



Spatially-Aware Information Retrieval on the Internet



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User requirements specification reassessment

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Abstract: This document describes the actions undertaken by the SPIRIT consortium to have representative users evaluate and broaden the initial SPIRIT user requirements specification, as requested by the Commission during the annual review of July 2003.

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Executive Summary

This report is a supplementary deliverable prepared and written following the Commission's annual review of SPIRIT (Luxembourg, July 2003). It serves as a continuation of deliverable D3 7101, and details the reassessment of the previously defined initial user requirements, using a broader range of users.

Two user studies are described. The first aimed to identify users' needs when performing searches using existing geo search engines. The results of the study showed that initial SPIRIT user requirements represented a genuine advance in search engine functionalities.

The second study was comprised of a series of user sessions conducted at each SPIRIT site, using mock-ups of the SPIRIT interface to illustrate the system's functionalities to various potential users. The result of this study validated previously defined user requirements, and also led to the definition of several new requirements, and the broadening of existing SPIRIT use cases.

The first part of the report describes the background behind the studies, listing the previously defined user requirements and the criticisms made by the Commission during the annual review. The second and third parts of the report describe the methodology behind the studies and the results generated. The final part of the report concludes the reassessment process, describing how the existing user requirements have changed and the implications this will have on future design and evaluation of the system.

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User requirements specification reassessment

1. Introduction

1.1. SPIRIT early user requirements specification

An early task in SPIRIT was the analysis of user requirements (see D3 7101). This analysis aimed at defining SPIRIT's use cases and to infer SPIRIT's required functionalities. This study was lead by SPIRIT partners, mainly by generating use scenarios of SPIRIT, and did not rely on contacts with many real potential users. The requirements generated at that time are listed below, organized by the search stages to which they correspond:

The user's initial query:

- ◆ May include places and spatial relationships.
- ◆ May include concepts that are fuzzy or user-centered.
- ◆ These concepts may be expressed in several ways:
 - Places referred to by their name (in whichever language).
 - Places referred to by reference geographical features (e.g., "cities in south England").
 - Spatial relationships referred to by their name (in whichever language).
 - Places and spatial relationships expressed through sketching.

SPIRIT's interpretation of the user's query:

- ◆ Interpretation of what is spatial and what is not spatial, (maybe by means of a structured interface that "a priori" clearly separates these concepts).
- ◆ Identifies what is fuzzy (and handle the fuzziness).
- ◆ Identifies ambiguous place names and launches disambiguation process.
- ◆ Translates place name into other place names more or less equivalent (likely to appear in the resources).
- ◆ Translates important non spatial terms in the query into the form they are likely to have in the searched resources (e.g. in the query = "hôtel en angleterre", SPIRIT translates "hôtel" into "Hotel, Bed and Breakfast, hostel, inn").

Query refinement and presentation of results:

- ◆ Interface should display maps with topographic features plus other type of relevant information.
- ◆ The displayed maps should locate somehow the retrieved results.
- ◆ The displayed map should be associated with tools to pan, zoom, and to calculate the metric distance between selected dots.

- ◆ Maps can be used as a means to refine spatial aspects of a query.
- ◆ The SPIRIT interface should also contain a history of search session and the possibility to use this history as a common ground to launch further searches.

Results clustering and ranking:

- ◆ SPIRIT should cluster similar results and rank the clusters with respect to spatial and non spatial criteria.

1.2. The Commission recommendations

During the annual review of SPIRIT by the Commission (Luxembourg, July 2003), criticisms were made about the lack of representative users involved in the analysis of users requirements. A written recommendation reads: "F c) Broaden the users' requirements survey by involving more ordinary users from different professional and national environments". Regarding user involvement, the reviewers also wrote: "[...] only tourism has been considered as a possible application domain so far. The scenarios themselves are not convincing since they exhibit requirements that represent a small step in the progress that can be expected in Web searching". We also noted during this review a specific recommendation that was to have our "user requirement specification", e.g. the final scenario appearing in [Bailey et al. 02], evaluated by external users.

1.3. SPIRIT user requirements re-assessment

A "user requirements re-assessment" working group was held during the following SPIRIT meeting in Sheffield, September 2003. It was decided to add an intermediate deliverable in WP7 to report the actions undertaken by the SPIRIT Consortium to involve representative users in the specification of user requirements. The objective of these actions were as follows:

- To involve representative users in the user requirements specification process.
- To broaden the application scope beyond tourism.
- To show that SPIRIT user requirements actually represent significant progress in Web searching.

At this stage in the project, we have a clearer idea of the aspects that will be implemented in SPIRIT. In the present task however, we do not limit ourselves to evaluating the aspects that we will implement, instead we focus on evaluating all aspects that appeared in the initial user requirements analysis, with the possibility of eliciting new requirements. This task is therefore independent of the prototype evaluation.

This deliverable is organised as follows:

- Section 2 describes a study of users searching for geographically related information using existing Web search engines. The findings are discussed with respect to SPIRIT user requirements.
- Section 3 describes a series of user sessions conducted at each SPIRIT site, using mockups of the SPIRIT interface. The findings are also discussed with respect to SPIRIT user requirements.
- Section 4 summarises the findings and concludes this report.

It should be noted that a lot of the material used in undertaking these actions was taken from the UsabilityNet Website (<http://www.usabilitynet.org>). UsabilityNet is a project funded by the European Union to promote usability and user-centered design for diverse professional groups. Guidelines, methods and references are provided.

In particular, methodology behind the user sessions was influenced by 'the requirements meeting'.

2. Analysis of search for geographically related information on the Web

In this chapter, we study how users search for geographically related information on the Web using existing web-based search engines, and analyse their needs in this domain.

2.1. Evaluation methodology.

In this section, we discuss the methodology adopted in our analysis.

A group of experienced geographers and students (15 in total, from the Department of Geography at the University of Zurich) were selected to carry out the evaluation process.

2.1.1. The evaluation

A survey was carried out to determine the users' Internet usage experience and knowledge of various tools available on the Internet.

Users were then assigned a set of three different search scenarios and were invited to use existing Web search engines to perform the tasks. The scenarios all refer to tourist searches:

- the first one concerns a cycling tour in Black Forest, in Germany, including the visit of small cities,
- the second one is an accommodation search on the French Mediterranean coast, in a small town with windsurfing facilities,
- the third one is an information search about chalets and mountain routes in a specific town in the Swiss Alps.

During the evaluation, participants filled in a questionnaire about their search ability and actual search activity. The material used during the evaluation is included in Appendix 1.

The questionnaire was designed to discover the following:

- Relevant users' characteristics and their behaviours.
- Users' goals and how these goals have been interpreted into acts.
- The information used during the tasks.
- The cognitive metaphors adopted by the users.

2.1.2. Compared systems

Users were assigned a set of tools widely used on the Internet for searching aspatial and spatial information, namely www.multimap.com, www.map24.com, www.upmystreet.com, www.mapquest.co.uk, www.kartoo.com and www.google.com.

The characteristics of these search engines are described in Table 1. The criterion for the selection of these tools was based on popularity and functionality. Unfortunately, at the time of this study, important spatial search engines such as Spatial Google and Mirago were not available, or only at an experimental stage. Interactions enabled by these search engines and their comparison with SPIRIT will be of interest during the SPIRIT evaluation process.

Users were asked to record their strategies prior to the search process, and were later asked to comment on their actions in a semi-descriptive way, illustrating the queries specified, the tools used and the results they obtained.

Multi-map	Multimap.com is a popular European mapping web site, offering a range of services to assist with everyday life. Key features include: street-level maps of the United Kingdom, Europe, and the US, road maps of the world, door-to-door travel directions, aerial photographs, and local information. Multimap also provides a range of complementary services through its partners. These include entertainment, hotel, holiday-cottage, restaurant and train-ticket booking services, SMS weather alerts and the ability to buy both historic and aerial photograph prints.
Map24	Map24 is the Internet mapping portal for interactive online navigation and routing on road maps. It provides online maps with a high degree of interactivity. It delivers vector-based maps. The maps contain information such as road names, house number areas and traffic control, points of interest, routing and search results.
UpMyStreet	UpMyStreet uses the web to deliver 'intelligent' information to postcode level. UpMyStreet presents the following information with respect to the social context of a location: property prices, council tax, top schools, and local job vacancies.
Mapquest	Mapquest provides a range of mapping and routing solutions across key categories, including: retail, healthcare, financial, real estate, travel and automotive. It provides interactive maps, proximity search functionality, point-to-point driving directions and business locator applications.
Kartoo	Kartoo is a meta-search engine with visual display interfaces. On query formulation, Kartoo launches the query to a set of search engines, gathers the results, compiles them and represents them in a series of interactive maps through a proprietary algorithm. Kartoo uses a single text box entry as a starting interface. In Kartoo, the query results are displayed as a series of interactive maps. Sites are represented by orbs that vary in size according to query relevance. The orbs are linked by threads that display how the sites are linked according to the engine's ranking algorithms. Searches can be refined by pressing on the + and – symbols that lie on these threads. Although interesting to look at, Kartoo is initially quite complex to use. The results are displayed as browseable maps, which can be difficult to navigate. Websites are represented by target symbols, clustered by subject. It provides two interfaces: one with animations using the Flash plug-in, and one with a simple text-based interface with textual listing of search results.
Google	Google is a full text search engine, which indexes the entire web pages instead of just the title and description. Google uses a single text box entry as a starting interface, with a textual listing of search results based on relevance ranking. Google uses page ranking as a method to display the search results as a list based on the keywords.

Table 1: selected search engine characteristics.

2.1.3. Qualitative data analysis method

The objective of this analysis was to let the data emerge without forcing it into formulas we had conceived after former observations. To achieve this, we adopted unobtrusive measures that do not require the researcher to intrude in the research context, thus minimising bias.

There are a wide variety of methods that are common for qualitative measurement. An approach called 'Framework Analysis' was developed by Ritchie and Spencer (1994) for applied policy research. The benefit of Framework Analysis is that it provides systematic and

visible stages for the analysis process. It allows the inclusion of a priori as well as emergent concepts. Indeed we intended here to reassess a priori requirements and to let new requirements emerge.

A framework analysis method is organised into several stages:

- The first stage is the *familiarisation* - the reading of data collected during user interviews or through questionnaires.
- The next stage is to identify a thematic framework that will structure the analysis - a set of variables that yield quantitative values for the analysis. In our context, this is explicit in the questionnaire.
- The following stages, *indexing* and *charting*, involve generating from the collected data the values for the variables identified in the thematic framework. In the context of this study the questionnaire was already structured by the framework.
- The final stage, *mapping and interpretation*, involves the use of the quantitative measures to define concepts, map the range and nature of phenomena, create typologies, find associations within the data, provide explanations or develop strategies. In the context of this study, we attempted to map the framework with evaluation of the initial SPiRiT user requirements and with new requirements.

2.2. Results regarding the evaluation of initial requirements

Having analysed the data collected during the study, several observations were made which either enforced or undermined the initial user requirements. These are summarised below, in italics, beneath the corresponding requirements. The requirements are listed organized by the search stages to which they correspond.

The user's initial query :

- ◆ The initial query may include places and spatial relationships as such.

The queries formulated usually contained place names and landmarks to specify geographic extent.

- ◆ These concepts may be fuzzy or user-centered.

Some users actually tend to integrate fuzzy place names in their queries.

Users prefer a text-based interface in comparison to map-based interface as a starting point. Scenarios played a vital role in the selection of map-based or text-based interfaces as starting points, 11 out of 15 users opted for a text-based interface for the first scenario as a starting point, 10/15 opted for a text based interface as a starting point for the second scenario. 12/15 opted for a text-based interface for the third scenario. This infers that users prefer a simple interface to start with, as is the case with Google. This provides an easy means for natural language query formulation.

Most users tend to formulate the place name in multiple languages. Google could retrieve results based on a place name formulated in multiple languages, but with a warning message to the users ('Did you mean...').

SPiRiT interpreting the user query:

- ◆ identifies what is fuzzy (and handle the fuzziness)

Users tend to query fuzzy distances/user-centered distances on map-based interfaces e.g. 'within 5 minute's walk'.

Query refinement and presentation of results:

- ◆ Interface should display maps with topographic features plus other types of relevant information.

Users actually mentioned the necessity of including topographical information on the maps. One example cited was www.maponair.com, which they stated was quite helpful in identifying regions of interest for hiking, skiing, etc.

- ◆ Maps can be used as a means to refine spatial aspects of the query.

Users rather tend to use maps to get an overview of the geographic location.

Results clustering and ranking

- ◆ SPiRiT should cluster similar answers and rank the clusters with respect to spatial and non spatial criteria.

Users find the Kartoo visualization interface particularly confusing, but they appreciated the concept of result categorization. Most users preferred their results to be categorised based on their spatial and aspatial context.

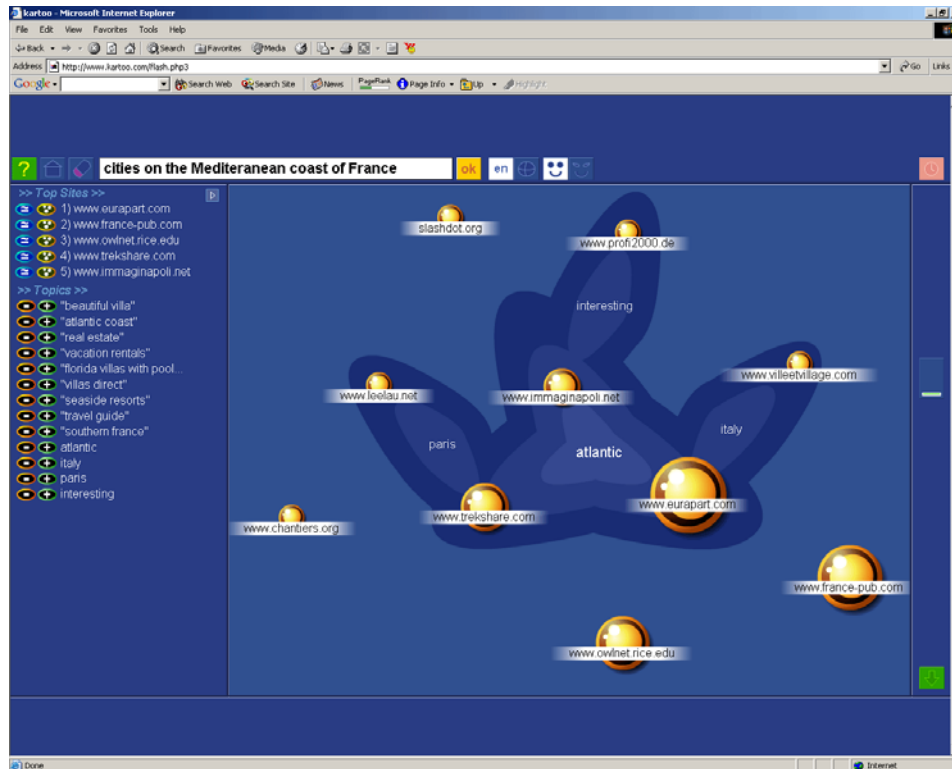


Figure 1: Kartoo user interface.

2.3. Results regarding the broadening of user requirements

Additional findings, which can be used to broaden the existing user requirements, were generated from the results as follows:

- ◆ Users find it time-consuming and undesirable when the system asks for a plug-in to view certain results for their queries, e.g. www.map24.com displays maps as a Java applet, which require a plug-in to view.
- ◆ As expected, most users prefer to visualise their results in their native language.
- ◆ Users find visualization of the results confusing. They prefer a simple text-based results display, with categorisation or relevance ranking based on the spatial context.

- ◆ Users tend to associate activities (e.g. shopping), and not only things (e.g. shops), in their query.
- ◆ Around 90% of users associating activities in their search were keen on searching for spatial activity maps (i.e. maps associating enabled activities to places) . It would be quite useful for them if the system could generate these maps on the fly, based on their queries specified.

Several observations were also made which relate to user profiles in the SPIRIT domain. It was observed that familiarity of the geographic location and purpose played a predominant role in the users' query formulations and selection of either a textual or map-based interface. It was also evident that users having considerable experience in Internet usage were fairly successful in identifying the information sources when compared to more inexperienced users. The criteria for categorising users based on their Internet search experience was based on their behavioural patterns, awareness of various information sources and awareness of Internet search engines available. About 10% of the users preferred to gather information from paper-based maps or travel agencies initially before using the Internet.

3. User sessions

This section details the organisation of user sessions conducted at each SPIRIT site, aimed at evaluating and broadening the initial user requirements.

3.1. Protocol

3.1.1. Main lines

Each SPIRIT site participated in the user requirements reassessment exercise by arranging and conducting a user study. Each session was led by a moderator from the local SPIRIT team.

The protocol ruling these sessions was the same across all sites, except for the language used. During a session, the moderator presented to the users a *story board* illustrating SPIRIT aspects as they were defined in the user requirements specification (URS). This story board was based on a *mock up* of SPIRIT used by various imaginary, typical users in a set of scenarios. While presenting the storyboard, the moderator asked specific questions to the users that invited them to evaluate or broaden the URS. This protocol is detailed further in the next section of this report, while the analysis of results is presented in sections 3.2 and 3.3.

The global agenda for these actions is presented in Figure 2below.

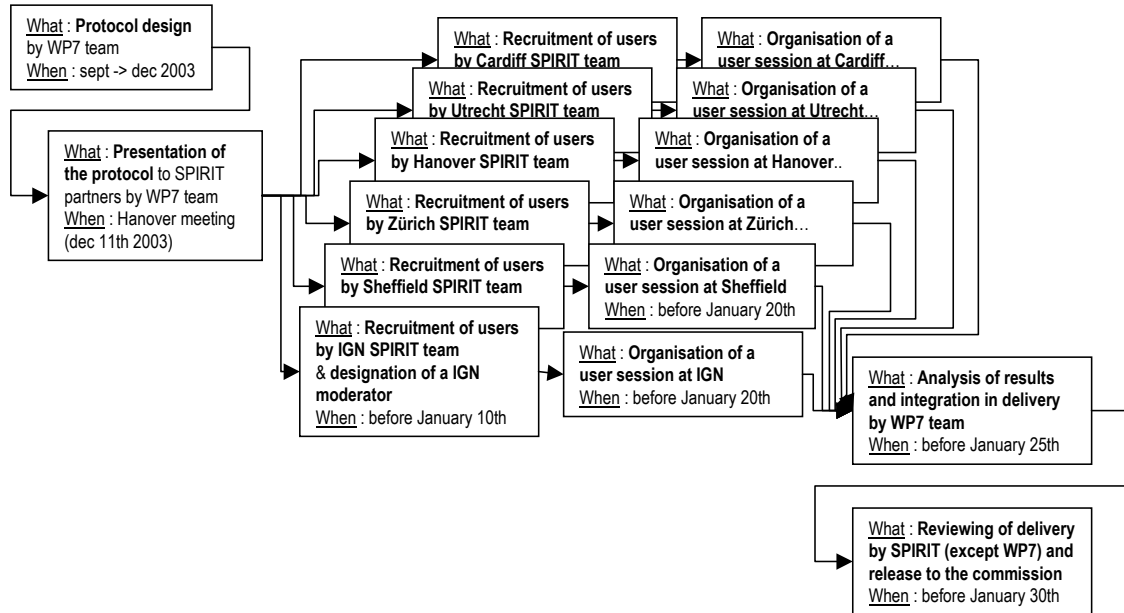


Figure 2: Agenda used to organise local user sessions.

3.1.2. Recruitment

A preliminary step in conducting user sessions is the recruitment of users. The various profiles of users that should be recruited was specified, but every site was free to recruit users in the wished modalities (e.g., every site was free to pay users for their contribution or not).

Organising sessions at every SPIRIT site ensured a variety of nationalities. It was also important to ensure diversity in terms of profession and cultural background, however, users were expected to be *fairly familiar with information retrieval on the Web*, i.e. to use at least one Web search engine regularly. Several application domains for SPIRIT were identified, from which users could be recruited, these were: traveling (including tourism), real estate, organising events and job hunting.

Domains were allocated to specific SPIRIT sites, as follows:

Domain	SPIRIT site
Real estate	Sheffield, Cardiff
Travel	IGN, Sheffield, Hanover
Event organizers	Zürich
Others (e.g. employment agencies)	Cardiff

Table 2: Wished professional domain of users to recruit.

20 users were recruited in total - 6 at Sheffield, 6 at IGN, 4 at Hanover, 2 at Utrecht, 2 at Cardiff and 2 at Zurich.

3.1.3. User session protocol

The protocol was described step-by-step, as not all of the moderators were experienced in conducting user sessions. The protocol was formal so that there was little margin for error or personal interpretation, and the results could be pooled and analysed jointly.

The SPIRIT 'evaluation working group' produced a protocol which was comprised of several documents:

- A Powerpoint presentation containing a sequence of snapshots of a mock-up of the SPIRIT interface that correspond with three scenarios. This presentation was presented to users during the sessions.
- A printable document for use by the moderator, that shows each slide and details the comments the moderator should make and the questions that they should ask the users (see Appendix 2.2).
- A Powerpoint file containing detailed comments on the mock-up used throughout the storyboard, explaining the meaning of every component and interaction. This is for use by the moderator, to allow them to answer any questions related to the user interface that users may have during the session.
- A printable document to be given to the users, containing a briefing (see Appendix 2.1) and the questions about each slide.
- A document to be used by the moderator to summarise their results.

All documents were written in English and translated into local languages at each SPIRIT site where appropriate, with the exception of the mock-ups - these remained in English, but words were translated orally by the moderator, where needed.

Scenarios

Three scenarios were imagined, referring to three distinct use cases. The first scenario is a general tourist search on a specific ski resort. The second one is a job search in Spain, with spatial refinement to main cities. The third one is an accommodation search in Sheffield, with precise refinements to specific neighbourhoods. Each scenario consists of a few successive SPIRIT screens (see Appendix 2) and stages the interactions between SPIRIT and the imaginary user. In the course of these interactions, most of the SPIRIT functionalities taken from initial user requirements are reviewed.

Mock up design and work on the user interface

The design of the mock-ups, and of the corresponding snapshots appearing in the story boards, was led by the Zürich group. This decision was made in order to maintain consistency with the progress made so far in the User Interface WP. However, the prior aim of the mock-ups was not to have users evaluate the user interface, but to support them in *visualizing* SPIRIT concepts.

Conducting a user session

A user session was conducted as follows: All users from the site were grouped together in the same room and received a printed user form each. The moderator then showed them the Powerpoint presentation, and followed the instructions given in the a "moderator document" for each slide. These instructions requested that the moderator either: a) give the users some time to observe the slides, b) make a specific oral comment, or c) ask the participants to answer a specific question in the user form. The moderator document including the slides and the corresponding comments and questions is given in Appendix 2.

Gathering of user results by the moderator

At each site, the moderator summarised in English the answers written in the user forms. The moderator may also have added additional comments based on observations made during the session. The complete transcripts of users' responses are given in Appendix 3.

Analysis of results by the WP7 team

The WP7 team then analysed the user forms. Their general analysis of the results is detailed in the next section. The findings specifically regarding the requirement reassessment are then summarised in sections 3.3 and 3.4.

3.2. Global analysis of the user sessions results

All responses gathered during user sessions are summarised and commented in this section. Raw data acquired in user forms are given in Appendix 3. To make analysis easier, questions are divided into three groups:

- questions about the SPIRIT interface and its perception (section 3.2.1),
- questions about SPIRIT functionalities (section 3.2.2),
- questions users general expectations about SPIRIT (section 3.2.3).

Inside these groups, questions are then clustered by similarity. Every conclusion were done one the basis of user answers to one or several similar questions The questions numbers are specified for each conclusion. Exact labelling of the questions can be found in Appendix 2 and 3, but this information is not required for the understanding of the present section. However, for a better understanding of questions related to features of the user interface, the reader may rely on the mock-ups provided in Appendix 2.

3.2.1. Questions about SPIRIT interface and its perception

3.2.1.1. Questions 5, 9, 14, 21, 23, 29, 35, 39: general comments about the interface

General interface outlook

It was observed that most of the users like a simple, uncluttered, easy to use starting point presented to them where in they could express their queries by entering keywords. Other users prefer to explore the map and then perform the search when they have quite high familiarity with the place.. Some suggestions have been made regarding improving the look and feel of the interface.

Some users feel that the overview map and the Main map don't illustrate the same. It would be quite helpful if the overview map and the main map dynamically update each other.

A couple of user's found the flags provided in the top right corner quite confusing, as their interpretation might go as to language selection or else to open country specific site. A couple of users state that an explanation of the usage of user interface and its functionality would be helpful, by the provision of 'help' option.

Result presentation/Map based interface

Most of the users find the result interface globally easy to understand. They find the linking & highlighting functionality between the links and the dots on the map are quite a useful functionality, to illustrate the position of the documents on the map.

Yet, they find it quite difficult in finding the relationship between documents plotted on the map and the clustered list of the documents. Most of the time users find it quite hard to identify the documents based on the colour, especially when there are many different colours. Moreover, around a half of the users state that the result categories based on the activities and costs would be quite helpful in their search process. Categorization based on colours and symbols referring to the type of document, activity, price, would be a very appreciated feature on the map based interface. The generation of "activity maps" is mentioned several times.

3.2.1.2. Questions 6, 19, 27, 31, 38: Query formulation

Based on the presented scenarios, the users subscribe to the proposed interface and are able to formulate their queries using something + somewhere, with a spatial relationship. Some users find labelling of the query form quite confusing, especially the term 'Something' which they find "vague". Most of the users formulated their queries using relationship as 'in' and 'near' to express the relationship between something and somewhere.

'FIND IN RESULTS' feature presented at the bottom of the interface was considered to be a very important feature. A couple of users have suggested that a brief description illustrating that it is for search within the results would be quite helpful.

3.2.1.3. Questions 10, 30, 31, 37, 38: map interactions

17 users find that map interactions could be improved, by providing additional map tools to zoom in/out. A couple of users suggested about the need for additional information about terrain such as height, relief, mountains, etc. This could be achieved by provision of topographic details on the map as a layer, or by a select tool to highlight the topographic details of the specific region of interest.

3.2.2. Questions about SPIRIT specific functionalities

3.2.2.1. Question 11: locating functionality

All participants agreed that the locating functionality of SPIRIT is fundamental to the way the system works. One participant remarked that the system would be useless without this functionality. Although participants were asked how important they found this functionality at different levels (e.g. country, region, street, etc.), there was little difference between the responses in each case, with users agreeing that the functionality is generally important and useful at all levels. One participant observed that the importance of each level is strongly dependent on the query and its context.

3.2.2.2. Question 12: Spelling checking functionality

Most participants remarked that the spell checking functionality was extremely important. Several participants observed that it is often easy to misspell place names due to language differences. However, it was observed that the system should notify the user if the query is automatically changed, and that the new proposed spelling should also be modifiable.

3.2.2.3. Question 13: place disambiguation functionality

The disambiguation functionality was also generally considered to be important or very important by users. However, most users stated that the disambiguation process should involve the user, as opposed to the system automatically selecting the most likely query or all queries. The most popular method of disambiguation proposed was for the system to present the user with a list of place names, along with additional spatial information which would assist in the disambiguation, e.g. region, country, etc. Only one participant seemed to dislike this approach, saying that systems such as Mapquest, which list all potential options sidetrack the user. However, in contrast, another user stated that they had used sites that list all similar place names and described this feature as 'very useful'. A small number of users said that they would prefer to use a map to disambiguate.

3.2.2.4. Question 15: SPIRIT recommendation of alternative search terms

Participants generally regarded the system's ability to recommend alternative search terms as useful. One participant pointed out that it would be particularly useful in assisting less-skilled searchers in refining their query. Several participants stated that they thought it was a useful way to narrow down their results or filter their existing results, suggesting that they were possibly confused about exactly what happens when a user follows one of the links. One participant pointed out that it would not be a useful facility in the context of a highly specific search.

3.2.2.5. Question 16: link location on the map

All participants agreed that showing positions on the map which correspond with URL's was important or very important. Some participants did however state that there were often too many dots on the map and therefore too many colours, making it difficult to determine which dots corresponded with which results. One participant stated that although this feature was useful, but depended on the quality with which the system links URLs with geographical locations. One participant also pointed out that it should be made clear how the user can zoom in on the map.

3.2.2.6. Question 17, 18: Map-based place specification

When asked about the ability to specify an area of interest on the map, most participants stated that they regarded this as very important and a good way of visually filtering the results, which is quicker and easier than re-typing the query. However, one participant remarked that, in the particular scenario given, the area was too small for this to be of any use. Another participant remarked that it would not be precise enough.

Participants were asked if they would prefer another method of specifying an area of interest. Most of the users agreed that there should be alternative methods of specifying an area. The most popular suggestion made was clicking on dots on the map. One user asked whether it would be possible to select multiple dots. Several users also proposed combining a textual geographical constraint with a specified area on the map. In contrast, several users remarked that extra options would over-complicate the system, whilst one user remarked that it would be good to have an 'advanced mode' in which to offer these extra options.

3.2.2.7. Question 22: spatial criteria refinement

Users generally thought that having the system propose refined queries was important. However, there were mixed opinions as to whether a user searching for jobs would want to search for a city or whether going down to a city level would be too specific in this context. One participant commented that the user might not know the names of any cities in Spain, in which case it would be useful for the system to propose a list of city names.

3.2.2.8. Question 25, 26: Bookmarking functionality

Most participants considered the bookmarking functionality to be important, with users remarking that it would save them time. One participant expressed concern that unless the system was easy to use, and allowed for the bookmark list to be exported, it would be of little use. There was also some confusion as to how the bookmark list could be retrieved. A small number of users said that the functionality was not necessary as they could use the bookmarking tools within their browser.

Most users remarked that they would like to be able to bookmark or save the maps. There was uncertainty as to whether or not retrieving a bookmark would automatically bring up the associated map, but this was considered to be the preferable approach. A small number of users specified that they would like the system to remember the searches they had performed. One user observed that it would be useful to arrange the bookmarks according to the queries that they correspond with.

3.2.2.9. Questions 32, 33: About spatial relationships

All of the proposed spatial operators were considered by some of the users to be important. Most participants also remarked that they did not consider the majority of the operators to be too vague. However, there were several which were considered by some users to be pointless or confusing. 'Within Xm drive' was considered to be too vague, too difficult to calculate, and too dependant on indeterminable factors such as traffic, to be useful. 'Within walking distance' was considered to be too dependant on the individual using the system. 'Outside' was considered to be too ambiguous and too similar to 'near'. Several participants also remarked that 'near' was similarly ambiguous and difficult to define.

3.2.2.10. Question 36: Ranking criteria

Most users found the result ranking by distance to be useful. However, a small number of participants remarked that distance was obvious from the map anyway. Other criteria were proposed, with price of accommodation being the most popular suggestion. Other suggestions included type of accommodation, quality of accommodation and number of bedrooms. One participant suggested that the ranking criteria could be modifiable, and another suggested that the system should determine a ranking criterion based on the keywords used in the search.

3.2.2.11. Question 40: features appearing on the map

Users generally stated that it would be extremely helpful in the context of an accommodation search to display transport routes on the map. However, there were mixed opinions as to whether it would be beneficial to the user to have areas marked on the map which represent a certain minutes walking distance or drive. One user observed that the map already contained a lot of information without this, while several participants suggested that it would be too difficult to determine these distances anyway, as was discussed in questions 32/33.

3.2.3. Questions about general expectations

3.2.3.1. Questions 7, 8, 20, 28, 34: Users' expectations regarding SPiRiT search results

By asking users "what they expect as a response", we got answers concerning both the information content of SPiRiT results and the presentation of these results.

- **Expectations regarding the information content provided by SPiRiT**

We can distinguish three different expectations about what SPiRiT should provide:

- *Providing Web links*

At the beginning (the first time SPiRiT is queried), 7 users expect only Web links as a response. Then, as the test proceeds, they are less and less numerous (2 users only for the last scenario).

Links can be commercial or not. They must be ranked by thematic relevance or by location (south/north of the interest area, or by distance). Some links should be pre-defined (e.g, the list of hotels and the tourism office in every city, or the links for job search agencies in every country). One user suggests the links could be marked or highlighted if the corresponding Web sites include a map.

- *Providing direct information*

For the first scenario, 7 users expect SPiRiT to give them the searched information or information to refine the query without any external links to browse through.

A frequently asked feature is route planning between two places. Some users ask for a textual general description of the searched theme or place. Some users would like predefined themes proposed as check boxes or buttons (e.g, tourism office, images, travel stories, map, how to get there, accommodation, horary of interesting sites, culture, history, language, population, etc). In such cases SPiRiT is seen as a kind of touristic guide.

Some would like a list of places to refine their search. They perceive SPiRiT as a kind of atlas and would like a map directly representing the location of the searched features, or spatially representing quantitative data as such (e.g, the number of rent proposal in different neighbourhoods or their mean price). As far as the session goes, these kinds of requirements disappear.

- *Providing Web links and direct information*

Some users expect links explicitly categorized by themes or places. Places can be displayed as a list or on a map with highlighted areas. There are only 4 such responses at the beginning of the session, 12 at the end.

- **Expectations regarding the information presentation**

Several users expect a "Google like" presentation of results.

For each scenario, no more than 7 users expect a map in the first response.

A few users would like explicit error or help messages.

Concerning the preference between maps or categories to represent and express a place (question 24), the opinions differ: a third of users prefer interacting with a map, a third prefer clicking on a link, and a third prefer having both possibilities and choosing the “more rapid and easier” depending on the situation.

3.2.3.2. Question 41: Users’ scenarios

User scenarios are mostly related to journeys: planning holidays or a business trip (15 answers/20). Most of the time the searched information is practical (transportation, accommodation, weather forecast) but it can also be touristic or cultural (shops, sights, history, restaurants, etc.). The expected functionalities for this kind of search are precise mapping, route planning, and a high quality search engine proposing relevant links used to refine the search.

In other cases (4 answers/20) the user is looking for information about the place where he is living, and the topics are more specific (in present examples: worship places, bank enterprises, day nursery and rock concerts). In such cases SPiRiT may be asked for more advanced functionalities, such as a search with multiple geographic criteria, precise address location or temporal annexation of Web sites.

It can be noticed that the most appreciated search level is the city (19 users type a city name in their scenario query).

3.2.3.3. Question 42: The most important aspects of SPiRiT

For 10 users, the main point is the rapidity and efficiency of having “everything” linked together on the same page (the map and the search results). It prevents users from doing two separated searches and is highly appreciated.

For 9 users, the most useful features are maps and interactions with maps. Even more interactivity is wished: the possibility of reading general information about places when right-clicking on the map would be appreciated. On the contrary, 2 users are bothered by too many maps and state that maps should only be a visual support. Besides, some users dislike the coloured dots and find them hardly readable.

Then comes the user-friendliness, which is mentioned by 6 users: the interface simplicity is appreciated. However one user points out that some additional advanced functions could be proposed in “expert pages”.

5 users give priority to the spatial intelligence of SPiRiT and its location help. The thematic intelligence is also mentioned and could be improved by “learning from previous sessions”.

5 users give priority to the search assistance. They appreciate spatial and thematic intelligence, and above all the proposed interactions for “step by step query refinement”.

3 users insist on the importance of the relevance of results: more than on its spatial intelligence, SPiRiT should be judged on the quality of its search engine.

Last, remarks are done about the provided information: one user expresses his embarrassment for having Web links located by dots on the map instead of the searched features. Another user wishes SPiRiT could provide more quantitative information on the map by analysing the content of found Web sites.

3.3. Results regarding the evaluation of initial requirements

In this section, we rely on the results exposed in section 3.2 to draw conclusions about initial user requirements.

3.3.1 Evaluation of initial requirements

The data collected during the study was substantial and wide-ranging enough to allow us to draw conclusions about the majority of the initial requirements. The only requirements that were not explicitly addressed by participants’ questionnaire responses were:

- ◆ The specification of places through sketching.
- ◆ The multilingual search interface.
- ◆ The handling and mapping of fuzzy place names (however; fuzzy spatial relationships, e.g. near, were addressed).

In these cases, there was inadequate data to draw any conclusions about the validity of the requirements. In addition to this, several new requirements became apparent from the results, as detailed in section 3.4.

In general, comments made by users supported the initial requirements proposed. However, it became apparent in several cases that the initial requirements proposed needed to be made more precise. The concerned initial requirements are listed below, organized by the search stages to which they correspond, along with the additional clarifications in italics:

The user's initial query:

- ◆ The concepts may be expressed in several ways:
 - spatial relationships referred to by their name (in whichever language).

It seems that only precise, unambiguous and easy to interpret relationships are required (see 3.2.2.9) – spatial relations such as 'within x minutes drive', 'in walking distance from' were considered too dependent on extraneous factors to calculate effectively, and relations such as 'outside' and 'north of' were considered too vague. Simple and familiar relations such as 'near', 'in' and 'within x km' were preferred.

SPIRIT's interpretation of the user's query:

- ◆ Identifies ambiguous place names and launches disambiguation process.

If the place name is ambiguous, Spirit should present a list of possible matches along with additional information enabling the user to disambiguate (see 3.2.2.3).

Query refinement and presentation of results

- ◆ Interface should display maps with topographic features plus other type of relevant information.

More precisely, users are interested in having topographic details such as contour lines on the map as a layer, displayed or hidden on demand. Other secondary features, such as transport links, should also be displayed on demand (see 3.2.2.11, 3.2.1.3).

- ◆ The displayed maps should locate somehow the retrieved results.

However, users are confused about what is located (the links or the search information), this must therefore be clearly specified (see 3.2.3.3). Furthermore, the positions marked on the map should be clearly linked to the relevant results, and easily distinguishable from one another (see 3.2.1.1).

- ◆ Maps can be used as a means to refine spatial aspects of a query.

It should be possible for the user to click on a dot or to draw a bounding box on the map to specify an area of interest. However, interacting with the map should not be the only way of refining the query (see 3.2.2.6, 3.2.3.3).

Results clustering and ranking

- ◆ SPIRIT should cluster similar results and rank the clusters with respect to spatial and non spatial criteria.

Clustering of results should be indicated on the map For instance, if links are displayed in two groups 'hotel' and 'bed and breakfast', the signs locating 'hotel' links and 'bed and breakfast' links on the map should use of different icons or colors.

3.4. Results regarding the broadening of user requirements

In this section, we rely on the results exposed in section 3.2 to draw conclusions about the broadening of initial user requirements.

3.4.1 Broadening of requirements

In addition to validating the existing user requirements, results of the study also revealed several new requirements. They are listed below, organized by the search stages to which they correspond:

The user's initial query:

- ◆ An advanced mode should allow users to specify additional geographical constraints. Additional, frequently used constraints that are not included in the standard interface will be available here (see 3.2.3.2).

SPIRIT 's interpretation of the user's query :

- ◆ If spelling of place name is incorrect, the system should either select the nearest similar place name automatically or present the user with a list of similar place names with which to disambiguate. It should be clear to the user that the system has corrected the spelling (see 3.2.2.2).

Query refinement and presentation of results.

- ◆ After an initial query, the system should propose more specific place names to the user in order to refine their query (see 3.2.2.4).
- ◆ Bookmarks should be categorised by search (i.e. the performed query should be recalled for every bookmarked link), and linked to maps (see 3.2.2.8).
- ◆ It should be possible to save or bookmark maps.
- ◆ It should be possible to export a list of bookmarks to a file.

A general requirement which became apparent was the need to support the user throughout the retrieval process; more specifically to keep them informed of what the system is doing at each stage (e.g., when checking spelling, SPIRIT should clearly indicate that he has –or not– automatically modified the search criteria), and what their available options are (e.g., SPIRIT should explain to the user that he can refine the spatial component of his query by using the text box or by selecting an area on the map). Several participants commented at various points in the study that they were not aware of the availability of certain functionalities, or were unclear of how specific functionalities worked.

In addition to the list of requirements above, some functionalities were proposed by a small number of users which were considered to be of interest, but outside the scope of the project. These requirements included:

- ◆ When a user right-clicks on a map or performs some similar action, SPIRIT should provide general information about a place such as statistics, tourist information etc. and predefined links to other sources of information (see 3.2.3.1).
- ◆ SPIRIT should provide a route-planning service (see 3.2.3.1): as soon as SPIRIT has identified the searched place, the user should be able to activate a “how to get there” functionality providing the itinerary between an initial location (to be specified by the user) and this search place.
- ◆ Results should be ranked with respect to criteria relevant to the particular query, e.g. a search for accommodation in Sheffield would yield results ranked by cost (see 3.2.2.10).
- ◆ Results should be quantitatively analysed and information such as the number of links in a particular area should be displayed (see 3.2.3.1).

3.3.2 Broadening of use cases

When asked to describe a scenario in which they might use SPIRIT themselves (see 3.2.3.2), the situations described by users related mostly to tourism or to practical information seeking while in a travel destination. This supports the use of a tourism theme in the initial evaluation of the system.

The only other identifiable use case was when the user wishes to find information specific to where they live. In this case, search themes are more specific than for tourism use cases (e.g. worship places, bank enterprises, day nursery, rock concerts, etc.). In “local” use cases, the user may require more advanced functionalities, such as a search with multiple geographic criteria, precise address location or temporal ranking of results.

In the case of less specific queries (e.g. “tour” in “Paris”), where users are interested in general activities that can be performed at the location (e.g. shopping, sports, events etc.), results should be clustered by activity, and this clustering should be represented on the map: links related to shopping, to sports and to events should be displayed with different icons.

4. Conclusions

Two user studies were conducted before February 2004. The data collected in the reassessment exercise confirmed the initial user requirements, which formed the basis for the design of the system, were applicable to a wide-range of users from different user groups and backgrounds. The results also led to the precision of existing requirements and to the generation of several new requirements.

In accordance with SPiRiT's development plan, some of the modifications made to the initial requirements, as well as some of the new requirements, will not lead to direct changes being made to the present system. However it is anticipated that some of these results will be taken into account when future prototypes of the system are created.

Findings from the study also showed that the most common application of SPiRiT will most likely be in retrieving tourist information by using functionalities mostly included in the initial requirements. However, users also envisaged using SPiRiT to retrieve activities and information relating to the place where they lived, which partly requires new functionalities.

The findings of the study also produced insights that should prove useful in both interface design, and the forthcoming system evaluation.

In terms of interface design, the reassessment process provided greater insight into how the individuals communicated, accomplished their tasks, formed relationships and made sense out of the information presented to them, based on a set of scenarios on existing or mock-up web based search interfaces.

The interface design team believes that some of these findings could be incorporated into the current Spirit interface, as follows:

- Provision of a help option explaining the usability of the interface and its functionalities.
- Labelling the language options for ease of understanding.
- Display of the relevance ranking criteria.
- Provision of a map toolbox to explore the map, with a descriptive note on its usage.
- Investigate the feasibility of showing topographic information on the map as a layer and, if feasible, provide it.
- Discrete representation of document footprints on the map by exploiting colour and symbols based on relevance rank.
- Improving the maps readability by appropriate selection of colours and symbology to represent the features.
- Brief descriptive notes to illustrate how refinement functionalities work.

In terms of the prototype evaluation, useful information can be yielded from the responses to the last question of the user sessions (see 3.2.3.3), which asked users what they thought were the most important aspects of SPiRiT. The responses mainly focus on SPiRiT's overall usability and provide ideas for the global evaluation of the prototype, independent of the functional evaluation of each component.

- For many users, the main point of SPiRiT is the rapidity and efficiency of having "everything" linked together on the same page (a map and the search results). It saves users from conducting two separate searches. An interesting evaluation criteria seems to be the time required for a user to complete his search.

- For many users, the most useful features are maps and interactions with maps. A high interactivity is desired. As several web sites already focus on map interactions, a relevant evaluation criteria could be the comparison of the map interactions facilities of SPIRIT and other web sites.
- Some users give priority to the spatial intelligence of SPIRIT and its location help. The proposed interactions for “step by step query refinement” are highly appreciated. The user friendliness and ease of use are also mentioned. This aspect could be evaluated by observing users interacting with the prototype to find some predefined spatial information: the number of required interactions, i.e. evaluation of how “direct” the user progression is compared to the “optimal” search process could be an interesting evaluation criterion.

References

[Balley, S., B. Bucher, D. Petrelli, A. Ruas, M. van Kreveld, M. Sanderson and M. Sester. (2002).] *User Requirements Specification, SPIRIT deliverable report D3 7101.*

[Ritchie, J and Spencer, L (1994)], ‘Qualitative data analysis for applied policy research’, in Bryman and Burgess, eds., *Analysing Qualitative Data*, London:Routledge, p173-194.

Appendix 1: User session documentation (First experiment)

Dear Sir/ Madam

Many thanks for volunteering; your participation will help us in designing a web based geographical information retrieval system. We are a group of European researcher working together on a common project, SPiRiT. Our final goal is to design it to meet user's needs.

The Set of activities you do, will allow us to understand better, how current geo-search engines and text search engines are used and perceived. You will receive some scenarios describing a situation where a person needs to search for geographical information and you could use a set of tools to solve the problem.

Before searching, you will be requested to fill in questionnaire and after the search to answer few questions on your experience with different tools.

This is roughly the schema of your participation lasting for 1 hour.

- Questionnaire (15 minutes)
- Self- Learning process of Some selected geo-search engines on the web.(15 minutes)
- 2 searching (30 minutes, 15 minutes each).

Please feel free to ask any information or clarification at any time of the evaluation.

We thank you very much for your co-operation.

The SPiRiT consortium

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You should now help us understanding how a geographical search service has to be designed on the bases of your judgement on currently available map services and search engines. Listed below are few scenarios that give a description of a situation and a goal to achieve. We request you to document your thinking process in each step, by writing it down, under the space provided. Please take some time to read the scenario and answer a few questions.

Scenario - I

You are planning your two week vacation in the Black Forest in Germany. You would like to go cycling thus have to identify the best rout cycling around. You would also include visits to small cities as well as a big city in your travel plan.

Possibly include in your tour a visit to hometown of Jan Ulrich, the winner of Tour de France, 1997.

- 1. Based on the Scenario given above. How do you wish to proceed? Which are the tools you think are useful?

- 2. Which Keywords would you use for searching?

- 3. How would you define your intermediate goals to reach your final objective? Please list the intermediate goals?

- 4. Do you prefer to use free text based search interface as a starting point or map based interface as a starting point?

- 5. Do you think the information provided above was clear enough, for you to identify your intermediate goals?

- 6. Please specify the queries formulated by you for the scenario and document your interaction during the search sessions? For e.g **Hotels in Zurich (Google)**,

Scenario- II

You are planning to spend a vacation on the Mediterranean coast of France and wish to stay in reasonably large city with good restaurants, commercial shopping centres. You would prefer the accommodation in a city on the coast since you wish to practice windsurfing in a nearby place. You wish to hire the equipment for windsurfing thus you need a fully equipped beach service.

- 7. Based on the Scenario given above. How do you wish to proceed? Which are the tools you think are useful?

- 8. Which Keywords would you use for searching?

- 9. How would you define your intermediate goals to reach your final objective? Please list the intermediate goals?

10. Do you prefer to use free text based search interface as a starting point or map based interface as a starting point?

11. Do you think the information provided above was clear enough, for you to identify your intermediate goals?

12. Please specify the queries formulated by you for the scenario and document your interaction during the search sessions?

Scenario- III

You want to go on a trip to the Swiss Alps with your family. You have heard from a friend that there is some nice mountaineering near a place called Agile, and also some pleasant walks that you could do with your children (who are aged 7 and 9 respectively).

You want to book a chalet to stay in with your family, and also get information about mountaineering routes, rock climbing and hiking in the area. You have heard of one mountain called Les Diablerets with nice landscapes.

13. Based on the Scenario given above. How do you wish to proceed? Which are the tools you think are useful?

14. Which Keywords would you use for searching?

15. How would you define your intermediate goals to reach your final objective? Please list the intermediate goals?

16. Do you prefer to use free text based search interface as a starting point or map based interface as a starting point?

17. Do you think the information provided above was clear enough, for you to identify your intermediate goals?

18. Please specify the queries formulated by you for the scenario and document your interaction during the search sessions?

Appendix 2: User session documentation (second experiment)**2.1. User briefing****SPIRIT User Evaluation Session**

Thank you for offering to participate in this study. The study is an important part of an EU-funded research project called SPIRIT. The aim of the project is to create a search engine that enables users to find information relevant to specific geographical locations. Your assistance in this study will help to give us a better idea of what features should be included in the final system.

During the study, we will ask you to imagine a scenario in which a user is searching for specific information using SPIRIT. We will then show you a series of slides that represent what the user may see when they use the system. The slides will change as the user interacts with the system.

After displaying each slide, we will ask you to read a number of questions relating to what you have just seen. Please write your answers in this booklet. It would be extremely helpful to us if you would answer in as much detail as possible. Once you have completed the answers on each page please await instructions from the experimenter before turning to the next page.

The session will last approximately 1 hour and a half. After the slide show, there will be an informal discussion about the system in which you will have the opportunity to make any further comments.

If you have any questions, please ask the experimenter now. Otherwise, please begin by turning to the next page and completing the questionnaire.

Thank you for your participation,

The SPIRIT consortium.

2.2. Global slide show, questions and comments

2.2.1. Slide 1

SPIRIT : WP7 - Evaluation of user requirement Document for the moderator :

This document depicts how to comment on the ppt show presenting SPIRIT mock up
(the slide appearing on the page of the story board should be the same as that on the ppt show visualised by users)

Some pieces of advice for the moderator :

- text in Times is supposed to be read (possibly rephrased but the content should be told to users)
- text in Arial is comment to you
- *text in Times italique* is questions written in user forms.
- don't hesitate to answer questions and to let people ask questions
- take note of every thing people say.

[introduction, Slide 1 of the ppt show] :

Thank you for being here.

We need your help in the context of a research project. The objective is to design a search engine called SPIRIT, with geographical capabilities. For instance, it should understand what is spatial in your query like «in central Europe» and it should retrieve documents relevant to this query (whereas a classical search engine will retrieve only documents where « central Europe » appears.)

What we want to do now is assess the relevance to users like you of some functions we want to give to this search engine. To do this, instead of going through a list of textual descriptions of these functions we decided to illustrate them through a story board (/scenarios/mocks ups,...).

We will thus show you a mock up of what the SPIRIT interface could be and a sequence of user interactions on this mock up that tell stories (use cases). Importantly enough, these mocks up don't correspond to snapshots of a system we have interacted with. They have been drawn separately. There may be some inconsistencies left. Sorry in advance.

There will be actually 3 different stories "told by" these mocks up during which you will see imaginary people (Mike, John, Janet) using SPIRIT. We gave them names for practical reasons to refer to their use cases but please let this not induce you in thinking we want to know what these people would think if they were real. What we want to know is what each of you think.

This mock up is a tentative design of a user interface for SPIRIT and we will be glad to have also your opinion about it.

So, while we will show you the story board we will also ask you to answer questions related to the relevance of functions or to the interface design.

Please, wait until I tell you before browsing the user forms I am giving to you [here, handle the user forms].

You will find questions on them that I will also read to you. Please write your answers if you can and if not tell them to me.

Don't hesitate to write extra-comments on your Form or to ask questions if you need to.

Yet, after going through these mocks up and questions, we may have a less formal discussion about the search engine and I will transmit your comments to the SPIRIT team -so if you have a comment to make, if you may wait until this discussion to tell it it would be nice-

This session should last around 1h30, possibly more if there are lots of questions. Tell me now if you would like me to limit the time.

Now look at the first page of the user form. It is a questionnaire about yourself. Please feel free to answer or not.

[leave time to fill in the questionnaire]

Now let us begin to see these mocks up.

2.2.2. Slide 2

Mike scenario

Something

Somewhere

Slide 2

Oral comment:

Here is SPiRiT homepage.

The first person you will see using SPiRiT is Mike. He is planning to go on a trip to a place called Les Diablerets in the Swiss Alps. He connects to SPiRiT Web site to find info to prepare his trip.

Question :

5- *What do you think of this interface? Did you expect something very different?*

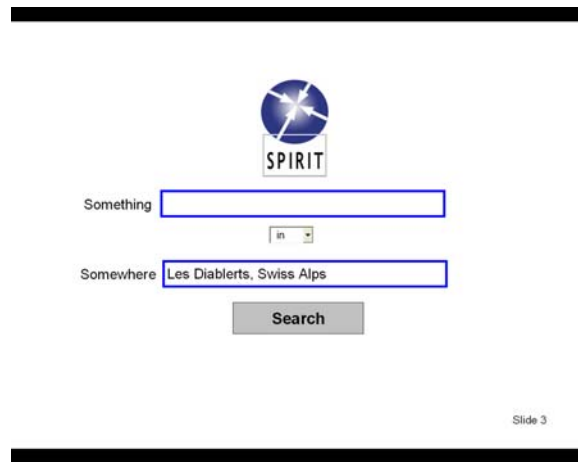
6- *Suppose you are in the same situation as Mike is, what query would you express on this interface?*

7- *What answer would you expect?*

* Note to the moderator : Replace Mike by a typical name in your country.

2.2.3. Slide 3

Mike scenario



Oral comment:
This the query that Mike submits.

Question :
8- If you did not answer the preceding questions, what type of answer would you expect SPiRiT to give to this query?

* Note to the moderator : users may ask you why Mike put "Les Diablerets" in the "somewhere" box. Answer them that some geographic features may be considered as places (and as things in the same time).

2.2.4. Slide 4

Mike scenario

Oral comment:

This the answer that Mike gets.

Question :

9- How do you interpret this display? Are there any area you don't understand?
10- What would be your next action on such an interface?



Oral comment:

SPIRIT has been able to recognise the place called Les Diablerets.



Questions :

11- Do you think this locating functionality is very important, important, useful, non useful?
Especially for the following types of places :
- Luxembourg (country) :
- Auvergne (region) :
- rue de l'Eglise, Paris (street name):
- F- 75015 (zip code):
- La Tour Eiffel (site of interest):

Oral comment:

Mike has misspelled the place name but SPIRIT still understands his query.

Questions :

12- Is this spelling checking functionality very important, important, useful, non useful?

Oral comment:

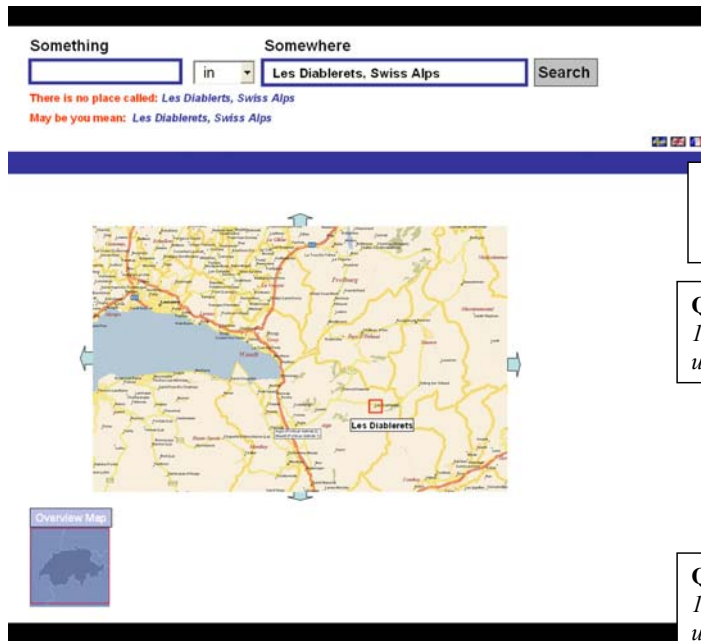
If there were several places called "Les Diablerets" then SPIRIT would propose to disambiguate from them.

Questions :

13- Is this disambiguation functionality very important, important, useful, non useful? Should SPIRIT try to propose results for all interpretation or launch a disambiguation process (through other place names or through a map)?

2.2.5. Slide 5

Mike scenario



Oral comment:
Mike has written "Ski resort" in the something place AND has clicked on search.

Question :
14- How do you interpret this layout? Are there any area you don't understand?

Oral comment :
SPiRiT proposes to retrieve documents where "ski resorts" is called another way like "hotel" "mountain hut".

Questions :
15- Is this functionality very important, important, useful, non useful?

Oral comment :
When possible, a URL is associated to a location on the map.

Questions :
16- Is this functionality very important, important, useful, non useful?

* Note to the moderator : There are other functionality like bookmarking answers (checkbox on the right of each url) or "find in results" but we will see them further on.
When you click on "hotels" for instance, SPiRiT looks for hotels in Les Diablerets.

2.2.6. Slide 6

Mike scenario

Oral comment:

To refine the query, Mike draws an area of interest on the map AND clicks on search.

Something Somewhere
Ski resorts in Les Diablerets, Swiss Alps Search Results Page 1 2 3 4 5 >>

Similar results can be found with : hotels, chalets, skiing, mountain huts, see all.

Searched the web for : Ski resorts in Les Diablerets, Swiss Alps Results 1 - 3 of about 57,300.

0- Bookmarks

- Swiss Chalet family holidays rental Villars Alps Switzerland ... Close to the best Alpine ski resorts in the Lake Geneva/Vaud Alps regions of the Swiss Alps. Villars (3 km), Les Diablerets (12 km), Morgins (15 km), Champéry www.swiss-chalet.net/ - 32k - 3 Oct 2003 - Cached - Similar pages
- Ski resorts Switzerland - travel distances from Swiss chalet ... of Les Poses-sur-Bex, high up in the Swiss Alps (Vaud Alps ... skiing holidays, with easy access to the popular ski resorts of Villars, Les Diablerets. www.swiss-chalet.net/Skiing_links.html - 16k - Cached - Similar pages [More results from www.swiss-chalet.net]
- Les Diablerets ... Skiswitzerland.com, skiing in Switzerland Swiss ... skiers will find just about any diversion that comes to mind. Les Diablerets www.skiswitzerland.com/lesdiabl/fullstory.htm - 14k - Cached - Similar pages

Results Page 1 2 3 4 5 >>

Find in Results Slide 5

Questions :

- 17- What do you think of using the map to express an area, is it very important, important, useful, non useful?
- 18- Would you prefer other ways like select dots, pick a place name, express a geographic constraint like near the lake, near the ski slopes?

2.2.7. Slide 7

Job scenario



Something

Somewhere

Oral comment:

The next person you will see using SPiRiT is John (/Michel/...)*. He is looking for a job in “neuro surgery” in Spain.

Question :

- 19- *In this situation, what query would you express on this interface?*
- 20- *What answer would you expect?*

* Note to the moderator : Replace John by a typical name in your country.

2.2.8. Slide 8

Job scenario



Something

Somewhere

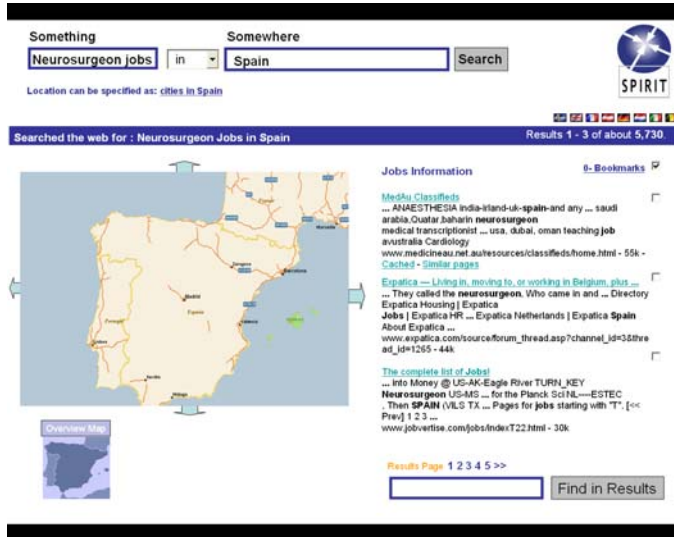
Oral comment:

This is the query that John submits.

Slide 9

2.2.9. Slide 9

Job scenario



Oral comment:
Here is SPiRiT's answer.

Question :
21- How do you interpret this layout? Are there any area you don't understand?

Oral comment:
SPiRiT proposes to refine the query as "nerve surgery job in a main city of Spain".

Questions :
22- What do you think of this functionality, is it very important, important, useful, non useful? Would you rather specify as "in North Spain"?

2.2.10. Slide 10

Job scenario

Oral comment:

John has clicked on the proposed refinement “cities in Spain”.

Questions :

23- What do you see on the new layout? What do you think of this?

The screenshot shows the SPiRiT search interface. At the top, there are search filters: 'Something' with the text 'Neurosurgeon jobs' and 'in' selected, and 'Somewhere' with 'Cities in Spain' selected. A 'Search' button is to the right. Below the filters is a navigation bar with social media icons and the SPiRiT logo. A blue banner indicates the search results: 'Searched the web for : Neurosurgeon Jobs in cities in Spain' and 'Results 1 - 3 of about 5,730'. The main content area features a map of Spain on the left with several colored markers indicating job locations. To the right of the map is a 'Jobs Information' list with three entries, each for a city: Madrid, Barcelona, and Sevilla. Each entry includes the job title 'Neurosurgeon, Ophthalmist, Orthopedic, Cardiology,Physicians, Nurse, Nurse Assistant jobs' and a link to the respective city's MedClassifieds website. Below the map is an 'Overview Map' and a list of cities to highlight: Madrid, Barcelona, Sevilla, Valencia, and Zaragoza. At the bottom, there is a 'Results Page' navigation (1 2 3 4 5 >>) and a 'Find in Results' button.

Oral comment:

SPiRiT has listed the main cities of Spain where there were relevant jobs.

2.2.11. Slide 11

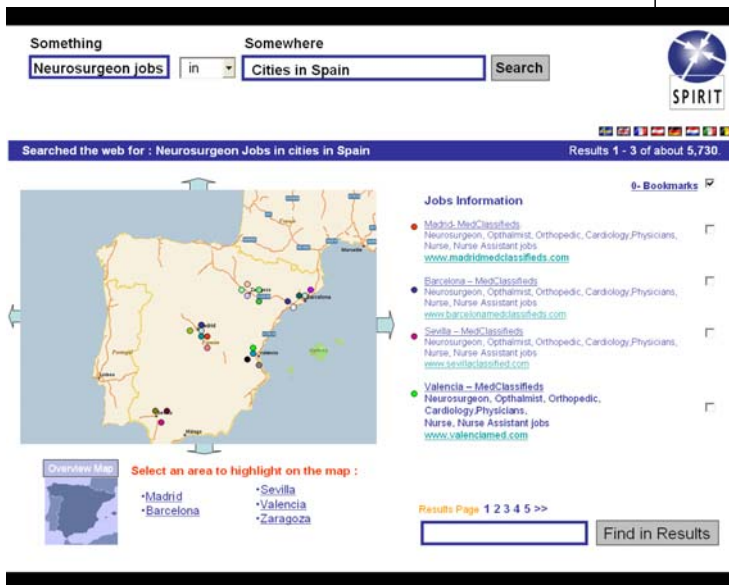
Job scenario

Oral comment:

John has written Madrid in the somewhere box AND has clicked on search.

Questions :

24- Do you have comments about these required interactions to reformulate a query, would you rather have clicked on the map of Spain on the preceding slide?



2.2.12. Slide 12

Job scenario

Something in

Searched the web for : Neurosurgeon Jobs in Madrid, Spain Results 1 - 3 of about 5,730.

Jobs Information

- Madrid - MedClassifieds**
Neurosurgeon, Ophthalmist, Orthopedic, Cardiology Physicians,
Nurse, Nurse Assistant jobs
www.madridmedclassifieds.com
- Barcelona - MedClassifieds**
Neurosurgeon, Ophthalmist, Orthopedic, Cardiology Physicians,
Nurse, Nurse Assistant jobs
www.barcelona-medclassifieds.com
- Sevilla - MedClassifieds**
Neurosurgeon, Ophthalmist, Orthopedic, Cardiology Physicians,
Nurse, Nurse Assistant jobs
www.sevilla-medclassified.com
- Valencia - MedClassifieds**
Neurosurgeon, Ophthalmist, Orthopedic,
Cardiology Physicians,
Nurse, Nurse Assistant jobs
www.valencia-med.com

Results Page 1 2 3 4 5 >>

Oral comment:
John bookmarks sites of interest to him.
This means that SPiRiT will memorise them through the session.

Questions :
25- Do you think this bookmarking facility is very important, important, useful, non useful?
26- What other type of information could be memorised?
(for instance, the maps, the user selections on maps,..)

2.2.13. Slide 13

Real Estate scenario

Oral comment:

The next person you will see using SPiRiT is Janet (/katherine/...)*. Janet has decided to go to university in Sheffield, thus she is searching for an accommodation.




The image shows a search interface for the SPiRiT system. At the top center is the SPiRiT logo, which consists of a blue circle with a white starburst pattern and the word "SPiRiT" in a white box below it. Below the logo are two input fields. The first field is labeled "Something" and is empty. Below it is a small dropdown menu with the text "in" and a downward arrow. The second field is labeled "Somewhere" and is also empty. Below these fields is a grey button with the word "Search" in black text.

Question :

27- Suppose you are in Janet's situation, what query would you express on this interface?




Real Estate scenario



Something

in

Somewhere



Oral comment:
This is the query that Janet submits.

Question :
28- Suppose you are Janet, what type of answer would you expect?

2.2.15. Slide 15

Real Estate scenario

Student house renting in Sheffield UK

Similar results can be found with: [studio](#), [hall of residence](#), [self catering flat](#), [shared house](#)

Searched the web for : student house renting in Sheffield UK Results 1 - 3 of about 57,300

Central Sheffield

Wakley Broomhall Crooks Botanical gardens

City Centre - S1 Broomhill - S10 Crooks - S10 Wakley - S7 Broomhall - S10 Botanical gardens - S10

Results 1 2 3 4 5 >>>

Find in Results Slide 17

Renting Information

- Sheffield Student Accommodation, Sheffield, UK, Flats, Houses**
... Larger private housing schemes and apartment blocks. Individual rooms listed
www.accommodationforstudents.com/Sheffield.asp - 31k -
- house rent sheffield**
... Student Accommodation Houses to rent in Sheffield. Houses for students in Sheffield Student housing. Student accommodation in Sheffield
www.lamphurst.co.uk
- house rent sheffield [Toxic Lemon: rent]**
... Student accommodation, house share and rooms for rent in Sheffield, South Yorkshire.
www.toxiclemon.co.uk/student-house-rent-sheffield.htm - 43k -

Oral comment:

Here is SPiRiT's answer.

Question :

29- How do you interpret this layout ?

Oral comment:

SPiRiT proposes to specify the query : which type of accommodations (e.g. bedroom in student house, study in hall of residence, self-contained apartments, ...), or which area in the city.

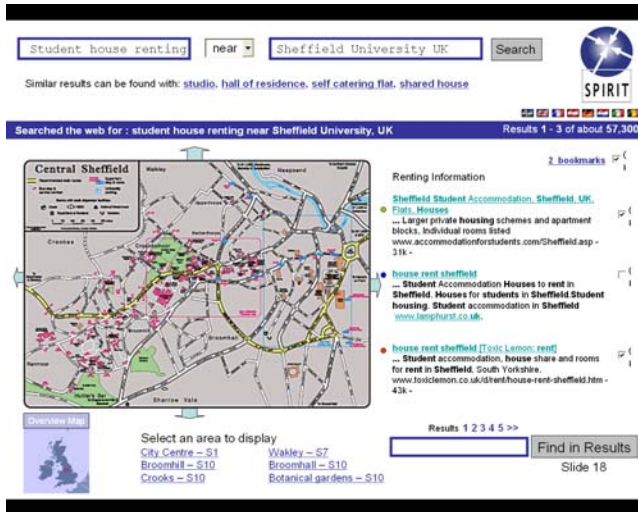
Question :

30- What would be your next action ?

31- Janet wants to refine her query as "student house renting near Sheffield University, how would you do this?"

2.2.16. Slide 16

Real Estate scenario



Oral comment:
Here is how Janet did. She changed the terms of the query boxes.

Question :
32- What spatial relationships should be proposed in the menu box, how important are the following :

- in
- near
- within x km
- within x mn drive
- in walking distance from
- outside
- north of

33- Do you think these terms are fuzzy to express a spatial relationship?

34- How would you expect the result to look like?

2.2.17. Slide 17

Real Estate scenario

The screenshot shows the SPiRiT search results for 'Student house renting near Sheffield University UK'. The search criteria are 'Student house renting' and 'near Sheffield University UK'. The results are ordered from closest to farthest. The first result is 'Sheffield Student Accommodation', which is available for rent from July 2004 for the student year until July 2005 for a rent of £695. Other results include 'Houses to rent in Sheffield' and 'Student Accommodation UK'.

Oral comment:
Here is SPiRiT's answer to Janet's refined query.

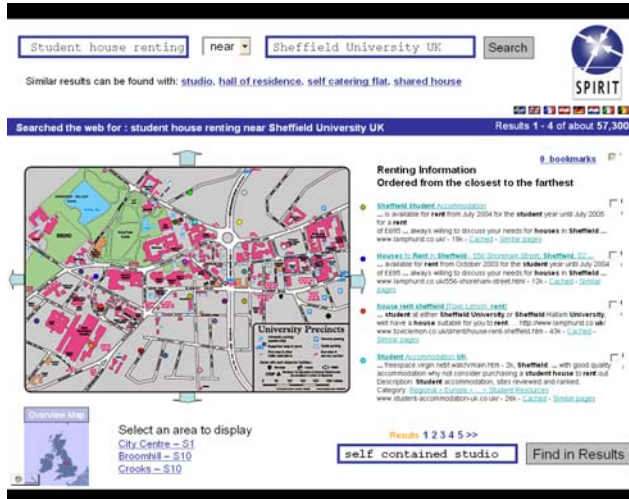
Question :
35- How do you interpret the resulting layout, what do you think of it ?

Oral comment:
SPiRiT result has been ranked respect to the distance from the university.

Question :
36- Do you think this criteria is a good one? Do you have other ranking criteria to suggest?
37- What would you do now if you were Janet?
38- Janet wants to refine her query as "self contained studio". How would you do it?

2.2.18. Slide 18

Real Estate scenario



Oral comment:

Here is how Janet did (she used the find in results query button).

Question :

39- *What do you think of this ?*

40- *Would you expect other features to appear on the map?*

- *the area within 10mn walk from the uni :*
- *the area within 20mn drive from the uni :*
- *the subway and bus lines :*

...

2.2.19. Slide 19

Questions :

Now that you have a clearer idea of what SPIRIT is going to be like, please tell us about your own scenario :

41- What would you like to ask to SPIRIT?

How would you like to express it (a process that may include several interactions)?

What type of answer would you expect?

42- To you, what are the most important aspects of SPIRIT?

Appendix 3: User session raw data

Slide 2:

5. What do you think of this interface? Did you expect something different?

(IGN1) "Ugly. « something » and « somewhere » are bad labels. He does not see what they imply. He expects a single field and textual explanations. He feels lost, he expects his first query will just be test and won't give a good result »

(IGN2) " It's very minimalistic. I didn't expect anything actually."

(IGN3) " Simple and original"

(IGN4) "Not very attractive. The "something" notion is difficult"

(IGN5) " It looks (too ?) easy. What does "smth" means ?"

(IGN6) "Easy to use, but I would rather expect a map based research with a zoom on a precise area"

(HANN_1) yes. Seems that there is no relation to a map – it looks like a business search site or the yellow pages. I miss the geographical background (e.g. a map)

(HANN_2) Difficult to understand "Something"-field. What does it mean? If it will be possible to leave "Something" empty, then everything will be fine.

Are there opportunities to combine a search of more than one place with "AND" or "OR"?

(HANN_3) It is okay. Interface looks similar to Google and therefore it is familiar.

(HANN_4) There must be a "help"-button in the interface with the explanation of the use.

(USFD1) "Fine. Seems quite clear. Didn't know what to expect, maybe a map"

(USFD2) "It looks clear. Easy to understand where to put everything. I'm clear what each box is for. It's easy on the eye".

(USFD3) "Clear. I thought it would be more like Google. I like interfaces that are minimal like this"

(USFD4) "The labels are a bit vague. I'm not sure if either box will accept a country name. 'Something' is too vague. I would imagine a city/country label and different options for this, which you can select".

(Cardiff_1) Clear, uncluttered, easy to use, but not sure what is "Something" box is for.

Normally, expects to see one search box.

(Cardiff_2) Quite plain.. this may be good, but it makes me think about how professional this is? You expect a more professional look, with more colours and graphics.

(GIUZ1) "If the question is to find something at a place, then the interface is exactly right. In case, the question is how to get there('Planning a trip'), there I would expect a different interface, preferably a map based interface'

(GIUZ2) "It looks fine to me. I didn't really expect something different. I would like to have the option to point out 'the location' on a map"

(UU_1) "It looks to me that you are able to do very specified searches. I did expect something like Google"

(UU_2) "It is very clear, not too much pictures and stuff you're not going to use anyway"

6. Suppose you are in the same situation as Mike is, what query would you express on this interface?

(IGN1) "sth : hotel, smw : diablerets"

(IGN2) " I have no particular idea"

(IGN3) "smth = itinerary, smw = Swiss Alps"

(IGN4) "smth= to ski, smw = Diablerets"

(IGN5) "smth=to ski leisure hotel, smw = dialberets suisse alps"

(IGN6) "smth = travel, smw = Alpes suisses diablerets"

(HANN_1) Insert a geographical name

(HANN_2) I would type the name of the place "Les Diablerets" in the "Somewhere"-field and also the Swiss Alps. Nothing else. Nothing into the "Something"-field.

(HANN_3) I would type the name of the place "Les Diablerets" in the "Somewhere"-field and also the Swiss Alps. Nothing else. Nothing into the "Something"-field.

(HANN_4) I would type the name of the place "Les Diablerets" in the "Somewhere"-field. Nothing else. Nothing into the "Something"-field.

(USFD1) "accommodation IN Switzerland and the place name"

(USFD2) "hotels IN Les Diablerets, Swiss Alps"

(USFD3) "Les Diablerets IN Switzerland"

(USFD4) "Les Diablerets IN Switzerland"
 (Cardiff_1) holiday in Les diplarettes + Swiss Alps
 (Cardiff_2) Somewhere: Le Diplarete in Swiss Alps.
 (GIUZ1)"Pension in Les Diablerets"- Pensions are cheap hotels with bread and breakfast(Usually used in german speaking countries.
 (GIUZ2)"Snowboarding in LesDiablerets"
 (UU_1)"ALPS in SWISS"
 (UU_2)"TRAVEL SWITZERLAND in LES DIABLERETS"

7. What answer would you expect?

(IGN1) "A list of hotels. It should be predefined because it is a really basic query. Information like room rate should be directly readable in the links summary without any click."
 (IGN2) " A list of results sorted by reliability. One link and an image next to one of them"
 (IGN3) "access to the Diablerets"
 (IGN4) "how to get there, presentation of the palce (main activities, hours and rates for skiing, accommodation...)"
 (IGN5) " a list of places or activities with check boxes : accommodation, leisure, map"
 (IGN6) "Hike tracks and itineraries, a map, tourism office, cultural center..."
 (HANN_1) List of Internet sites including this phrase
 (HANN_2) I would expect a map of this region, which I can use interactive to zoom in and out. And a marked overview, where this region is located in an adequate part of the earth.
 It would be fine, if there are also buttons of interest for main items like culture, traffic, social relations, history, language, population, administration. I expect a complete information about the place.
 (HANN_3) I would expect information about the place in the Swiss Alps, it means about history, activities, the location at all. The information should pop up as links to the web pages.
 I don't expect a map or something like this.
 But it would be a great help, if the links could be marked that have integrated a map on the web page (to know before clicking on it).
 (HANN_4) I would expect a counter question from the search engine regarding the "Something"-field, because I did not type something in.
 (USFD1) "Hopefully very specific links for accommodation in that town. A Google-type list of results gauging how well they fit search parameters"
 (USFD2) "List of links to hotels in that location, in Google format"
 (USFD3) "I'd expect a list of results about Les Diablerets"
 (USFD4)"If you specify a place, then a map, and the system will ask where you are then determine the distance between you and the destination and give you airport information, tourist information, etc."
 (Cardiff_1) hope to get back information on the following: Accommodation info (from Bed and Breakfast to Hotels), Places of interest (museums, ..), How to get there, including Car Hire services, as well as links to travel companies which can organise it all for you, and also Tourist information office numbers there.
 (Cardiff_2) information on hotes, Skiing resorts, day trips, restaurants, bars, local tourist information, and general advise on the area.
 (GIUZ1)

- "a list of pensions according to some criteria (price, amenities..)"
- "a map of Les Diablerets with symbols symbolizing pensions (thematic maps)

 preferably both.
 (GIUZ2)

- "Situation plan(s) of ski runs (as a map)"
- snowboard renting facilities.
- Accommodation information, e.g. hotels, apartments.
- General situation plan of Les Diablerets
- Public access information.

 (UU_1) "I expect a lot of sites to pop up."
 (UU_2) "A list with topics related to the village I'd like to go to, like tourist office, pictures, travel stories.... "

Slide 3:

8. If you did not answer the preceding questions, what type of answer would you expect SPIRiT to give to this query?

(IGN1) "A geogaphic map and predefined links of information on the region (tourism office, commercial activities...)"
 (HANN_1) a website of Les Dialberts
 (HANN_2) see above
 (HANN_3) see above
 (HANN_4) see above

(USFD1) "As they didn't type anything in the 'something' field, it would search for anything in that area. Maybe it would show an atlas page"

(USFD2) "Every single link relating to that place or an error message saying 'there is no text in the something field'"

(USFD3) "Same as for my query"

(USFD4) "A map"

(GIUZ1) "Expect a map of Les Diablerets with symbols symbolizing pensions (thematic maps)"

(GIUZ2) "An interactive map with links to the textual information(categorized list of results)"

Slide 4:**9. How do you interpret this display? Are there any area you don't understand?**

(IGN1) "The flags : why and why now ? Is it to choose a language or to locate the country of the map ?"

The map comes as an answer. He would have preferred a link series with their nature (e.g map or web site) and click on his choice.

He feels lost : normally when you don't put any criteria in the "sth" you don't restraint the search and you should have plenty of results. How to make the answer more general ? How to express the query "everything about les diablerets" ? "

(IGN2) " The user is shown a map presenting the location of the place, and the area around."

(IGN3) "Very simple. A representation of the area corresponding to my query"

(IGN4) "geographical situation of the place. No problem"

(IGN5) "OK"

(IGN6) "Text too small. The scale is lacking. I would like links with other web sites"

(HANN_1) no - I think I understand everything.

(HANN_2) regarding the interpretation: everything is clear. What happened is that Mike had a typing mistake and the search engine proposes the right place name. And this place is shown on the map, emphasized by a red square. An overview map is also shown.

I would assume that in SPIRIT a map is always shown in the beginning before showing any other textual links. That means immediately after typing in a place a map is served.

But one missing: the connection between the big and the overview map. Where exactly is it located?

Is the map interactive? Can I scale up the map by clicking? It would be nice.

(USFD1) "The map is proposing another place to the one Mike proposed. I don't understand the flags. I'm not sure if the overview map is helpful. If you click on the red square, that would be the search parameter"

(USFD2) "You've searched for something, and haven't quite spelt it right. There is a map with the location you searched for"

(USFD3) "It's quite good. I don't like receiving thousands of results. It's very clear"

(USFD4) "The red square shows the town. The whole thing is a map of Switzerland. It's not clear though, as I would expect the whole map to be displayed. I want to see the whole map and then I would scale it"

(Cardiff_1) Yes, I think I understand the graphics and that the arrows allow me to move round the map

(Cardiff_2) It is a map of where my location is, and I assume I can zoom in.

I understand everything.

(GIUZ1) "No problem interpreting the layout, Apparently the place name was misspelled and SPIRIT proposes a solution"

(GIUZ2) "Liked the layout. Expect an additional level of aggregation e.g. displaying the continent. Probably this depends on the level of details or the region of interest, information about the actions I am supposed to do is missing. Missing map tools likes : Zoom in /out"

(UU_1) "It looks very clear to me – I don't like it busy. "

(UU_2) "I understand everything, it's very clear. Also useful that it gives you the right name of the village"

10. What would be your next action on such an interface?

(IGN1) "He doesn't want to restraint the search. Now he would delete "suiss alps" in the query, just to see"

(IGN2) " I would click on the small red square."

(IGN3) " I would click on "diablerets" on the map"

(IGN4) " maybe a zoom but the interface is not explicit"

(IGN5) "I would write smth in the "smth" box. Or I would click on "Diablerets" on the map to enlarge."

(IGN6) "I would click on the situation map (bottom left) to zoom out"

(HANN_1) zoom, query the physical map , this means: information about terrain such as height, relief, mountains etc.

(HANN_2) Click in the map. Comment: there are no other options.

(HANN_3) Click in the map. Comment: there are no other options.

(HANN_4) Click in the map. Comment: there are no other options.

(USFD1) "Click on the red square"

(USFD2) "Type something in the 'something box' and press search. I would assume it would automatically correct the place name. It should auto-correct"

(USFD3) "Click on the red square and expect information back"
 (USFD4) "Click on the square. This should enlarge it and give me more detail. I expect the square is clickable"
 (Cardiff_1) Not sure .. As I have not yet got any information, I suppose, I need to provide more information in the Something box.
 (Cardiff_2) Click on the graphical map on the highlighted spot to get more information on the area. I expect to get a map of the area back.
 I am not sure what the overview map is for?
 (GIUZ1) "I would hit search again or try to click on the highlighted window region (red frame) to extract more information"
 (GIUZ2) "Would prefer mouse click somewhere in the highlighted window region(red frame) to extract more information around Les Diablerets
 (UU_2) "I'd try to click on the map to see if there are more details"

11. Do you think this locating functionality is very important, important, useful, non useful?

(IGN1) "fundamental for all place types"
 (IGN5) "very important"
 (IGN6) "Useful but it already exists"
 (HANN_1) important
 (HANN_2) I really don't know, what you mean. It is the task of a search engine to find this typed name. If SPiRiT would be not able to do so, there would be even no sense in the application.
 (HANN_3) very important. But what happens, if there are many places called the same? Several Maps? Or several links to reduce the ambiguities?
 (HANN_4) very important.
 (Cardiff_1) Yes it is important, but I think it depends on what you are looking for and why.
 (Cardiff_2) Very useful. For example if you are staying in a hotel in a certain street, you will want to know what is around in the surrounding area.
 (GIUZ1) "Important and useful "
 (GIUZ2) "Very Important"
 (UU_1) "very important"
 (UU_2) "useful"

Especially for the following types of places :

- *Luxembourg (country) :*
- *Auvergne (region) :*
- *rue de l'Eglise, Paris (street name):*
- *F- 75015 (zip code):*

<i>La Tour Eiffel (site of interest):</i>	<i>Luxembourg (country)</i>	<i>Auvergne (region)</i>	<i>rue de l'Eglise, Paris (street name)</i>	<i>F- 75015 (zip code)</i>	<i>La Tour Eiffel (site of interest)</i>
IGN1	fundamental	fundamental	fundamental	fundamental	fundamental
IGN2	useful	useful	Very important	Useful	Very useful
IGN3	Useful	Useful	Useful	Useful	Useful
IGN4	Useful	Useful	Useful	Non useful	Useful
IGN5	Non useful	Non useful	Useful	Non useful	Useful
IGN6	useful	useful	useful	useful	useful
Hann1	<i>non useful</i>	important	Very important	Very important	Very important
Hann2	useful	useful	useful	useful	useful
Hann3	<i>useful</i>	important	Very important	important	<i>useful</i>
Hann4	<i>useful</i>	important	Very important	Very important	Very important
USFD1	Very important	Very important	Useful, but I would be more interested in an area	Useful, mainly for directions	Very important if planning a day out, for example
USFD2	Very important	Very important	Useful. You may as well include this, if the system knows street names	Useful. Depends if the user wants this. It could slow the system down	Possibly useful for more famous landmarks
USFD3			Useful. People don't	Useful	Maybe. Probably not

			just want to see it on a map		as useful as street names, but if you went down to street level you would expect to see it anyway. Useful for finding specific places
USFD4	Very important	Depends on the country	Clicking on the red square should give me more detail about the city. I would assume this would be included		I would search for a country, then click on a city, then browse a street map which includes post code information and sites of interest
Cardiff_1	Yes, I think it would be really important to search using any of the above, as I am not always sure of the exact information	important	important	important	important
Cardiff_2	Very important, because you may have only some information or very detailed information	Very important	Very important	Very important	Very important
GUIZ1	Importance depends on question and context of answer				
GUIZ2	not useful	useful	Nout useful	useful	Very important
UU1	very important	very important	very important	very important	very important
UU2	non useful				If you type in "Eiffel tower" – how detailed is the map you get? If it only shows a global map of France, it is not useful, because I know already that the Eiffel tower is in Paris

12. Is this spelling checking functionality very important, important, useful, non useful?

(IGN1) "essential"

(IGN2) " Very important and very useful."

(IGN3) "important"

(IGN4) very important, but we should be clearly notified that the information has been automatically changed in the text box"

(IGN5) " important, but we must be able to modify the new proposal if needed"

(IGN6) "important"

(HANN_1) very important

(HANN_2) very important

(HANN_3) very important

(HANN_4) very important

(USFD1) "Definitely useful because it's quite easy to misspell place names"

(USFD2)"Very important, especially for dyslexics"

(USFD3) "The system should still find the place even if it is spelt wrong"

(USFD4) "Very important, especially for place names, because of language differences"

(Cardiff_1) Yes really important

(Cardiff_2) Yes really important, so I expect a list of possible names back to choose from. I quite often I use this function. Especially with the name of European cities when I am not sure about the exact spelling.

(GUIZ1)" Very important"

(GUIZ2) "Very important"

(UU_1) "very important"

(UU_2) "very important"

**13. Is this disambiguation functionality very important, important, useful, non useful?
Should SPiRiT try to propose results for all interpretation or launch a disambiguation process (through other place names or through a map)?**

(IGN1) "useful. First launch disambiguation process"

(IGN2) « It's very useful. It's a good thing to show the most probable interpretation, but there should be a link somewhere to a list of other interpretations.»

(IGN3) « Useful. SPiRiT should propose results for several interpretations »

(IGN4) « very important. SPiRiT should give results for each interpretation »

(IGN5) « Useful and important. SPiRiT should first disambiguate and then propose results »

(IGN6) « Very important. SPiRiT should disambiguate first »

(HANN_1) very important

(HANN_2) very important. I expect first a process to specify the place name, preferable as a textual query (place names in ...) of the search engine.

(HANN_3) First SPiRiT should list all options without disambiguation process.

(HANN_4) Important. I expect first a process to specify the place name, preferable as a textual query (place names in ...) of the search engine.

(USFD1) "Very important, because there could be a remote village in some other country with the same name as the user's incorrect spelling. It should say 'did you mean this?' and display a list of links with place name, region and country"

(USFD2) "Very important. It should say 'do you mean' then give the place name, region and country, and the user can then click on the correct one"

(USFD3) "Good. Very important. It should say 'there are several places called Sheffield... Sheffield, UK, England then Sheffield, USA, etc.' and just list the places. You would probably know where it was"

(USFD4) "Very important. It should list other place names, all of which should be clickable. I'm using geo sites at the moment that do this and it is very useful"

(Cardiff_1) Yes very important, but I do not want to ask me if the location is clear from my input.

(Cardiff_2) Very important. I expect a drop-down list to choose from.

Cf. Mapquest gives all potential solutions without trying to disambiguate

(GIUZ1) "The Less choices the better, disambiguation is important, the user will get sidetracked if presented with too many choices"

(GIUZ2) "it is a very important functionality"

"disambiguate by listing- listing should contain relevant spatial information such that the user can decide which place is the correct one"

(UU_1) "a) important. b) Difficult question – depends if I know already exactly what I want or not. If I do, I'd like to have a disambiguation through a map"

(UU_2) "a) very important b) launch the process by showing a map"

Slide 5 :

14. How do you interpret this layout? Are there any area you don't understand?

(IGN1) "I start understanding how it works : what and where are not additional criteria, they are not correlated.

Points on the map are places of hotels. If it works it is really interesting

What do words in bold mean ?"

(IGN2) " It's very clear"

(IGN3) "Easy to interpret. The area is too small"

(IGN4) "It shows the different skiing sites in the station. Colours signification and how to choose language are not very clear"

(IGN5) "these are web sites about the different skiing zones. What is this cloud of coloured dots ?"

(IGN6) "all is clear. On the right it is a classical textual search. Problem : several points have the same colour."

(HANN_1) I am not sure about the "Bookmark – Checkbox" !

What means "cached" at the end of every link in the (query) result list ?

(HANN_2) I interpret the different colours of the points in the map as different categories of ski resorts, like green for hotels, red for youth hostels and so on.

Are the similar results like hotels etc. already included in the result list (because SPiRiT has done a semantic reasoning e.g. ski resort = hotel) or is it only a proposal to click on it and to get a result list only for hotels then?

(HANN_3) Very positive: SPiRiT has recognised the "ski resort" as a accommodation and proposes to search also for similar facilities like hotels and so on.

It was not obviously from the beginning, that there is a connection between the points in the map and the points belonging to the link

Moreover the colours are difficult to distinguish. Imagine there are fifty results....

(HANN_4) I interpret the different colours of the points in the map as different categories of ski resorts, like green for hotels, red for youth hostels and so on.

(USFD1) "The 'similar results can be found with' is a good thing. The places found have been put on the map and colour-coded. You might want to limit this, because there are too many dots to be able to distinguish between them"

(USFD2) "It is showing the locations of places on the map. The colours correspond to the links. It would be useful if when you clicked on the dots on the map this would either highlight the corresponding link or automatically go to that link. It would probably be better to highlight the link. It's very well-designed and clear"

(USFD3) "Good. I'm going to Australia and I want to do stuff around Sydney – this would be useful. I like the way the link colours correspond to places on the map. It's really useful, but if there were too many colours it would get confusing"

(USFD4) "The different colours are telling me about the skiing difficulty, e.g. green is easy. A key would be useful"

(Cardiff_1) Interpret clearly, and think I understand the contents.

(Cardiff_2) Lots of dots with different colours, which I don't quite understand. I think they relate to the Ski resorts. I would click on the next page to see more results.

But the results say 1-3 from 57,000. Does that mean we have 57,000 ski resorts in the area. This is a bit confusing.

(GIUZ1) "Make circles on the right larger, to make them more visible, May be usage of symbols instead of colors would be quite helpful. The area of interest can be centered on the map"

(GIUZ2) "Overall layout is what I have expected. Overview map should display the map limits at the main map"

(UU_1) "It looks clear to me"

(UU_2) "It is a very clear page, it also gives you tips to go on with your search. I understand everything"

15. SPiRiT proposes to retrieve documents where "ski resorts" is called another way like "hotel" "mountain hut". Is this functionality very important, important, useful, non useful?

(IGN1) "What does it means ? Is it a suggestion of new search criteria ? Or does it mean that SPiRiT would have found exactly the same results with these criteria ? If it is a suggestion it is useful"

(IGN2) "It's useful."

(IGN3) "useful"

(IGN4) "Not useful for a search as precise as Michel's one"

(IGN5) « Maybe useful but not essential »

(IGN6) « Important when there are too much results to filetr some points. »

(HANN_1) important

(HANN_2) very important

(HANN_3) very important

(HANN_4) very important

(USFD1) "Maybe good to have the option to disable this, but it is important. Somebody who's maybe not that skilled at searching may type in 'ski resorts' when they didn't actually mean that"

(USFD2) "Very important"

(USFD3) "Good. Very important. If you were looking for skiing, it would assume you wanted to stay in that area so you could find everything"

(USFD4) "Very important, but needs to be modified. It might be seasonal, e.g. if there is no snow I might be looking for information about hotels only. The results should be ranked according to popularity"

(Cardiff_1) Yes it is very important as users do not always know what to ask for.

Cardiff_2) Very important as it will narrow down my search even further.

(GIUZ1) "Very good , semantic search "

(GIUZ2) "Very useful"

(UU_1) "useful"

(UU_2) "important"

16. When possible, a URL is associated to a location on the map. Is this functionality very important, important, useful, non useful?

(IGN1) "useful if it really works. If not, it is disturbing. Quality of search results are the priority for me"

(IGN2) " Very important and very useful."

(IGN3) "Important. The zoom facility must clearly appear"

"answer"

(IGN4) "Not useful for the moment. Michel does not want to localise each web site in such a small area"

(IGN5) « How to link a virtual internet adress with a geographical adress on a map ? How can it be reliable ? »

(IGN6) « It is the only new feature of SPiRiT... So, yes ! »

(HANN_1) very important

(HANN_2) very important

(HANN_3) it is helpful and therefore useful

(HANN_4) very important
 (USFD1) "Good. It allows you to instantly see where places are. I assume that if you click on a dot it goes to that page. It's certainly useful in searching"
 (USFD2) "Very important"
 (USFD3) "Very important"
 (USFD4) "Difficult to notice. I thought the colours were very similar. A small number of primary colours should be used. It's important to have clickable points inside the square or arrows pointing from the circles to the corresponding links. You need to write a line saying that the circles correspond with the links. If you right-click on a circle, the link could then be displayed. But the space is very limited"
 (Cardiff_1) sounds like a useful idea for providing a quick reference, but slide was not helpful to clarify this idea.
 (Cardiff_2) Very important because it gives me a sense of where the area is.
 The most important thing is speed, and this looks like it will made the search quicker.
 (GIUZ1) "Very important. I will need more information on the places before making a choice. This is the chance to provide this functionality"
 PS: Would like to Suggest some more here. HCI Journal, Miller,1956. Interfaces need to have only 7+/-2 choices. As users are capable of remembering or memorising 7+/-2 choices. Google has 10 choices, which nearly fits into this model suggested by Miller, and it is the reason why it is famous.
 (GIUZ2) "Very important "
 (UU_1) "important"
 (UU_2) "very important"

Slide 6 :

17. What do you think of using the map to express an area, is it very important, important, useful, non useful?

(IGN1)"In that case (small area) it is not useful. I don't want to restraint the results"
 "answer"(User.Id)
 (IGN2) " Very useful."
 (IGN3) "Very useful but this function comes to late. Why not to use it in the 3rd screen ?"
 (IGN4) "Not useful and not precise"
 (IGN5) "Not useful"
 (IGN6) "Idem. It is the + of SPiRiT"
 (HANN_1) very important
 (HANN_2) very important
 (HANN_3) very important
 (HANN_4) very important
 (USFD1) "Good, if you get lots of results back. He might see a cluster of resorts and only regard those. Good way of visually filtering. It would be too hard to do non-visually"
 (USFD2) "Useful"
 (USFD3) "I'm not quite sure it is really necessary, you could use common sense and ignore the results outside the area. You wouldn't want anything more on the screen though"
 (USFD4) "Very important"
 (Cardiff_1) Sounds like a good idea, rather than having to retype the name of individual places.
 (Cardiff_2) There is no instruction for drawing the box. Very important as again, it will make my search quicker. It has narrowed my search down, as the results are now 5000, instead of 50000.
 (GIUZ1) "I am a visual person, to me it is important and I would use it a lot "
 (GIUZ2) "Very important"
 (UU_1) "useful"
 (UU_2) "useful"

18. Would you prefer other ways like select dots, pick a place name, express a geographic constraint like near the lake, near the ski slopes?

(IGN1) "Yes I would prefer expressing a constraint like the name of a place, of a top..."
 "answer"(User.Id)
 (IGN2) « There could be other ways like mentioned in the question. There should be an « expert mode » to have more search options. »
 (IGN3) « Yes, SPiRiT should propose a large range of possibilities to access other « worlds » »
 (IGN4) « Yes »
 (IGN5) « Yes, I would like to select a point or to hav ea list. To quit the map for smth more interactive and less « frozen » »
 (IGN6) « Yes, other choices should be possible.
 Select a dot : YES.
 « near the lake » : NO (too textual, not ergonomic) »

(HANN_1) express a geographic constraint (e.g. height, weather, distance to..., etc.)

(HANN_2) I would prefer to click on the dots or to express a geographic constraint. The second feature would be very important but sophisticated too.

(HANN_3) I would prefer to click on the dots. I don't see any place names to click on. Otherwise I also would like. To express a geographic constraint:

In the beginning of a search it goes to much into detail. I think the facilities therefore would be too complicated for me and would confuse me.

(HANN_4) I would prefer to express a geographic constraint. Very helpful, because I think in those categories. This would be a real progress with regard to Google.

(USFD1) "Other ways would be more complicated. You would have to show lakes. If it showed a lake on the map, the user could drag a box round it anyway. Exrta options would be just as powerful, so it's best to keep it as one simple method"

(USFD2) "This is fine. Other methods are too complicated. How near a lake would 'near a lake' be? If you could be more specific this may possibly be useful"

(USFD3) "Maybe 'ski resorts within so many miles of...' or 'ski resorts within a couple of hours travelling distance'. Selecting dots would be good, but would you be able to click multiple dots? The box option would be better in this case"

(USFD4) "Selecting dots would not be straightforward. If you drag a square out and click on it, you would need to know that the system has this functionality. I would move the red square and click refresh".

(Cardiff_1) It is quicker to draw a box, but I need to see the area of choice more clearly.

The shown maps are vague and full of details.

Also, I would use a text search in combination with the graphics selection, so I would draw a box first, then type in my specific search, e.g. within town limits or outside ...

Also, the dots on the map are not very clear.

(Cardiff_2) It depends. If you know where you wanted to go, then a graphical interface is better, but if you don't then would be easier to write "near the lake". Also, it is probably quicker to write "near the lake" rather to zoom in graphically.

(GIUZ1) "To less visual people those would be the important functions"

Selection of dot: very important

Pick a place name : important

Geoconstraints : would be quite useful(may be restrict constraints)

A hint of the functionality(map tools)- Zoom in/out.

(GIUZ2) " No"

(UU_1)"I think selecting predefined areas could be convenient"

(UU_2)"I'd like to select the dots on the map"

Slide 8 :

19. In this situation, what query would you express on this interface?

(IGN1)" sth = job nerve surgery, smw = spain"

"answer"(User.Id)

(IGN2) "Something = Neurosurgery job, Somewhere = Spain"

(IGN3) "Sth = Job medecine, smw = Spain"

(IGN4) " sth = job nerve surgery, smw = spain"

(IGN5) "sth = recruitment nerve surgeon job, smw = Spain"

(IGN6) "sth = job, smw = spain"

HANN_1:

Something: Job

Somewhere: Nerve Surgery Spain

(HANN_2) "nerve surgery" and "Spain" in "Somewhere" and job in "Something"

(HANN_3) Spain in "Somewhere" and nerve surgery in "Something"

(HANN_4) "Spain" in "Somewhere" and "looking for job" in "Something"

(USFD1) "nerve surgery" job vacancy IN Spain

(USFD2) neurosurgeon job IN Spain

(USFD3) hospitals IN Spain "I wouldn't go straight into nerve surgery as I find it better to stay general when staying on the net"

(USFD4)neurology IN Spain

(Cardiff_1) Something: jobs neuro surgeon, Somewhere: Spain. (User does not seem to notice the operator box at all!!)

(Cardiff_2) Something: Jobs as neurosurgeon or Jobs is healthcare.

Somewhere: Spain.

(GIUZ1) "Job + Neurosurgeon in Spain (Espagnole)"

(GIUZ2)"Job + Neurosurgeon in Spain (Espagnole)" – if I am able to speak Spanish , I would expect the results to be in Spanish.

(UU_1) "NERVE SURGERY in SPAIN"

(UU_2) "NERVE SURGERY in SPAIN"

20. What answer would you expect?

(IGN1) " nerve surgery departments of spanish hospitals. Sites for job search.."

(IGN2) "A list of locations, each with one line presenting the result and a link."

(IGN3) " proposals sorted by category or by town"

(IGN4) "I think this criteria are too vague to expect smth interesting, but I hope to refine my query after the found elements"

(IGN5) "Not much. It is too vague, it will find hospitals or doctors, but no recruitment.

(IGN6) " The spanish "ANPE" web site. Some links to the main economic entities in Spain. A map with areas of unemployment, of activities..."

(HANN_1) websites of job centres in Spain with free jobs in nerve surgeries

(HANN_2) A list of nerve surgeries and the vacant jobs in Spain.

(HANN_3) A list of adequate job occasions in Spain.

(HANN_4) A counter question of the search engine relating the kind of job.

(USFD1) "Results containing information about nerve surgery jobs. The same as before. Dots showing where results are from"

(USFD2) "Jobs in Spain, in Google format, and a map next to it with coloured dots on"

(USFD3) "I'd expect a map of Spain with dots showing where hospitals are"

(USFD4) "The system will give information about medical locations in Spain, e.g. hospitals, research institutes, department of health, etc. I would imagine I could go deeper to look for jobs"

(Cardiff_1) Job agencies / adverts on medical appointments/ Job centres in Spain

any net adverts possibly sorted by location, e.g. north spain, south spain, etc.

(Cardiff_2) I think the question is too specific. I would expect back: job vacancies in Spain Spanish job websites. But I also I will need to specify the area more clearly.

(GIUZ1)

- A list of the jobs
- a map with symbols showing open positions for neuro-surgeons
- both of the above preferably.

An additional link to job ad pages and hospital that do neuro-surgery in spain.

(GIUZ2)

- Job listing
- locations of hospitals in spain(map).

(UU_1) "Several sites of nerve surgery clinics in Spain"

(UU_2) "A list with hospitals and addresses where they have this kind of surgery"

Slide 10:

21. How do you interpret this layout? Are there any area you don't understand?

(IGN1) "I like "job information" : it looks squared, predefined "

(IGN2) " We see a map with spanish cities. The second result on the right doesn't seem very interesting for the user."

(IGN3) "Clear and readable, but insufficient. SPiRiT should propose some "branches" of the subject (medecine-nerve...)"

(IGN4) "The Spain map is not useful (we know were Spain is). OK for the Web sites links."

(IGN5) "The map gives o information. OK for the web sites"

(IGN6) "It is clear."

(HANN_1) See above – questions to : bookmark, cache

(HANN_2) See above. No question.

(HANN_3) Everything is clear. It is similar to the last scenario.

(HANN_4) See above. No question.

(USFD1) "Same sort of map as before. Just a map of Spain showing search results are from this are of the world, with the results on the right"

(USFD2) "It's a picture of Spain. Where are the links? As far as I can see there aren't any. It's not clear how the map and results are linked"

(USFD3) "I don't understand why there are no jobs or hospitals on the map and why none of the results look useful"

(USFD4) "Informative. Highlighting the terms in each link and in the summaries will make me click on the results"

(Cardiff_1) I can interpret the results. It looks clear.

(Cardiff_2) Quite clear. I would pick are from graphical map, then you get job vacancies in those areas.

(GIUZ1) "Why is Mallorca green?"

(GIUZ2) "Missing Map tools"

(UU_1) "The flags are for the different languages. It is clear"

(UU_2) "Q: I don't understand the "location can be specified as..." part. It is not very clear, what would you get here? A list of cities where they do this surgeries? I do not know where this would take you"

22. SPIRiT proposes to refine the query as "nerve surgery job in a main city of Spain". What do you think of this functionality, is it very important, important, useful, non useful? Would you rather specify it as "in North Spain"?

(IGN1) "It can help if I don't know the towns. But not essential. If "town" appears in the "smw" box when I click (help for input) it is a good functionality"

(IGN2) "It's a useful feature. No I would not."

(IGN3) "Very important. We could also precise with other factors (geographic situation but also access, number of links)

(IGN4) "The town names are useful if I know where I want to go. If not I prefer click on the map"

(IGN5) "Very important"

(IGN6) "Intereseting fonctionnality, but too textual and not interactive enough. I would prefer zoom in on the region where I want to go"

(HANN_1) Important

No –I supposed the map could be used for making my question more detailed. However, If you ask me like this – I would not use non-specific phrases like "North Spain". I would rather prefer "real" names of the regions, like "Catalonia" or "Estremadura", "Barcelona"

(HANN_2) useful.

cities and North Spain: both would be fine.

(HANN_3) very important

No, cities are better than North Spain.

(HANN_4) useful

No, cities are better than North Spain.

(USFD1) "Quite good – the system is trying to almost second guess the user. This is fine if the user is happy with that, but he might not have cared whether it was specific to a city or not. I didn't notice it at first. Although it would be good to be able to search without it, it's a useful feature"

"Yes. If he knew something about Spain, he might prefer a regional search. He might have typed 'North Spain' to begin with, as he wouldn't necessarily know the name of any cities. Useful if Spain is divided into named regions"

(USFD2) "Very important. The cities should be listed along with the number of vacancies next to the map in brackets"

"Possibly, depending on how Spain is broken up into regions. For example, in England you would probably want to search for counties"

(USFD3) "If you were really looking for a job, you'd look for the city you wanted to live in. So you would want to look at cities in Spain"

"Yes. If it gave you an option of different regions or even different big cities. If you didn't really know which cities were the big ones, maybe it could give you a couple of major cities and you could narrow it down"

(USFD4) "Quite useful. Does it search for 'neurosurgeon jobs' in 'cities in Spain'? This isn't clear"

"Better. It will increase the density of the search in the particular region. This is more useful than looking for an entire country"

(Cardiff_1) Yes very useful, but still feel that I would want to refine the search further, e.g. classify the results by location and show the classification on the map.

(Cardiff_2) Lots of job seekers do not care where the city is, unless for example, they have a boyfriend working there. I would expect a list of everything.

I would say that a division by location, north and south is better.

Cities are too specific.

(GIUZ1) "This is useful on the assumption that only big cities have neuro-surgeon. This may not be the case. A better (but harder) solution would be to show all potential hospitals with neuro-surgery and refine on that"

"No, I don't think so. But depending on number of hits the option could be presented to the user"

(GIUZ2) "Useful"

"No, but I would like to have this functionality"

(UU_1) "a) Useful b) No"

(UU_2) "a) Very important. b) No, I want to see all the areas where I could find a job like this"

Slide 11:

23. What do you see on the new layout? What do you think of this?

(IGN1) "I feel lost : "city" is a special keyword that makes city names appear. It is strange. I would like explanations concerning these "hidden" functionalities. But it is interesting "

(IGN2) "Once again, it's very clear and neatly organized. »

(IGN3) "This should have come long before"

(IGN4) "We localize géographique area, it's better. It a little too late for this search"

(IGN5) "I don't understand why there is a map. We're not interested in geography anymore !"

(IGN6) "It's a good result but it should have come earlier."

(HANN_1) I see points, which possibly stand for free jobs in the marked location

I thinks that it is useful to link job search with geographical background

(HANN_2)If the colours of the points are identifiers and the points could be connected clearly to the links, everything is fine and clear.

(HANN_3) You can see very well, where most of the jobs are offered. The problems regarding colour are similar to the above scenario.

If you could choose a city in the list below and the links would be automatically reduced, it would be fine.

(HANN_4) The problems regarding colour are similar to the above scenario.

The localisation is useful.

(USFD1) "Search results linked to areas on the map. Good visual representation. 'Select an area' is good. If you clicked on Madrid, it would show the results in that area"

(USFD2) "Same as before. The colours of the cities match the colours of the links"

(USFD3) "A little bit better than the previous page, but I don't understand what the classifieds links are. It's not that useful to just have general websites, but these are more relevant than the first set of results"

(USFD4) "Knowing what I do from the previous scenarios, after reading the summaries I can click on the links I'm interested in. This is the easiest way of representing the results, for the user"

(Cardiff_1) This looks like what I have wanted, but perhaps I wanted to see this sooner.

(Cardiff_2) Dots are where the vacancies are. You click on the dot to find out about that particular job. The display is clear.

I am still not sure what the overview map is?

(GIUZ1) "Equivalent to Semantic Zooming "

(GIUZ2) " As expected . Would prefer to replace the select area to highlight ...". Refine the query by selecting a city"

(UU_1)"Main cities-part is new. It gives a clear overview of all the important cities and their clinics"

(UU_2) "The layout is very clear. What do the colour at the links mean? I've expected a list of cities?"

Slide 12:

24. Do you have comments about these required interactions to reformulate a query, would you rather have clicked on the map of Spain on the preceding slide?

(IGN1) "I don't like commas in the input box. If it is the first use of SPIRIT, ok. If not, it is quite long. I would directly go to Madrid. I prefer choosing place names than clicking on the map."

(IGN2) " One should be able to click on the map to see the corresponding results, or change the query in the search fields."

(IGN3) "I would like a zoom"

(IGN4) "The method is good if we have no idea in advance. Maybe I would have clicked"

(IGN5) "I don't know"

(IGN6) "Yes, I would rather have clicked"

(HANN_1) yes – rather clicked on the map, even better on the points !

Note: The coloured points in the map are not any longer related to the links (All points are in Madrid, but the link list contains links for all over Spain!!!)

(HANN_2) I would rather click in the map or on the city name in the list below.

(HANN_3) If I would got stuck while being on the last slide then I would start a new query like this. For refinement I would rather click in the map or on the city name in the list below.

(HANN_4) I would prefer to click in the map or to mark a region in the map.

(USFD1) "Would have thought it would be easier to click 'Madrid' at the bottom and let the system reformulate the query for you. Clicking on the map would be the easiest method. You could click where you saw most jobs. Clicking on the 'Madrid' link at the bottom would be just as good though. Manually reformulating the query would take much longer"

(USFD2) "It would be easier to click on the map. Make the city names on the map into hyperlinks"

(USFD3) "I probably would have done the same. I'm not sure that I like the results. The list of links at the bottom (the city links) is useful, because you might visit a place on the map then want to go back but not remember the name. This also allows you to quickly compare different areas"

(USFD4) "Useful, but the problem is displaying the results in the same way as on the previous slide. I would prefer to write Madrid instead of clicking on the map. If I'm looking for job in Spain I have to be more aware of where it is, the system could give you different options. I prefer the links at the bottom of the page, because the system should help drive your search and increase your knowledge"

(Cardiff_1) Yes I would have used graphical interaction, but I still think that a combination of graphical and textual is needed.

(Cardiff_2) Some people would click the actual city on the map. I think both functions are required. Also, I may not be looking for a major city, it may be a town.

(GIUZ1) "Both should be possible and yield the same results"

(GIUZ1) " No I prefer clicking city's name "

(UU_1) "I would have clicked on the map"

(UU_2) "I'd select a city name, which I'd like to live and work in at the left bottom of the page rather than clicking on the map."

Slide 13:*25. Do you think this bookmarking facility is very important, important, useful, non useful?*

(IGN1) "Not useful : usually this kind of functionality is badly managed and hardly exportable. How can I send this to a friend ? "

(IGN2) " It's useful"

(IGN3) "Useful but hidden : we almost don't see the check boxes !"

(IGN4) "Not useful. I find there are two simultaneous searches (job and place) in very large domains, there will be too many answers.

(IGN5) "Very important"

(IGN6) "useful"

(HANN_1) non-useful

(HANN_2) I think it is not necessary, because of the browser functionality.

(HANN_3) I usually don't use any bookmarks. I think it is not necessary, because of the browser functionality.

(HANN_4) I think it is not necessary, because of the browser functionality.

(USFD1) "Very important. Clicking on the '2 bookmark' links would retrieve the bookmarks. Clicking on the check box next to it would get rid of all bookmarks – this is a bit ambiguous though. How long would the bookmarks stay in the memory?"

(USFD2) "Very important. It's a convenient way to remember sites of interest. The tick box next to '2 bookmarks' is not clear, does it mean 'add bookmarks'?"

(USFD3) "Quite good. Useful. Not a necessity. Chances are you'll find the information again, but it's a good idea to bookmark"

(USFD4) "Very important. I would have a bookmark link, like a shopping basket"

(Cardiff_1) Important, as it could save a lot of repeated scans, especially, if the result is huge.

(Cardiff_2) Yes very important. I would mark what I want quickly, then look at them more closely at the end.

(GIUZ1) "I like the bookmarking facility proposed by SPIRIT"

(GIUZ2) "This is quite an useful option"

(UU_1) "Useful, but I don't usually use that"

(UU_2) "Very important. I always forget these things"

26. What other type of information could be memorised?(for instance, the maps, the user selections on maps,..)

(IGN1) "No, I would think I'm going to lose my time. I just want every parameters to access this screen are displayed in the URL (get). The engine should stay in the "standards". If not the user is penalised"

(IGN2) " The maps that were displayed."

(IGN3) "maps"

(IGN4) "select places and memorise the associated links, or select links and memorise the associated situation on the map"

(IGN5) « The map does not seem useful to memorise (in the present case) »

(IGN6) « It could be useful to memorise the scale and area used for the search (to know if it is just Madrid center or the whole region)

(HANN_1) none

(HANN_2) Perhaps it would be helpful to memorise the state of the search, should mean the actual map with the list of relating links.

(HANN_3) Nothing helpful.

(HANN_4) No additional information to store.

(USFD1) "I wouldn't immediately have wanted to save other information. I can't see myself wanting to save the maps. Maybe I'd want to show the map to someone else, so the system should save the maps related to the searches on the bookmark page. A directory structure of bookmarks would be good, with the corresponding maps on the left"

(USFD2) "It would be fairly useful to save the maps, so when you bring up a bookmark it would return the map that you got the bookmark from"

(USFD3) "You might want to save the map. Although, if it comes up every time anyway, then it's just as easy to search again. But, if you made a map then marked an area on it, it might be good to save your selection"

(USFD4) "Great, if I could go back to a particular map image. I would love to be able to save the basic image"

(Cardiff_1) It would be useful to have it memorise the user selections, especially if the query is large, so SPIRIT could indicate to me what other searches I have done in the session and allow me to see a list of pages I visited quickly.

(Cardiff_2) It may be useful to have the map saved. It is useful to see the map in relation to what you are interested in.

(GIUZ1) "the refined search and final results".

(GIUZ1) "the maps with the displayed information points on it".

(UU_1) "User selections on the maps"

(UU_2) "For me it would be really nice if it memorises about everything I did. I'm not really good with computers, so every little step will help me to find the information I need. I don't like to go click on "back" and get lost then."

Slide 15 :*27. In this situation, what query would you express on this interface?*

(IGN1) "sth : flat rent , smw : sheffield »

(IGN2) " Something = rent a flat; Somewhere = Sheffield, England"

(IGN3) "sth= flat, smw = sheffield"

(IGN4) "sth = flat renting , smw = sheffield"

(IGN5) "sth = flat rent, smw = sheffield university england"

(IGN6) "sth = housing (in english) , smw = sheffield, uk"

(HANN_1) Something: accommodation uni

Somewhere: Sheffield

(HANN_2) Sheffield in "Somewhere" and accommodation in "Something".

(HANN_3) Sheffield in "Somewhere" and dormitory plus flat-sharing in "Something".

(HANN_4) Sheffield in "Somewhere" and students accommodation in "Something".

(USFD1) Student accommodation IN Sheffield

(USFD2) Student accommodation IN Sheffield

(USFD3) Accommodation IN Sheffield

(USFD4) Student accommodation IN Sheffield

(Cardiff_1) Shared/Cheap/Student accommodation ---- Sheffield.

(Cardiff_2) Something: Accommodation Somewhere: Sheffield

(GIUZ1) "flat in Sheffield"

(GIUZ2) "student apartment in Sheffield University

(UU_1) "APPARTMENTS FOR RENT in SHEFFIELD"

(UU_2) "ACCOMODATION SHEFFIELD in ENGLAND"

Slide 16:*28. What answer would you expect?*

(IGN1) "It won't work. "student" is too precise and "UK" is not useful. I expect a map with sheffield, and links for universities and rent offers"

(IGN2) "List of results sorted by place, or price, or whatever. A map with dots like before. »

(IGN3) « proposals sorted by prices, surface, place, access... »

(IGN4) "A simplified map : just the town (+ 1 or 2 strategic points). List of real estate web sites.

(IGN5) "A map to precise sheffield location in UK. Web sites to find student houses renting : real estate agencies, student associations..."

(IGN6) "Map of sheffield with a histogram or dots of different size representing the price, the number of offers of each agency, ...

(HANN_1) websites of free accommodation as well as university black boards or dormitories of universities

(HANN_2) see above

(HANN_3) see above

(HANN_4) see above

(USFD1) "Some sort of map on the left with links on the right, and dots on the map corresponding to the links"

(USFD2) "Possibly a list of estate agents that offer student housing, or links to some sites where private landlords advertise"

(USFD3) "A map of Sheffield, with dots on and websites of renting companies or classifieds. It will possibly offer different choices, e.g. did you mean 'halls of residence', 'accommodation to buy', etc."

(USFD4) "A map of the town, with some links to university accommodation, housing services etc."

(Cardiff_1) leasing agencies on the web, Student's web sites advertising rooms to let and a map of Sheffield.

(Cardiff_2) Map showing different areas in Sheffield in relation to the University, estate agents web sites, and the university web site, and a map of Sheffield.

(GIUZ1) "a map of Sheffield with symbols showing the potential student housing"

" a list of places to rent (ranked by distance to university – requiring new input"

"location of university"

(GIUZ2)"accommodation facilities(list of) "

" Situation map Sheffield displaying

- University
 - Accommodation points"
- (UU_1) "Mainly commercial rental agencies at the beginning of the list, non-commercial things probably later in the list of results."
- (UU_2) "A list with rental agencies in and around Sheffield.
A list of student dorms around the university, but she didn't really type that in"

Slide 17:**29. How do you interpret this layout?**

- (IGN1) "Why does the map type change ? I like the names of neighbourhood in the bottom""
- (IGN2) " Detailed map of the city. The user can click to select a more precise area. I can't really see the three colored dots as the image is very small."
- (IGN3) "Not bad"
- (IGN4) "Map is unclear. It shows the town but no information concerning the query."
- (IGN5) "A detailed map of sheffield center. No information for my query. Too many features to be really readable"
- (IGN6) "The coloured dots are not readable"
- (HANN_1) it's a map of Sheffield. The found websites are marked with dots. (however I do not see dots on the map ?!)
- where do you propose these detailed queries ? I would rather prefer a complete list of accommodation at one glance or at least information like "there are to much results. Please detail your query !"
- (HANN_2) see above
- (HANN_3) The map is confusing, where are the points?
- Positive: the selection list of the different city districts
- Otherwise see above
- The "Find in Results"-field I don't like. It is my experience most of the time it doesn't work.
- (HANN_4) see above
- (USFD1) "Same as before. The overview feature would be more useful at a city level"
- (USFD2) "It's a list of links without corresponding circles on the map"
- (USFD3) "I can't see the dots - the map is too detailed. Having links to different areas is good, e.g. 'city centre – S1"
- (USFD4) "Same as before. It would be useful if I was told the first time I used the system what the dots correspond with"
- (Cardiff_1) I can read the map, and see the possibility of more refined search. The dots are not clear in this situation. Can't see the map very well. A magnification facility for the map would be useful.
- (Cardiff_2) Good. Exactly what I expected. I can't see the dots on the map. I don't see where the Uni. Is on the map either. The map is not very clear.
- (GIUZ1) "It is good to have the main answer on student housing although no specific location is shown on the map."
- (GIUZ2) "Missing document footprints on the map, area selection: I would prefer to select a sub-area on the map"
- (UU_1) "I prefer to have a map of the UK, then select Sheffield there etc.... [He did not notice the overview map at first]"
- (UU_2) "First impression: It's a bit busy. But if you take a good look, it's ok. The map is useful, just click on the university area"

30. What would be your next action ?

- (IGN1) "I know what neighbourhood I want, so I click on one name."
- (IGN2) " I would click on the area where the university is, or I would search for it in the "somewhere" field."
- (IGN3) "I would like to analyse the localisation of proposals regarding the price. So I click on "city center" to see..."
- (IGN4) "I would click on a link"
- (IGN5) "I would look at the web sites. The most important is to find an agency. I'll check the localisation after ! So; I would click on "see all""
- (IGN6) "To click on the map areas in the bottom-center"
- (HANN_1) zoom and look for the university and choose those, close to the university
- (HANN_2) I would click on self-catering flat in the list.
- (HANN_3) I would click on a city district in the list.
- (HANN_4) I would look for the button price list.
- (USFD1) "Probably specify type of accommodation using links at the top. Because, I wouldn't know the areas, if it was my 1st year at university. For example, I'd click on 'halls of residence' or whichever type of accommodation I wanted"

- (USFD2) "Look at the links and see if it was producing relevant results. It would be too hard to find information to refine the query, you would end up with nothing"
- (USFD3) "Browse through the areas. It would depend where I wanted to live. I would click on a link rather than re-type my query"
- (USFD4) "Go over the links, as maps aren't normally clickable. I would be looking to find information about areas and why I should live there rather than somewhere else"
- (Cardiff_1) I would rethink my query and pick one of the suggested choices in the location and category boxes.
- (Cardiff_2) Probably click category to narrow down my search or probably click on postcode area in the bottom. I would also consider typing in the Results box, ex. A specific street or a specific estate agent.
- (GIUZ1) Refine to "near university", alternatively: with in walking distance, or 5 min bus ride.
- (GIUZ2) "I would zoom in to the university area"
- (UU_1) "I would select accommodation possibilities first"
- (UU_2) "I'd make a choice of accommodation by clicking on one of "similar results...""

31. Janet wants to refine her query as "student house renting near Sheffield University, how would you do this?"

- (IGN1) "I don't believe we can refine. It is too precise. But I would delete "uk" and type "university" and choose "near" in the menu"
- (IGN2) " I would type "near University+ Sheffield + UK", or would go in "expert mode" to fill the "near location" field."
- (IGN3) "I add "university" in the smw box"
- (IGN4) " I add "university" in the smw box"
- (IGN5) "I add "university" in the smw box"
- (IGN6) " I add "university" in the smw box in the text box in the right bottom"
- (HANN_1) I would use the map to specify the location - in this case: search for the university
- (HANN_2) To extend the above query by university in the "Something"-field and to choose "near" instead of "in" in the drop down menu between both fields. I suppose there will be the word "near" in the drop down menu. Can you please tell me something about this menu?
- (HANN_3) To type an extended query in the fields with the original request.
- (HANN_4) I would mark a region in the map around the university.
- (USFD1) "Change 'in' to 'near'. Change Sheffield, UK to Sheffield University"
- (USFD2) "Put 'Sheffield University' in the somewhere box"
- (USFD3) "Type it in the query, or use the pull down menu if it allows you to change 'IN'"
- (USFD4) "Type in: 'student house renting, central Sheffield, UK'"
- (Cardiff_1) I would use the map to try and find the University and then draw a box around it.
- (Cardiff_2) Try in the results box "near to university", but it would be good if done graphically as well. I am not sure what the operator is? If the list contains "near", then I will choose it.
- (GIUZ1) "Draw a circle or a polygon around the university(may be isochromes showing walking distance)"
"refine with 'near university' in 'find in results'"
"alternative: Show where students concentrate in Sheffield or where most student activities take place"
- (GIUZ2) "by geographically selecting an appropriate rectangle on the map"
- (UU_1) "STUDENT HOUSE RENTING in SHEFFIELD UNIVERSITY"
- (UU_2) "STUDENT HOUSE RENTING in SHEFFIELD UNIVERSITY UK"

Slide 18:

32. What spatial relationships should be proposed in the menu box, how important are the following :

	<i>in</i>	<i>near</i>	<i>within x km</i>	<i>within x mn drive</i>	<i>in walking distance from</i>	<i>outside</i>	<i>north of</i>
IGN1	ok	ok	ok	no	no	no	ok
IGN2	very important	very important	important	not important	not important (or in expert mode)	important	important
IGN3	Ok		Ok				
IGN4	Ok	No	Ok	no	no	no	No Add : on

							axis of access to
IGN5			ok	ok	ok	no	no
IGN6	Useful (but clicking on a map is better)	useful	useful	useful	useful	useful	useful
HANN_1	very important	important	important	non useful	important	non useful	
HANN_2	very important	important	important	less important	important	less important	less important
HANN_3	very important	important	important	less important	less important	non important	less important
HANN_4	very important	important	non important	non important	important	important	non important
(USFD1)		"pretty ambiguous at city level. Could be a distance like 5/10 km. Does near mean 'close to' or 'not in'?"	"very important – maybe this should be kept to an advanced mode as it wouldn't be commonly used"	useful	useful. But different for different people. All you need is distance I think"	would have to set up features to specify how far outside the area. It's the same as 'near'"	"not important at all"
USFD2	very useful	very useful	very useful	useful	different people consider different distances to be walking distance"	I wouldn't be clear about what this meant	not useful
USFD3		good	good, particularly for things like skiing resorts. Quite useful	same as above	perhaps not so useful, as you would usually be looking for places a fair distance away"	similar to 'near', you could get some strange results. 'Near', 'surrounding' or 'outside' would produce similar results	useful
USFD4	OK	OK	very useful	would prefer kilometres. Drive depends on many other factors	too vague	wouldn't mind it, but don't think I'd use it	useful
Cardiff1	important and useful	important and useful	important and useful	important and useful	important and useful	important and useful	important and useful ...and others
Cardiff2	Very useful	Very useful	Very useful	Very useful	Very useful	Very useful	Very useful
GIUZ2	Very important	required	Very important	required	important	important	required
UU_1	very important	very important	not important		important	somewhat important	not important

(Cardiff_1) All the above are important and useful, others could be within boundaries of and outside boundaries of.. The list is endless!

(Cardiff_2) Very useful. Anything that makes the search quicker is good. For example, if I was going to attend an event, I would search for hotels near theatre or within walking distance from theatre. I am not sure if "north-of" would be helpful in this context.

(GIUZ1) " the list itself is very important "
(UU_2)"All of them are important, I would like to have all the details"

33. Do you think these terms are fuzzy to express a spatial relationship?

(IGN1) "No"
(IGN2) "No they're self-understanding I think."
(IGN3) "no it's ok"
(IGN4) "no"
(IGN5) "no"
(IGN6) "not fuzzy but not simple"
(HANN_1) no – they are clear !
(HANN_2) The terms are fuzzy, but in spatial relations such fuzzy terms are necessary.
(HANN_3) The terms I categorized as less or non important are difficult to handle.
(HANN_4) The terms are adequate to the daily verbal actions of humans.
(Cardiff_1) You need to use this fuzzy relationships as this is how we think about the world. The drop down menu may not be a good idea as the list may be too big.
Can't we be allowed to write the relationship in the somewhere box, e.g. within the University area.
(Cardiff_2) Clear. I am not sure about "outside", but certainly the first 5 are very clear and should be really useful.
(GIUZ1) "No, they are vague terms but an approximation would be fine or good enough. The visualization should express the vagueness"
(GIUZ2) "No, these terms are not really vague"
(UU_1) "in/near – are to me the best way to express a spatial relationship. All the others are fuzzy"
(UU_2) "No, but it depends also on the answer"

34. How would you expect the result to look like?

(IGN1) "More details in the map and redimension to the interesting area"
(IGN2) "I expect to see a map showing the University at its center, and a few dots showing the different results. »
(IGN3)"a zoom on what I'm looking for !"
(IGN4) ""
(IGN5) "a zoom on the university and accommodation points besides"
(HANN_1) I expect that the area fitting the condition is marked by circle or is highlighted(e.g. coloured vs. grey)
(HANN_2) A map of the vicinity near the university and all the links to student houses.
(HANN_3) A map of the vicinity of the university and all the links to student houses in a radius of 1 km.
(HANN_4) A list of all accommodations near the university.
(USFD2) "It depends how people advertise their sites. I would expect to get a list of houses near Sheffield university".
(USFD3) "I'd expect a smaller box and more clustered dots around the university, and probably less links and less areas to select".
(USFD4) "Same as before".
(Cardiff_1) the results are now restricted to the university area.
(Cardiff_2) Same layout, but with map zoomed in to the university and results around university.
(GIUZ1) "Near" in this context depends on the size of the city and is hard to quantify. I would use an arbitrary measure as default and adjust this measure according to users action. e.g. infer from 'student' what walking or biking would be fine and interpret 'near' to be with in 15 min walking or 5 min biking distance or 1 km approx."
(GIUZ2) "Updated map displaying the new region of interest and updated result list "
(UU_1) "I would expect that SPIRiT shows a detailed map of the university and the accommodation facilities would be pointed out by dots."
(UU_2) "I'd expect a map with the university on it, and the accommodations as dots around it. Next to the map I expect a list of names with the rental companies"

Slide 19 :

35. How do you interpret the resulting layout, what do you think of it ?

(IGN1) "It is a zoom. I would prefer to choose to zoom manually on a highlighted area."
(IGN2) "Very clear. The ranking function is very good."
(IGN3) "Legend not explicit enough"
(IGN4) "interpretation difficult for the map, problem with the colours, the transport lines to strategic places are lacking, the prices of accommodation also"
(IGN5) "I can hardly interpret. What does the red colour mean on the map ? A clear and short legend is lacking. To much info on the map. The dots do not appear at all ! I would prefer a direct relation with Web sites to express my accommodation criteria"

(IGN6) "Legend to detail"

(HANN_1) I interpret this as the area of the university and the dots are marking the found locations of accommodation. It is the result I was looking for.

(HANN_2) see above.

(HANN_3) see above.

(HANN_4) see above.

(USFD1) "Same as before, but on a smaller scale (streets)"

(USFD2) "The colours correspond with the links. The dots tell you where the links refer to. I wouldn't be clear if the dots were houses or estate agents"

(USFD3) "It's zoomed in, which is good. That's what I'd expect"

(USFD4) "This is more focused. I know all the red buildings correspond to the university and the dots correspond to available accommodation around that area"

(Cardiff_1) I can see the dots and can link to other categories. Yes, I think it is very good.

(Cardiff_2) As I expected. Map is not very readable. Could be good to know where the campus is.

I don't expect so much information. All other search engines I use are useful, but none are that specific.

(GIUZ1) "Symbols (colored circles are hard to see in some places)

(GIUZ2) " I would not rank only on the distance criteria"

(UU_1) "First impression: Where/What is the university? Map is not clear. After a while: The map is very detailed. I like the dots a lot – I think they make things easy. The layout gives me a good overview."

"Q: Where's the university?"

(UU_2) This is what I expected."

36. Do you think this criteria is a good one? Do you have other ranking criteria to suggest?

(IGN1) "Non useful criteria. I can see the distance and choose on the map. Other criteria would be better : classification by neighbourhood, university dependant or private renting, price ranking, importance of the estate ..."(User.Id)

(IGN2) "Yes, I just said it. Price could be a ranking criterium (but I'm not sure if it's possible)."

(IGN3) "Good. And the prices ?"

(IGN4) "Not very good : no difference in terms of distance when you're already in a "near " search. The prices and types of accommodation are lacking"

(IGN5) "Good criteria. Price and surface also"

(IGN6) "good criteria. Price and number of offers also"

(HANN_1) yes . it is a very good criteria

others would be: prices, type of accommodation

(HANN_2) It is a very good one.

(HANN_3) It is a very good one.

Another criteria would be the price and the number of people living in the student house.

(HANN_4) It is a very good one.

Another criteria would be the price.

(USFD1) "Useful if it can be done – but not immediately necessary"

(USFD2) "Really useful. You could possibly order results by area"

(USFD3) "That's good. You might want to rank by quality of accommodation. Having distance ranking makes it more relevant to the actual query"

(USFD4) "Quite useful, but how would you determine distance? I would assume it would be measured from a central point"

(Cardiff_1) Yes, because that is what she asked for. I think the order should depend on the request, so if I ask for cheapest, then I expect the order to be by the cheapest, etc.

(Cardiff_2) Yes, and I would always think the top results are the most relevant.

Other criteria would be Price, for example. It depends on priority.

It would be useful to be able to order things differently.

(GIUZ1) "It is quite an intelligent criteria" – inferred from the keyword "student" such as near sport facilities, near cinema, near shopping—multiple criteria.

(GIUZ2) "take the 'normal' ranking because the distance is quite visible on the map"

(UU_1) "Yes, it is a good criterion. No."

(UU_2) "It's a good criterion. Others could be prices. Or the type of accommodation, although I would probably specifically look for these."

37. What would you do now if you were Janet?

(IGN1) "I would click on the links"

(IGN2) "I would start clicking on interesting links."

(IGN3) "I would type "price" on the smth box"

(IGN4) "I click on any link (or on all of them)"

(IGN5) "I refine the query in the bottom box, but I'm not sure it will work"
 (IGN6) "I would type "rate" in the smth box"
 (HANN_1) I would click on the dots and would expect opening of the related website
 (HANN_2) Click on the links.
 (HANN_3) I would start to explore the different web pages provided by the links.
 (HANN_4) Click on the links.
 (USFD2) "Bookmark some results. I wouldn't specify an area as I wouldn't know Sheffield. If I knew where my department was, I'd see where was close to that" (USFD1)
 "Click on links"
 (USFD3) "Probably go through the links"
 (USFD4) "I would click on the top result"
 (Cardiff_1) visit all the sites now. However, as there are so many hits, I would think of refining my query even further, e.g. by cost.
 I can't see the map very well here.
 I could also change the location again to narrow down the search by drawing my little box on the map.
 (Cardiff_2) I would start checking out the top results, or bookmark them.
 (GIUZ1) "With the result Janet got, I would start looking for additional criteria, and especially pricing "
 (GIUZ2) "Would prefer to browse through the results "
 (UU_1) "I would start checking the websites."
 (UU_2) "I'd search accommodation by clicking on a dot on the map where I'd like to live."

38. Janet wants to refine her query as "self contained studio". How would you do it?

(IGN1) "I add "self contained in the sth box in the top"
 (IGN2) "I would change my query in the « something » field."
 (IGN3) "I type "self contained" in the bottom box"
 (IGN4) "I add this notion in the smth box"
 (IGN5) "I type "self contained studio" in the bottom box"
 (IGN6) "I type "self contained studio" in the bottom box"
 (HANN_1) I would add this term into the field "Something"
 Or perhaps use the "Find"-field on the bottom ??? - or any other field where to specify my search
 (HANN_2) I would click on studio in the list saying similar results.
 (HANN_3) I would click on studio in the list saying similar results.
 (HANN_4) Instead of "student house renting " I would type in "self-contained studio".
 (USFD1) "Type it in the something field and click search"
 (USFD2) "Change 'student house renting' to 'studio flats'"
 (USFD3) "Click on one of the links, i.e. 'studio'. Would it search within the results already displayed or re-do the search?"
 (USFD4) "Type in 'studio flat' NEAR 'Sheffield University, UK"
 (Cardiff_1) I will either write it or click on the Studio option given. I will probably do the later as it is faster.
 (Cardiff_2) I would use the Results box or maybe the "Something" box and write Studio flat near Sheffield University.
 (GIUZ1) "I would prefer to place this in 'find in results' "
 (GIUZ2) " I would enter this 'self contained studio flats' in 'find in results' "
 (UU_1) "SELF CONTAINED STUDIO near SHEFFIELD UNIVERSITY UK"
 (UU_2) "STUDENT HOUSE RENTING SELF CONTAINED STUDIO near SHEFFIELD UNIVERSITY UK "

Slide 20:

39. What do you think of this ?

(IGN1) "Yes, this is good. Now I expect the filter is applied on the textual content of sites "
 (IGN2) "It's a very good technique. I didn't think of it because I hadn't seen the field at the bottom of the interface."
 (IGN3) " not bad"
 (IGN4) "It was not clear on the interface"
 (IGN5) "good"
 (IGN6) "ok"
 (HANN_1) it should be marked more clearly that the "Find"-Field is a specialisation of the results
 (HANN_2) Is okay.
 (HANN_3) As mentioned I am actually disappointed when using this field in general. It never helps, that's why I skipped it.
 (HANN_4) Actually I did not find this opportunity.
 (USFD1) "Very useful"

(USFD2) "Possibly confusing because it's not extremely obvious that's where you would put it. It's possibly over-complicating matters"

(USFD3) "That's good. I wish Google had that sometimes. I don't think it should be at the bottom, probably underneath similar results, because I'm used to Google repeating your query at the bottom"

(USFD4) "Very useful. Putting 'studio flats' in the top query box will start the search over. Searching within the existing results is more useful"

(Cardiff_1) I would not have done what she did, I would have clicked on Studio and then refined the search afterwards.

(Cardiff_2) This was my first option.

(GIUZ1) "O.K"

(GIUZ2) "generally, this is a good option(because 'studio' is most often a flat ?)

(UU_1) "I think it is very convenient to do a "search in a Search". I think now SPiRiT will select self-contained studio websites from the first search."

(UU_2) "It is very handy, although I'D make it more bright or clear, because I didn't notice it until now."

Remark: Both of them never saw/used this in Google before.

40. Would you expect other features to appear on the map?

- the area within 10mn walk from the uni :
- the area within 20mn drive from the uni :
- the subway and bus lines :
- other features :

	<i>the area within 10mn walk from the uni</i>	<i>the area within 20mn drive from the uni</i>	<i>the subway and bus lines</i>	<i>other features</i>
IGN1	ok	ok	ok	ok
IGN3	Yes	Yes	Yes	Yes
IGN4	Yes		Yes	
IGN6			Very important	
HANN_1	not now	no	yes	no
HANN_2	no	no	yes	
HANN_3	not really	no	maybe	using the arrows to move the map and looking outside the margins
HANN_4	no	no	yes	
USFD1	useful, but how would the system know. This wouldn't be something I expected	probably pointless because you can just look on the map and judge it	bus routes and train stations, yes	closest supermarkets
USFD2	fairly useful	"this would be too difficult to determine as it depends on traffic	useful	no
USFD3	good. Useful	if it was within a 20 minutes drive it wouldn't be near!	useful, I suppose. Not important	no
USFD4	Useful	useful – but having a scale would be useful	useful. When I chose accommodation I didn't know that there was an area with regular buses to the university, or I would have chosen that area	no
Cardiff2	useful		good	
GUIZ2	Very important	important	Very important	
UU_1	No	no	yes	no

(IGN1) "OK for all, but no surcharge"

(IGN2) "No, what we see here is just fine. There could be a small panel to choose other features to overlay on the map."

(IGN3) "Yes for all. And much more links"

(IGN4) "yes for the first and the third"

(IGN5) "not yet, I rather think of the rates"

(IGN6) "transport lines very important"

(Cardiff_1) The map is already very busy . A zoom feature would be helpful.

Transportation information would be useful for this query, so it depends on context.

(Cardiff_2) 10 minutes would be useful. Bus routes would be good to check if there is a route to the university from where she wants to live.

These would be something I would like, but I do not necessarily expect to find them.

(GIUZ1) " Useful, but I would ask the user first which of these, may be used as layers, as in arcview(clickable).

Putting everything in one map would be too cluttered."

(UU_2) "I wouldn't expect it, but it may come in handy"

Now that you have a clearer idea of what SPiRiT is going to be like, please tell us about your own scenario:

41. What would you like to ask to SPiRiT? How would you like to express it (a process that may include several interactions)? What type of answer would you expect?

(IGN1) " sth : banque entreprise smw : paris 75001

I expect the list of banks in that area."

(IGN2) I'd search for anything : people, stores, etc. The interface that shown seems like a very good way to format queries. I can't think of a better way right now.

(IGN3) "sth : guest house, smw : Larzac"

(IGN4) "sth = visit, places to see, smw = Paris

In a first step, I would like SPiRiT to help me refining the search regarding several criterias : area around Paris, historic places, museums, shops, etc. Then, I would like a map with the results and some practical information : how to get there, horary of sites..."

(IGN5) "sth = charming guest houses, smw = near + Saint Malo "

(IGN6) "sth = pubs and shops, where = alpe d'huez, chalet "le majestic"

I want a map with a mark on the chalet "le majestic", and many signs indicating pubs and shops, with a legend and explanations on the right ."

HANN_1:

e.g. where is the sport shop in the city xyz

where can I rent ski in the location xyz

which traffic company operates in the area xyz

which area for skiing may I reach by train

check if in my holiday area is very popular/ popular/ non-popular

additionally as "usual" route-planner to my searched location

like proposed in SPiRiT, by starting queries with "Something" and "Somewhere" – Fields

list websites linked to geographical information (maps) like shown in SPiRiT

HANN_2:

I would like to plan a business trip. My query would be:

I need a train to Wismar and a hotel near the hospital.

Refinement of query I will do in the official web pages of the Deutsche Bundesbahn.

Expecting a link to web page of DB, a city map, links to hotels in vicinity of the hospital and so on.

HANN_3:

I would like to plan my holidays. My query would be:

Self-drive adventure tour in South Africa.

to express exactly like mentioned (Something in Somewhere)

refinement to smaller regions

And further:

necessary to search for (if possible by refinement)

car hire stations

accommodation
sights
route planner (distances in km)

Expecting the answer what I am looking for.

HANN_4:

I would like to get knowledge of all rock concerts in Thuringia. My query would be:
Rock concerts in Thuringia.

Expect a counter question from SPiRiT about the period.

Expecting the answer what I am looking for. A list of the links to all concerts in the asked period.

"If I was going to a town or country, I might want to look at the area I was staying in, and find out where the restaurants were etc."(USFD1)

"Places of worship in Sheffield"(USFD2)

"Information about the place I'm going on holiday" (USFD3)

"Information about a city when I'm planning to attend a conference" (USFD4)

How would you like to express it (a process that may include several interactions)?

"The name of the area in the 'somewhere' field, and whatever I wanted to find in the 'something' field"(USFD1)

places of worship IN Sheffield (USFD2)

weekend trip NEAR Sydney / wine regions NEAR Sydney (USFD3)

scenery IN Barcelona, Spain (USFD4)

What type of answer would you expect?

"A list of results and a map"(USFD1)

"A list of places of worship along with a map" (USFD2)

"A map containing public parks, museums, sports facilities, cycling routes, zoos, etc." (USFD4)

(Cardiff_1) I am going on a holiday to Prague in March. I have already booked my accommodation. I would use SPiRiT to find out about Places of interest in Prague, museums, Parks, theatres, restaurants. I would try to find out where the airport is and how far is it from my hotel and where is my hotel and the transportation links. I would also want to know more info. About Prague and the climate there.

(Cardiff_2) I am going to a friends wedding in the Summer in the UK. I know the venue, and would be looking for accommodation near the venue to avoid taxi costs. At the moment I would use upmystreet.com, but would try SPiRiT if it is there.

(GIUZ1)

'Find a Kindergarten Scenario'

I wish to find a kindergarten where our son would be able to stay for the whole day. Somewhere near the house or near workplace or somewhere in between. The constraints are shouldn't be too expensive, providing flexible opening hours, near a shopping mall, within easy distance to public transport connecting home and work and a Montessori kindergarten.

I would prefer to express my query as
looking for Montessori kindergarten
check if there is something like this in between house and work
check the availability of public transport, shopping malls around
check availability of places and price comparison.

I would expect several options conforming to multiple criteria, with mouse over provision of detailed information to all specific criteria.

(GIUZ2)

“Snowboarding in Leysin”

I would like to go snowboarding in Leysin. I am interested in finding a hotel in leysin. I am interested in finding the minimum distance of travel to the cable car. Minimum distance to public transport. Would also be interested in getting an impression of the village and ski resorts, perhaps with the help of topographic details.

I would prefer to express my query as

Hotels in and around leysin.

Try to find the cable car station , preferably by defining or selecting an area on the map

Browse through the hotels.

I would expect a map of leysin showing hotels and list of hotels.

(UU_1)

"a) I would ask SPiRiT the weather forecast for the area where I'm going to ski in my vacation.

b) WEATHER FORECAST in CHATEL, FRANCE

c) I expect to see some sites with weather stations of this area"

(UU_2)

"a) Something about holiday destinations

b) I'd express it like in the scenarios given

c) I would expect a similar answer I've seen with Mike, Jean and Janet."

42. *To you, what are the most important aspects of SPiRiT?*

(IGN1) The most important is the localisation help (information about time to go to a place, maps etc. The engine should be as intelligent as possible, it is not the most important (as far as the search results are pertinent it is ok)"

(IGN2) “ It should be easy to use, and still offer more complex options on a separate page. It should also be trained to interpretate as accurately as can be the requests of users (e.g. learn from previous sessions)"

(IGN3) “fluid informations, help for the search by proposing new words. It should be good to highlight options available to refine the search. Some additional search tracks could be proposed in intermediary pages”

(IGN4) “The map in the same time as the text : it prevents from doing two searches (google + mappy). But the map must remain just a complement for the search, and not the contrary”

(IGN5) “It must contain a huge amount of information and link them to spatial representations. But there is a moment when the map becomes unuseful. Or maybe the map should be more interactive : clicking on it to make web sites appear. I prefer textual interaction than maps. It is not “funny” enough .

(IGN6) “the map and geographic information (if not, google seems better). The main problem is that it is not QUANTITATIVE enough : the flat rates (but difficult), the number of link found per area on the map should appear (possible).

HANN_1:

linking of internet content with geographical information and really fast overview about the situation at the queries location

HANN_2:

The connection of all aspects related to geographical items.

HANN_3:

providing maps and geographical background

the combination of geographical and thematic aspects in a meaningful way

HANN_4:

It is the attempt to improve the communication between humans and a search engine.

(USFD1) "I like the visualisation. It would be better if you could actually see the accommodation on the map, so you can see the location, rather than the letting agencies. Not sure if this is possible though. I like the alternative searches at the top proposing different search terms. I also like the links at the bottom proposing sub-regions"

(USFD2) "The results are accurate. Ease of use. Make the 'find in results' box clearer"

(USFD3) “Being able to see results on the map is very useful. I like the 'find in results' box and 'in' or 'near' box. There's nothing I dislike”

(USFD4) “Providing tourist information in a quick way, rather than having to search the net. It is straightforward. Having only IN and NEAR is restrictive but straightforward. I didn't like the coloured dots – they were a bit confusing. I would rather right click on a dot to get info on a place”

(Cardiff_1) I think it is very good, as it takes you step by step to form your query and allow you specify your search in sequence, saves you trawling through loads of unrelated sites.

I think it will take me less time to achieve my goal than with other normal browsers.

(Cardiff_2) Speed. Find the relevant web sites quickly. The maps are useful. It also allows different ways to search, e.g. the results box is useful.

(GIUZ1)

"The most important aspects of SPIRIT are Spatial search (near, in front of, besides, north of, south of, ...)

Map interface (clickable and highly interactive)"

PS: Would be quite helpful if we have topographic details displayed on the map as a layer. For e.g. a topographic details of city of Zurich would be quite helpful to bikers here in Zurich. Where as topographic details of a city like munich which is quite flat, wouldn't be of much help.

Spatial activity maps – driven by activity specified by the users in their queries would help them.

Task oriented questionnaire – based on the user query context , would be quite helpful in reducing the amount of results.

(GIUZ2)

"The most important aspects of SPIRIT are map based interface and spatial relevance ranking"

(UU_1)

"- I like the dots with colours the most, they give a clear and structural overview.

- "Something in Somewhere" is an easy way to looking up/selecting your requirements."

(UU_2)

"- It's nice to have the map, although it can get pretty busy with more detailed maps

Everything on one page is very good.

It is very user friendly"