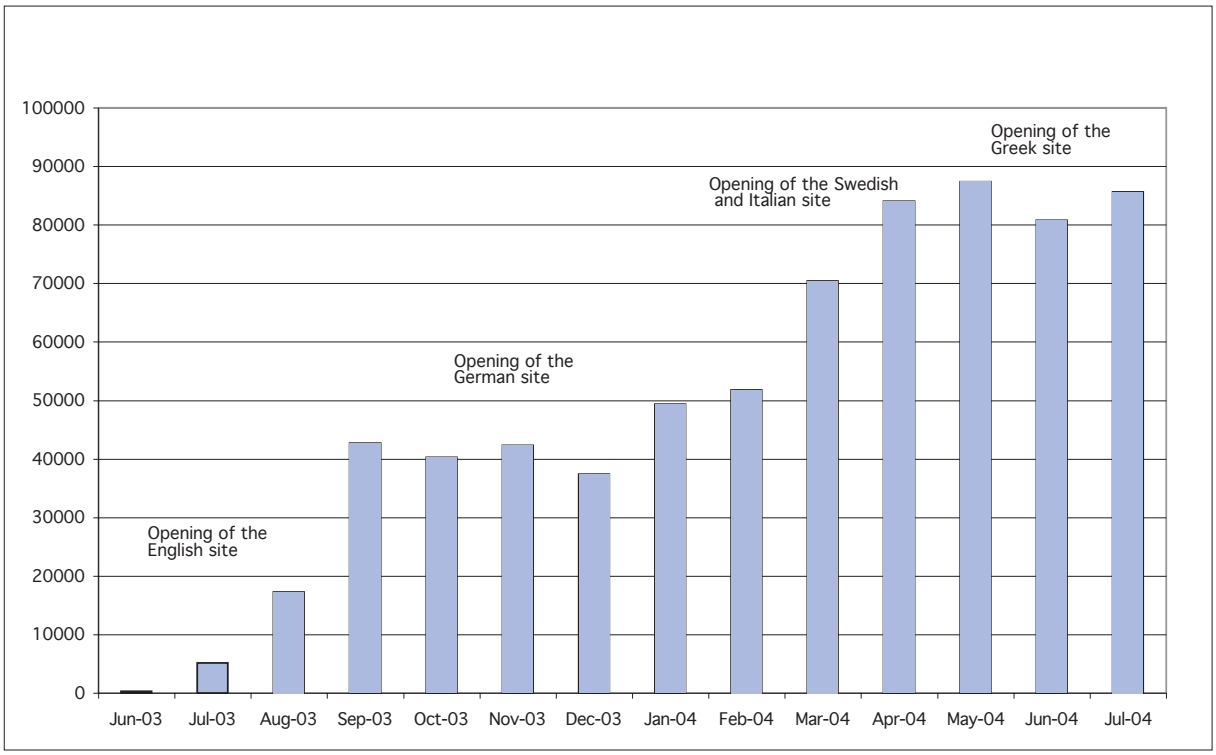
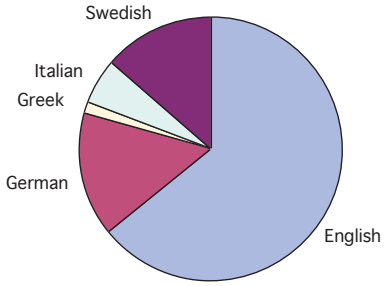


Table 11 and Figure 2: Visitor distribution across language regions in July 2004:

English	52972	64,2%
German	12513	15,2%
Greek	1137	1,4%
Italian	4735	5,7%
Swedish	11127	13,5%



An approximate investigation in November 2003 indicates that visitors get to one of our pages in the following ways:

Table 12: How people get to see our pages

How people find single pages in our site	Approximate percentage
Browsing our static pages	60%
Using Google and other search engines to get directly to one of our answers	25%
Browsing our forums and ask-the-expert areas	8%
Using our natural-language question-answering system	5%
Other methods	2%

Note: The actual number of visitors who use the natural-language question-answering system is about 12 %. The difference between 12 % and the 5% in the table above is that the table above is for single page views, and an average visitor sees 3,4 pages.

6.5. Natural-Language Question-Answering System Evaluation

A psychology student at Stockholm University made a sample of 73 randomly selected question which actual users had put to the system, and checked (in August 2004) how well the system was able to answer the question. The results are as follows:

Table 13: Analysis of random sample of questions asked to the natural-language question-answering system

No.	%	No. in scope	% of in scope	Quality of answer	Examples
8	10%	8	13%	Several direct answers to the question	"Why do people get eating-disorders?"
8	10%	8	13%	One direct answer to the question	"How can I talk to people easier?", "imaginery friend kid 8 years old"
30	37%	30	48%	Information probably of interest, but not direct answer to the question.	"I am angry about things in my past and I can't forget them what do I do?", "Why is my self esteem so low?", "How do I motivate myself?", "no energy"
19	23%		0%	No answer because the question was out of scope for the web site (like questions about somatic problems).[2]	"coronary problems" "what are the causes of measles?", "frostbite"
9	11%	9	15%	No answer to the question, even though an answer existed in the FAQ data base, but it was not found by the question-answering engine.	"chew", "waking up", "bowel", "What are the stages?"
6	7%	6	10%	No answer to the question, because there did not exist any answer to this question in the FAQ data base.	"When is a person evil?", "Should I tell the truth?", "Is there an assessment for children who are suicidal?"
1	1%	1	2%	We do not want to answer	"How can I make myself vomit?"
81	100%	62	100%	Total	

For 5 of the questions in the sample (7 %), a spelling error contributed to not providing a good answer, example: "imagery friends". In some of these cases, a better handling of spelling errors might have given a better answer. We have developed such functionality, but not yet taken it into production usage because of technical problems.

6.6. Forum and Ask-The-Expert Service Evaluation

Usage of the forum and ask-the-expert service is described in D5.2.

[2] Above the question field, we very clearly say "Write a simple question in one sentence (Note: Our answers are not oriented towards somatic - body - medicine):", but in spite of this, 26 % of all the questions were on somatic problems!!

Between July 2003 and May 2004, a total of about 2500 questions were asked in our ask-the-expert area. Of these questions, about 50 % were answered, about 50 % not answered. We do not have the resources to answer all questions. Questions which were not answered were often somatic questions (out of scope for our web site), too short and unclear questions, or questions from students wanting help to do their homework (rather from people wanting advice for problems of their own, or of friends or relations to which we give priority.)

6.7. Questionnaires, Interviews and Observations

Usage of our services has been evaluated by a questionnaire on the web site, by observations and interviews with small groups of users, and by analysis of logs of what users do when they visit our site. These results are described in more detail in deliverables D7.3, D7.3A, D7.3B and in Minna Forsell's studies [Forsell 2003], [Forsell 2004].

Here is a short summary of the results of these evaluations:

The main results from the questionnaire is shown by the answer to the following question:

Table 14: User satisfaction according to on-line questionnarie

Was the content of the site useful to you? Please rate on a scale from 1 to 5:		
1	6%	not at all useful
2	5%	
3	31%	
4	21%	
5	37%	very useful

The full results from the questionnaire is reported in chapter 4.2b of deliverable D7.3.

The subject tree in the web site is a little too compact, with too much information, better structuring of it might be useful.

The interviews [Forsell 2003, Forsell 2004] with patients indicated that the quality of the retrieved information was consistently estimated as good and useful, however a commonly held attitude towards the system and the Internet in general was that no *direct* help could be provided. Web4Health could help the users to *find information*, but it could not motivate them to make radical changes in their lives, because it missed “the eye-contact and the human warmth” that only another human being can give.

Users appreciated FAQs which did not only repeat conventional medical opinion, but gave new ideas on how to handle their problems. They liked FAQs that provoked their imagination the most, and which gave rise to new ideas about their situation. This was a common behavior among the group therapy patients: subjects, who had suffered for a long time from a particular problem, had become cognitively and emotionally resistant to conventional solutions and were more open to unexpected responses. Empathy is an important factor to reach the more personal sphere of an individual. The answers that provide most effective help to psychological problems are those that allow users to *mentally step into* the person and the problem described in the text of the FAQs.

Users appreciated the opportunity to read more than one FAQ on related subjects, and liked the facilities to find, from one FAQ, other FAQs on related topics. Most users found the web site easy to use, simple and not too technically complex. Eight of twelve patients and four of five non-patients found the information “good” or “very good”.

A few of the respondents had problems finding more detailed descriptions of the qualifications of the medical experts.

I a few cases, users found FAQs which were not well related to their problems, and were confused by this.

Appendix A: Handling of Midterm Review Suggestions

We have done most of the actions requested by the midterm review, but have not been able to do them all. Reasons for this is:

1. We did not get the written text of the midterm review report until in August 2004, it was apparently lost in transit to us. We did, however, have very detailed notes, made by ourselves, of what was said in the midterm review, so most of the suggestions were known to us despite the lack of a textual version of the review.
2. The midterm review was rather late in the project (November 2003) when we had already spent much of our resources, only 7 of the 24 project months were left at that time and many partners had spent more of the efforts in the beginning than in the end, which is normal in these kinds of projects where you want to get results ready in time so that it can be evaluated and tested by users.

6.8. Anonymity

We have changed the system so that all people asking ask-the-expert questions are always totally anonymous, even if they specify their name, the name is not shown to anyone else than the medical expert answering the question.

6.9. (Relevance feedback) Feedback about the order of relevance

The natural-language question-answering systems provides feedback about the order of relevance in two ways:

1. Answers are listed in a priority order, with the probably most relevant answers sorted first.
2. If the question contained many words not in the template for an answer, that answer is listed in a special group below other answers.

We have not changed the interface to provide more detailed relevance feedback. There are several reasons for this.

1. The natural-language question-answering system used does not compute a single numeric relevance value. It is not a traditional information retrieval system, and thus does not compute any relevance score. Rather, relevance is a combination of several factors, such as:
    a. Words and phrases in the question which do not match the template will lower the relevance.
    b. Words and phrases matching a special priority part of the template will increase the relevance.
    c. Words and phrases matching a special forbidden part of the template will remove all relevance from this FAQ, it will thus not be shown for this question..
    d. Words and phrases matching certain dangerous words like “suicide” and “murder” will restrict the relevance of all FAQs not matching these words. This is done to reduce the risk that an improper answer may cause a user to commit violent acts.

Because of this, displaying relevance to users in other ways than already done would be too confusing for users to understand.

2. A second reason for not showing relevance is that more detailed relevance feedback might get users to believe in and depend on the relevance feedback too much. It is better if users scan the list themselves and decide which answer is most relevant, since they are better capable of deciding this than the computer.

The term *relevance feedback* is sometimes used to describe an interactive process of getting relevance information from the user of an IR system, and using this to improve the search. We do not use this kind of technology, but KTH has done some experiments with trying to elicit information about users to improve question-answering. The results of these experiments will be reported next year, since the work is still too early to publish.

6.10. Forum type display

We have changed the user interface, so that the name of the current forum has a border, so that it is more visible, as shown below:

We have also changed the color scheme, so that a different color scheme is used in the discussion forum and the ask-the-expert area:

6.11. Editing Environment

We agree with the reviewers that a WYSIWYG editing environment would be useful, but the cost of developing such an interface is higher than the project can afford. There is, however, always the option that editors can write FAQs using a separate WYSIWYG editor like Frontpage or Dreamweaver. They can then either cut and paste the text into the user interface of our software, or use the special software for importing answers edited with Dreamweaver into our software. Our experience, however, is that most editors prefer to write HTML code directly, considering that the HTML needed is very simple, in most cases just <p> commands between paragraphs.

6.12. Machine Translation & Integration for Commercial and Translation Partners

The midterm review says “Integration between medical and technical partners is quite well. This is less true for commercial and translation partners.” Translation is done by the medical partners, not by special translation partners! This is what the contract says, the contract says that translation of FAQs is to be done by medical partners or by professional translators employed by the medical partners. The contract does *not* say that machine translation is to be used for translation of FAQs, rather the reverse, the contract says that FAQs are to be translated by humans, *not* by machines. *To use machine translation for translation of FAQs would thus have meant a breach of the contract!* Integration between medical and machine-translation partners is described in chapter 4.6 on page 12.

The mid-term review noted that the “machine translation system needs to be improved”. We have improved it by customizing the dictionary for best translations in our area, for example translating the word “body” in its biological and not its abstract meaning. However, machine translation technology is not good enough, so that we want to provide it automatically to users. Especially people who are not experienced with machine translation can sometimes be offended by its results. This is a known fact of current technology in this area.

As an example of the usefulness of machine translation, it was possible by our German medical partner to use it to translate a number of Greek FAQs to German, even though no English version was available and he could not read Greek.

6.13. Commercial Exploitation

We have spent a considerable time, including one whole day during the project meeting in March, 2004, on discussing the future of the project after the EU-funded phase. The conclusions are reported in deliverable D6.3 and in chapter 5.3 on page 14.

6.14. Multilingual Objectives

The midterm review says “Multilingual objective are not fully met.” We are not sure what this meant. If it means that we have not succeeded with multi-lingual forums with automatic translation, then the statement is true. But the contract only promises that we intended to experiment with such forums. In all other respects, the multilingual goals of the project, as set out in the contract, have been met.

6.15. Financing own Product Development

The midterm review says “The work done in the project seems to be financing own product development”. We are not sure what this refers to, but the Greek partner already had a large and very popular web site, and therefore has used the same FAQs in that site as in Web4Health. We do not think this is wrong, our results are equally useful if they are published in other ways than through the project web site. The partners have also agreed that the medical partners can use the medical content in other work in their own language, and will add this in an addendum to the consortium contract.

6.16. Incorrect Spelling

We agree that handling of spelling errors in the natural-language question-answering engine would be a very valuable improvement.

We have a version of the natural-language question-answering engine, which can handle incorrectly spelled questions, but have not yet been able to take this into production usage

because it is not compatible with the present version of our data base. We hope to be able to add this in the future.

Systran has handling of spelling errors in its machine-translation engine, so that when we take the cross-lingual question-answering facility into production, we will partially get support for handling spelling errors.

6.17. Cultural Diversity

The midterm review says “Cultural diversity should be more addressed”. Our handling of this is explained in chapter 3.3 on page 7.

6.18. Dutch Contribution

The midterm review says the “Dutch partner's contribution to new content production revealed lower than expected”. The Dutch partner has least personmonths of all the partners in the project, only 6 personmonths. In spite of this, they have produced 200 FAQs, which is more FAQs per personmonth than any other partner!

Because of the low personmonths for the Dutch partner, we have not been able to develop a Dutch version of the web site. The Dutch partner, however, plans to develop such a version using its own funding.

6.19. Risk Management

The midterm review says “Management should pay more attention to risk management” and “Risk analysis is not satisfactory so far”. For a description of this, see chapter 3.5 on page 8.

6.20. Complete Coverage of Medical Problems

The midterm review says “there is not complete coverage of medical problems”. This must be a misunderstanding. The contract does *not* say that we are to develop a complete coverage of medical problems. The contract clearly specifies which areas of medical contents we were to address, and we have done this according to the contract.

6.21. Midterm Review Recommendations

Table 15: Action takens as a result of midterm revies recommendations

Midterm Review writes	Actions taken by the project
Address effectively the problem of user's anonymity and its legal implications; we suggest to secure complete anonymity of the users and do not show real names or e-mails.	Done, see chapter 3.5 item 3 on page 8 above, chapter 4.5 on page 12 above and chapter 6.8 on page 21 above.
Avoid machine translation system on-line whenever not effectively improved.	Machine translation is only used for the experimental machine-translated forum and as and aid to translators. Machine translation tool has been improved with vocabulary suitable to our topical area.
Clearly distinguish the discussion-forum session from the ask-questions one, and avoid experts' intervention in the discussion forum.	Done, see chapter 6.10 on page 22 above.
Include an indicator of relevance of replies provided to users' questions.	Not fully done, see chapter 6.9 on page 21 above.
Try to better discern criteria to evaluate medical content.	Criteria for medical content has been medical correctness, but also usefulness and adjustment to user needs. We have felt it more important to give useful advice than to only repeat medical scientific texts. User studies indicate that this is one aspect in which our site is liked by its visitors better than many other medical web sites. Our recommendations are, however, based on known medical science results where available, and otherwise on a consensus of the experience of our medical partners. We have successfully achieved accreditation by the Health On the Net, which checks and approves medical web sites. See also chapter 3.4 on page 8 above.
Improve the market analysis and business plans and increase the integration of all types of partners, especially the commercial and the translation ones.	See deliverable D 6.3 and chapter 5.3 on page 14 above. Additionally, the cross-lingual natural-language question-answering service may open new commercial opportunities.
Try to better define promotional and exploitation plans by considering to joint-venture with the pharmaceutical industry, medical associations, universities and health government bodies.	See chapter 5.1 on page 13 above. We have also contacted pharmaceutical industries, but none have been interested in cooperation. Some partners have achieved cooperation with health government bodies within their countries for the content in the language of that region. Note that for ethical reasons, we do not accept advertisements for prescription medicines.

Appendix B: Administrative Overview

6.22. Project Meetings

Face-to-face project meetings have been held four times a year. Main issues at these meetings have been planning the work, policy decisions and planning for the future after the end of the EU funding. In general, there has been very little disagreement and conflict between the partners.

6.23. Communication Between Project Meetings

In the beginning of the project, when more contacts were needed, than we could afford to finance travel to face-to-face meetings, we also held four project meetings using the chat software, which is part of our software. The use of chat as an alternative method for project meetings worked very well.

Apart from this, communication between project meetings has mainly been through e-mail. Several thousand e-mail messages have been exchanged between the partners during the project. Our own forum system has not been used as much for internal communication as expected, possibly because the news page got overcrowded with FAQ texts. If we get involved in a future project, we will redesign the forum system so as to better separate internal discussions from new FAQ texts and ask-the-experts messages. High priority messages, such as those for project-internal communication, should always also be sent by e-mail.

Appendix C: Files on the Final Delivery CD

Table 16: Files on the final delivery CD

File name	Description
D-0-1-main-proj-website.pdf	Picture of project web site home page.
D-0-2-project-description.pdf	Some pages from the web site home page describing the project and its goals.
D-0-3 comm-outr-policy.pdf	Community outreach and prevention network requirements, information structure and policies.
D-1-1-Existing Content.pdf	Existing content evaluation.
D-1-2-A-Site-overview.pdf	Overview of the web site user interface.
D-1-3-QualityAssurancePlan.pdf	Quality assurance plan.
D-2-1-A-naming-plan.pdf	Naming of Web4Health informational pages.
D-2-1-Content-Plan.pdf	Content plan.
D-2-2-B-classification.pdf	Natural language question answering system classification manual.
D-2-2-internal-service.pdf	Statement that the internal service was ready for user testing.
D-2-3-publ-service.pdf	Statement that the public service was opened and some screen shots of pages from the service web pages.
D-3-1-KOM2002-translating.pdf	User manual on how to use the translation tools to translate FAQs to new languages.
D-3-2-ext-peer-rev.pdf	An external peer review of the Web4Health web site.
D-3-2-second-stage-report.pdf	Overview with screen shots of the service at the end of the project.

File name	Description
D-4-1-monitoring-rating.pdf	Monitoring, rating and logging plan.
D-4-2-stepwise-refinement.pdf	First report of stepwise refinement experience.
D-4-3-stepwise-final.pdf	Final report of stepwise refinement.
D-5-1-A-KOM2002-groupware.pdf	User manual on how to use the KOM2002 groupware in Web4Health.
D-5-1-B-health-info-form.pdf	User manual on how to use dreamweaver and word Web4Health content production.
D-5-2-forum-service-eval.pdf	Evaluation of usage of the forum and ask-the-expert services.
D-5-3-user-inter-serv.pdf	Overview with screen shots of user services. Also contains a list of major software improvements done during the project.
D-6-1-A-first-promotion.pdf	Report of first promotion stage: Report on how the web site was promoted using Search Engine Optimization (SEO) techniques.
D-6-1-PreliminaryExplPlan.pdf	Preliminary exploitation plan.
D-6-2-A-site-layout.pdf	Specification of a simplified site layout for commercial exploitation. This specification has not yet been implemented.
D-6-3-final-exploit-plan.pdf	Final exploitation plan.
D-7-1-evaluation-plan.pdf	Evaluation plan.
D-7-2-A-Faq-statistics.pdf	Some statistics om FAQ production and site usage in November 2003.
D-7-2-first-evaluation.pdf	First evaluation report.
D-7-3-A-patient-evaluation.pdf	Evaluation of web site with deep observation and interviews with a small number of users.
D-7-3-B-Swedish-evaluation.pdf	Swedish version of D-7-3-A-patient-evaluation.pdf, contains more details of user needs and user reactions to the Web4Health site and its services.
D-7-3-final-evaluation.pdf	Final evaluation report.
D-7-4-short-final-report/ D-7-4-short-final-report.html	Short final report, suitable for use in promoting the project and its results.
D-7-4-full-final-rep.pdf	Complete final report.
D-8-1-translator-access.pdf	Access to the online translation engine.
D-8-2-Prototype_term.pdf	Prototype of the terminological workbench.
D-8-3-Integration.pdf	Integration of the terminological workbench.
D-8-3-Annex.pdf	Annex to D8.3.
D-8-4-term-wb-final.pdf	Final prototype of the terminological workbench.
D-8-5-B-cross-ling-capella.pdf	Integration of a MT system in an expert QA website to improve the quality of the answers given to the users.

File name	Description
D-8-5-C-cross-ling-sjodin.pdf	Preliminary result report of a study of the quality to be expected with cross-lingual question-answering.
D-8-5-translating-engine.pdf	Prototype of English to Swedish translation engine.
Graphics folder/	
kom2002-logo-paths.eps	KOM2002 logo.
web4health-logo-paths.eps	Web4Health logo.
usage-statistics.eps	Usage statistics 2003-2004.
Promotional materials folder/	
cork-pamphlet.pdf	Pamphlet distributed at the eHealth conference, May 2004.
milia-cannes-pamphlet.pdf	Pamplhet distributed at the MILIA conference, April 2003.
Research-introduction-overheads.ppt	Short introduction to options for research based on Web4Health.
annual-review-2003-ohs/	Overheads used for presentations at the annual review 2003.
Tutorials and manuals folder	
translator-compendium-(Swedish).doc	Manual on how to translate FAQs between languages (in Swedish)
Naming-plan.pdf	FAQ naming plan.
exporting-all-faqs.pdf	Manual on how to export FAQs from the content management system to the web site.
health-info-form-ohs.pdf	Overheads on using Dreamweaver to edit FAQs.
KOM2002-translating.pdf	Manual on how to translate FAQs between languages (in English).
internal-repository.pdf	Manual on how to access the repository of internal documents.
content-management(Swedish).doc	Manual on how to manage the FAQ content (in Swedish).
KOM2002-groupware-ohs.pdf	Overheads on how to use the content management system.
answering-ask-the-expert.pdf	Manual on how to answer ask-the-expert questions.
classification-manual.pdf	Manual on how to classify FAQs for the natural-language question-answering system.
natural-lang-classification-ohs.pdf	Overheads on how to classify FAQs for the natural-language question-answering system.
KOM2002-groupware.pdf	Manual on how to use the content management system.
translator-compendium.doc	Manual on how to translate FAQs between languages (in English)
Periodic progress reports folder/	
KOM2002-PPR1.doc	Progress report July-December 2002.
KOM2002-PPR2.doc	Progress report January-June 2003.

File name	Description
KOM2002-PPR3.doc	Progress report July-December 2003.
KOM2002-PPR4.doc	Progress report January-June 2004.

Appendix D: References

6.24. Deliverables

The deliverables are available for downloading at http://web4health.info/KOM2002/docs.html

Table 17: Deliverables

No	Deliverable title	Date	Nature[3]	Dissemination level[4]	Filens on the final delivery CD
D0.1	Main project website	3	D+R	PU	D-0-1-main-proj-website.pdf
D0.2	Project presentation	3	D+R	PU	D-0-2-project-description.pdf
D0.3	Community outreach policies	5	R	PU	D-0-3 comm-outr-policy.pdf
D0.4	Reports for the annual review	9[3]	R	PP	Periodic progress reports folder/ KOM2002-PPR1.doc KOM2002-PPR3.doc KOM2002-PPR4.doc KOM2002-PPR2.doc
D1.1	Existing content evaluation	6	R	PU	D-1-1-Existing Content.pdf
D1.2	Test site using existing content	6	D	PP	D-1-2-A-Site-overview.pdf
D1.3	Quality assurance plan	6	D	PU	D-1-3-QualityAssurancePlan.pdf
D2.1	Content plan	6	R	PP	D-2-1-Content-Plan.pdf
D2.2	Internal service ready for user testing	9	D+R	PU	D-2-2-internal-service.pdf D-2-2-B-classification.pdf
D2.3	Public service ready and running	12	D+R	PU	D-2-3-publ-service.pdf
D3.1	Second stage start of operation.	18	D+R	PU	D-3-1-KOM2002-translating.pdf
D3.2	Report of second stage	22	R	PP	D-3-2-ext-peer-rev.pdf

[3] Please indicate the nature of the deliverable using one of the following codes:

R = Report

D = Demonstrator/Prototype

O = Other

[4] Please indicate the dissemination level using one of the following codes:

PU = Public

PP = Restricted to other programme participants (including Commission services and project reviewers).

CO = Confidential, only for members of the consortium (including Commission services and project reviewers).

No	Deliverable title	Date	Nature[3]	Dissemination level[4]	Filens on the final delivery CD
D4.1	Monitoring, rating and logging plan	8	R	PP	D-4-1-monitoring-rating.pdf
D4.2	First report of stepwise refinement experience	14	R	PP	D-4-2-stepwise-refinement.pdf
D4.3	Final report of stepwise refinement experience	24	R	PU	D-4-3-stepwise-final.pdf
D5.1	Start of service	6	D+R	PU	D-5-1-A-KOM2002-groupware.pdf D-5-1-B-health-info-form.pdf
D5.2	Forum service status and evaluation report	18	R	PP	D-5-2-forum-service-eval.pdf
D5.3	Final report of user interaction services	24	R	PU	D-5-3-user-inter-serv.pdf
D6.1	Preliminary exploitation and dissemination plan	9	R	PP	D-6-1-A-first-promotion.pdf
D6.2	Report of first promotion stage	16	R	PP	D-6-2-A-site-layout.pdf
D6.3	Final exploitation and dissemination plan	20	R	PP	D-6-3-final-exploit-plan.pdf
D7.1	Evaluation plan	14	R	PP	D-7-1-evaluation-plan.pdf
D7.2	First evaluation report	16	R	PP	D-7-2-first-evaluation.pdf
D7.3	Final evaluation report	24	R	PU	D-7-3-final-evaluation.pdf D-7-3-A-patient-evaluation.pdf D-7-3-B-Swedish-evaluation.pdf
D7.4	Final project report	24	R	PU	D-7-4-full-final-rep.pdf D-7-4-short-final-report.html
D8.1	Access to the on-line translation engine.	3	D+R	PP	D-8-1-translator-access.pdf
D8.2	Prototype of the terminological workbench.	12	D+R	PP	D-8-2-Prototype_term.pdf
D8.3	Integration of the specialized terminologi in the existing MT language pairs.	14	D+R	PP	D-8-3-Integration.pdf D-8-3-Annex.pdf
D8.4	Final version of the terminologoical workbench.	16	D+R	PP	D-8-4-term-wb-final.pdf
D8.5	Prototype of English to Swedish translation engine	18	D+R	PP	D-8-5-translating-engine.pdf D-8-5-B-cross-ling-capella.pdf D-8-5-C-cross-ling-sjodin.pdf

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