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SEKT: Semantically Enabled Knowledge Technologies

D11.1.1 BT Digital Library Initial Analysis

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Abstract
This report describes the requirements capture activity within the SEKT BT digital library case study. This consisted of a questionnaire which was completed by almost 700 users of the digital library, and a focus group to study user requirements in depth. The questionnaire provided a general view of users' requirements. It was apparent, for example, that there is a need for improved searching and indexing, and that lack of time was a disincentive to knowledge sharing. There was also a general concern about the difficulty people found in retrieving knowledge which they had stored themselves. The focus group provided feedback on proposed new library features from a set of representative users. These new features were presented in four scenarios: searching and browsing; profile editing and alerting; sharing knowledge; and expertise location. In general there was support for the new features proposed. However, there were user concerns. Response, e.g. to queries, must not be too slow. Users wanted to remain in control, e.g. they did not wish to be removed from alert lists on a judgement of the system, without their explicit permission. Privacy was a key issue and, related to this, the need for anonymity in some situations. The report also provides background information about the digital library, and a baseline metric against which this case study will be measured during the SEKT project.

Keyword list: digital library, requirements capture, focus group, searching and browsing, alerts, profile editing, knowledge sharing, expertise location.

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Executive Summary

The BT digital library exists for BT employees to access document abstracts, and in some cases the actual documents, electronically. Through a SEKT case study it is proposed to enhance the available functionality using semantic web technology.

The case study will include numerous performance metrics. However one overarching, albeit crude, metric has been proposed at the outset of the project as a means to judge the overall effectiveness of applying the technology to this particular application. This metric is the ratio of the number of abstracts (or if available documents) downloaded to the number of searches. Prior to the implementation of SEKT technology, and taken over a period of the three months April to June 2004, this ratio has been estimated as 0.8. The target is a 20% increase by the end of the project as a result of using SEKT technology.

As the first stage of the SEKT digital library case study, two tools were used to gauge users requirement; a questionnaire and a focus group. The questionnaire was designed for existing digital library users and received almost 700 responses. It gave a general view of what enhancements or changes users are seeking.

Amongst the feedback gained from the questionnaire were:
- requirement for improved searching and indexing
- ability to save searches and notes
- ability to search for information within a specific journal
- ability to search on date, author and other details
- more intelligent searching, possibly based on a users profile
- a description of the content of library information spaces[§], rather than this being assumed to be self-evident from the information space name
- integration with the standard BT environment, i.e. the ability to search the library from the search facility on the generic BT website header

The focus group was also drawn from existing digital library users. It was presented with a set of proposed new functions described within four scenarios: searching and browsing; profile editing and alerting; knowledge sharing; and expertise location. Each scenario was described to the focus group whilst for the first three, screenshots were also shown to illustrate the proposed functionality. It must be stressed that the functionality in these scenarios is by no means exhaustive of what SEKT can provide to this case study, but represent a starting point to gain initial feedback.

The searching and browsing scenario included the existing capability to search by words or phrases, enhanced with the ability to filter search results by specifying author or specific topic of the document. At the same time a browsing facility would enable the user, having found a document of interest, to ask for other related documents, e.g. by the same author. Searching might be influenced by a profile of the user's interests. There would also be the capability to give feedback about the relevance of a document, which might lead to a modification in the user profile, and to save queries for reuse.

[§] an information space is a topic area within the library defined by a particular query

The profile editing and alerting scenario described how users might create and edit their own profiles on the one hand, and also let them be modified automatically by the system on the other. In the latter case this would be based, for example, on what documents the user is downloading. This does not, of course, take into account whether a particular document proves of value. This would require user feedback, which in general they are reluctant to give. The profile would be used to generate alerts when new information of potential interest appears in the library. To further tailor these alerts, the user might choose the level of difficulty, e.g. between general reader, professional, expert, and specify an author. The user might also vote on the relevance of information of which he is alerted.

The knowledge sharing facility offered the user the ability to save any internet or intranet page to the library, where it would be treated just like other digital library documents. It would be classified automatically according to the classification system used by the library, and it could be searched for, browsed and included in alerts.

Finally, an expertise location facility would enable the identification both of experts in a particular topic, and of people with a more general interest who might come together to form a community.

Key lessons of the focus group include:
- Users are happy for the digital library to advise and help them, but they want to retain choice. For example, if the system decides they should be removed from a particular topic-based alert because they have recently shown no interest in the documents in this alert, then this should not happen automatically but they should be given choice.
- Users, e.g. those identified as experts, wish to remain anonymous.
- Users find it useful for the library to store a history of all their searches so that they can view their previous searches.
- Users are frustrated by frequent email alerts, and want information either when they log in or at intervals they choose.
- Amazon is regarded as a benchmark to which the library should aspire. This particularly relates to speed of response and to the fact that users generally have an awareness of what the site has available, and hence know at the outset whether they are likely to find what they want.

In summary, there is a requirement for the kind of functionality proposed in the scenarios. This must not be bought at the expense of slow system response. Users looked favourably on the more advanced alerting features. However, there is a desire to remain in control, e.g. of membership of alerting lists. It was apparent that users are reluctant to share knowledge because of time constraints and because they do not want to overwhelm their colleagues with information. At the same time users have difficulty retrieving the information they have stored themselves. There would seem to be a need for a system which provides users with a good framework for storing and retrieving their own knowledge, and which is able to make precise judgements about which of this knowledge to share with others. This would help overcome the disincentive to share knowledge, since using this system would be inherently a selfish rather than an alstruistic act. The expertise location facilities were also generally well-received. However, there were concerns about privacy and anonymity.

Contents

1 Introduction

This report describes the initial requirements capture phase of the SEKT digital library case study. It also describes the metric which has been agreed at the outset of the project as the key metric against which to judge the work of the case study. As background, the report also describes the initial digital library implementation at the outset of the project.

The role of the case studies within SEKT is to:
- Provide requirements to the technical workpackages to stimulate their thinking about how semantic technology should be developed for the benefit of user applications.
- Test out the technology being developed. In particular, test out the integrability of the various technologies.
- Gain feedback from user trials, both regarding the functionality proposed and also regarding the modes of user interaction.

There are two stages to the initial requirements capture exercise. In the first stage a web-based questionnaire was issued to all users and responses analysed. This questionnaire asked general questions about digital library usage. Since the technological approach of SEKT is broadly defined, requirements are only in general relevant if they can be interpreted by semantic technology. However, this initial questionnaire was also valuable for general digital library development activity. Moreover, it is also valuable to see to what extent the overall requirements of users can be satisfied by semantic web technology.

In the second stage of requirements capture a number of end-user scenarios, based on the proposed use of semantic-web technology, were prepared. These were presented to a focus group of typical users of the digital library. As with the questionnaire, a number of the findings from the focus group do not relate directly to the technologies being considered within SEKT. Nevertheless, for the sake of completeness, all the findings of the focus group are reported here, with the exception of some comments which refer specifically to organisational matters within BT.

From the results of the questionnaire and the focus group, a number of conclusions were drawn which will guide future developments in this case study.

Throughout this report we are concerned with the requiremens of end-users of the digital library. The functionality required by domain experts who will edit the library ontologies, and by system administrators, will be considered in deliverable D11.2.1. Deliverable D11.2.1 will also contain a more detailed and extended description of the user functionality, in part determined by the user feedback described here.

2 Initial digital library implementation

BT began building its Digital Library in 1994 and over ten years has developed an online system that offers its users personalisation, linking to full text from abstracts, annotation tools, alerts for new content, and the foundations of profiling. A key driver in developing the Library has been the desire to provide a single interface to the whole collection, drawing together content from a wide variety of publishers. As one

user said in a recent survey, the BT Library is "often better than the university library because you can search all resources and get a summary, perfect for research / initial project work."

The BT Library allows its user to search the library's contents. In addition, they can browse through "information spaces" that have been created on topics known to be of interest to people in the company or through the contents of journals in the Library. Information Spaces bring together content from the library's databases and details of new books into a single page in the Library. People can "join" an information space to be alerted to new articles on the topic and can create their own private information spaces for topics of particular interest to them. For more information about the use of information spaces in the BT digital library, see Alsmeyer and Owston[1].

Figure: A digital library information space

Users can also be alerted when new issues of journals are received in the Library. Information space membership and journal preferences are used to provide a personalised view of the Library homepage, as can be seen in next figure.

Figure: a personalised view of the library homepage

The Library contains abstracts of all relevant technical papers and the full text of more than a third of all the relevant engineering literature - a million articles from over 12,000 publications, including journals, conference proceedings, and IEEE Standards. This is provided in the form of two databases, Inspec and ABI / Inform. As well as technical literature, the Library holds almost 1,000 management and business magazines on-line, allowing people to track developments in management thinking or corporate development over more than ten years. The library also provides on-line access to a number of the O'Reilly technical books. In addition, the library makes recommendations to readers about books which they may wish to purchase, based on their membership of information spaces.

The Library uses software developed by BT's Next Generation Web Research to power its searching and browsing. (The software used has since been spun out and is available from Corpora software[*]).

3   A metric for the digital library

No one metric can fully capture the effectiveness of a digital library, and during the course of this case study, a number of metrics will be used. Indeed, it is intended that each major element of functionality developed in this case study will be accompanied by an appropriate metric.

However, as part of the initial set of project metrics[2], SEKT has adopted the following:

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[*] http://www.corporasoftware.com

Measure	Definition	Target	Reported
Effectiveness of search, i.e. number of documents downloaded / number of searches	Number of documents downloaded per user per day / number of searches per user per day	20% increase over baseline	At end of project

It should be noted that this metric applies both to the existing library material and to the additional material which will be made available by using SEKT features, e.g. the 'jot' facility, see section 6.3. In the latter case, care must be taken in making comparisons with the baseline, since the nature of the documents will be significantly different.

For the purpose of subsequent comparison, a baseline for the metric has been calculated during the second quarter of 2004, and prior to the introduction of any SEKT technology. This baseline is $0.8^{\S}$.

No metric is perfect, however it is believed that this metric captures a key aspect of the effectiveness of the search mechanism within a digital library. The assumption underlying it is that searches are undertaken in order to identify relevant documents, which are then downloaded. Therefore the effectiveness of the search technology is correlated to the proportion of searches which result in downloads. Of course, this provides no information on whether the document proves to be of relevance once downloaded. Moreover, it does not take into consideration other features of the library, e.g. the proposed knowledge sharing features. It is intended that as major features are introduced, there will be additional metrics to capture the effectiveness of those features. Moreover, there will be subjective tests to evaluate the users' perception of the SEKT technology. In part, the questionnaire described in section 4, provides a baseline for such user perception.

4   User requirements questionnaire

4.1   Purpose

The purpose of the questionnaire was to:
- question a wide audience of BT people about how they search for information and in particular search the digital library;
- capture details of how people share information and what methods are being used;
- capture issues and barriers to sharing information.

[§] This number is subject to an error of ± 0.2. This is because of problems of separating the download of document abstracts from that of full text downloads. Moreover, this figure has been calculated from the ABI/Inform database. This is a database of general business information. The digital library also has a technical database from Inspec. Accurate calculation of the metric for this database has not yet proved possible, because of swamping of actual log data with log data from certain automatic processes. Initial evidence suggests that the metric may take a significantly lower value for this database, possibly because of the different nature of the material in the database.

4.2   Method

An on-line questionnaire with questions relating to the BT library and the users' experience of searching and sharing information was designed and 8,350 users were invited via email to participate. An article was also published on BT Today[±] publicising the Digital Library's involvement in the SEKT project and directing people to the on-line questionnaire. Respondents were enticed to fill out the questionnaire by the opportunity to win free books worth £30 for 3 randomly selected respondents. The competition ran for 2 weeks and closed on 23rd June.

Analysis was performed on the questionnaire submissions to pick out themes, issues, barriers and possible requirements for inclusion into the requirements capture process.

4.3   Analysis

Almost 700 entries were received from across the business. In general people were satisfied with the service they received from the BT library. There is a fairly equal spread of people using it for project-related information, self development and maintaining technical or professional skills.

The spread of responses uncovered issues regarding communicating and sharing knowledge with international colleagues or non-BT partners; a range of confidence levels in the digital library facilities; and also differing experiences of using facilities provided by existing technology. A summarised report of the results from the questionnaire can be found in Annex A.

4.3.1   Suggested Improvements to the Digital Library

a) More digital content in the form of full articles not just abstracts, more technical manuals from other publishers and multimedia content.
b) Improve searching and indexing.
c) Ability to only search for items where the full text is held within the library, i.e. not those items where only an abstract is available.
d) Ability to save searches and notes.
e) Ability to search for information within a specific journal.
f) Useful to have more information on articles - ability to search on date, author details.
g) More intelligent searching, possibly based on a user's profile.
h) It is not always clear what is the range of a particular information space. They would benefit from a description of content within the spaces and perhaps even discussion area.
i) Integration with standard BT environment, i.e. ability to search library from search facility on the generic BT website header.

The ontological approach adopted in SEKT supports improvements (b), (f), and (g). Other suggested improvements, e.g. (a), relate to library policy rather than technology. A third category of suggestions, in particular (d), (h) and (i) suggest features which should be taken account of when implementing SEKT applications.

[±] An internal BT news 'magazine' hosted on the BT intranet.

4.3.2 Searching

The most popular search engine used is Google. Many respondents suggested Google as the search engine for the digital library. They like the consistency of results returned and trusted that it would find the information again.

Respondents predominantly use bookmarks or favourites in their browsers to assist them with locating information again. However, they find problems relocating the information which has been bookmarked if urls change, or from poor bookmark management causing their bookmark file to become too unwieldy and unorganised. Those who do not use bookmarks invariably rely on their ability to remember the location of the information or the keywords in the search that got them there in the first place.

Techniques used to help find information again include organising their bookmark file and renaming bookmarks to something more meaningful. Some respondents also use the history facility in their browser to help retrace their steps.

4.3.3 Sharing information

For the most part respondents wanted to share information with colleagues in particular useful websites, news articles and documentation. However they were very aware of information overload but were not sure how to address this problem. The most common method of sharing is via email whether just sending out the url or attaching a whole document. Other methods are instant messenger, downloading and storing information resources in shared areas or on team websites or by word of mouth.

Respondents generally use their own judgement on the relevance and value of information when deciding whether or not to share with colleagues. They know what interests they have in common and use feedback from colleagues on the relevance of information that they share, and whether they are receptive to sharing.

The majority of respondents do not see any difficulty with sharing particularly if they are only sharing urls. There are issues with password protected sites and documentation and they find it more difficult to share with non-BT partners. They experience more problems with browsers, media players and BT censoring of websites.

4.3.4 Barriers to sharing

Most respondents were conscious of email overload and were wary of overloading their colleagues' mailboxes. Many feel that there is too much information and that the sheer volume of unstructured information is overwhelming. Time is also an issue, many do not feel that they or their colleagues have the time to digest or disseminate information that is made available to them. Others do not share because they do not know if people would be interested. On the other side of the coin, there are those who do not wish to share in case they would lose competitive advantage.

5 Focus group methodology

5.1 The focus group as a research tool

Focus groups are an informal technique that can help you assess user needs and feelings both before design and long after implementation. In a focus group, users' issues and concerns about the features of a product or system are discussed. Focus groups often bring out users' spontaneous reactions and ideas and enable observation of some group dynamics and organisational issues.

Focus group research involves organised discussion with a selected group of individuals to gain information about their views and experiences of a system. It is particularly suited for obtaining several perspectives about the same system. The benefits of focus group research include gaining insights into people's shared understandings of everyday life and the ways in which individuals are influenced by others in a group situation.

The key characteristic which distinguishes focus groups is the insight and data produced by the interaction between participants. However, they can only assess what users *say* they do and not the way users actually operate the product. Since there are often major differences between what people say and what they do, direct observation of one user at a time always needs to be done to supplement focus groups. The role of focus groups is to discover what users want from the system.

5.2 Focus group composition

A focus group was conducted to assess ideas for future functionality of the BT Digital Library. 5 participants attended and were presented with 4 scenarios, which were then discussed. The session lasted 1 hour 30 minutes. The scenarios used are described in section 6.

The focus group was led by an experienced focus group facilitator. Each scenario was taken in turn, and the facilitator briefly described the scenario based on the descriptions in annex B, and also showed some screen shots, as in the annex. In each case, the participants were then invited to give their opinions and make suggestions. The facilitator encouraged all the attendees to participate in the discussion.

The participants had varying backgrounds and different experience of using the digital library:

Participant A was an applications developer whose main objective is to capture the requirements of a specific user for an application. Due to this he uses the Digital Library (DL) for reference purposes, e.g. for Oracle codes. Other usage is through reading interesting articles in his spare time.

Participant B was a member of a design team. He uses the Digital Library to search for documents, which may be of reference to the project he is currently working on. He is a new user and only recently registered.

Participant C was a member of a BT software testing groups. The objective of his using the Digital Library is for technical support and self-development. Due to this the user logs on as often as twice a week usually with a specific aim, which is achieved by a range of good articles.

Participant D was a member of a support group specialising in customer relations. The main use from the Digital Library, is to browse for his own development. However this user has problems pinning down specific information due to the very broad topics and information spaces. He likes the O'Reilly section, whereby a range of technical books are available online.

Participant E works as part of a service inventory team, which is very product based, pulling product packages together. He uses the Digital Library to access documents for business proposals and his MBA dissertation; due to this he classes it as a valuable resource. He has a worry that the system has become too big which has made it difficult to access specific documents. As a consequence, using the system can become frustrating and can discourage usage. He would like to see more tailored searching.

6   Scenarios

For the purpose of the focus group, four scenarios were defined, and presented in the following order:
1. searching and browsing
2. profile editing and alerts
3. sharing knowledge
4. expertise location

These scenarios were developed by taking into account both a perception of the functionality required by users and also a general view of what semantic web technology might provide. In particular, they depend upon using ontology learning and metadata extraction techniques to more precisely categorise documents; and on ontology mediation to mediate between the various ontologies provided with the documents. Ontology management and evolution will also be required, as the ontologies change with time. Additionally, they also require the development of knowledge access techniques able to employ the ontological descriptions of documents.

This section briefly explains the key points of each scenario. Annex B provides the scenario descriptions and the screenshots used during the focus group. The proposed functionality described in this section and in Annex B has been developed for the purpose of obtaining an initial reaction from library users. At this stage it is in no way an agreed set of requirements for the future work of the project; although combined with the user feedback it will influence that future work.

Inevitably the focus group could only consider a part of the potential functionality which SEKT could offer the digital library. The choice was constrained by time. It was also considered that certain more complex features, could better be explained through allowing users access to early prototypes. This will be done at a later stage of

the project, when users will be able to provide more detailed feedback on the new functionality.

In particular, functionality which was specifically excluded at this stage but will be considered at a later stage, includes:

- Named entity recognition, i.e. the capacity to identify certain entities (e.g. people, companies, locations) within documents. In general, all the features presented in the focus group relate to whole documents, rather than segments of documents or entities within documents.
- Visualisation, e.g. for viewing the relationships between documents.
- The enhancement of the library database through crawling of the company intranet, or of the WWW.
- The extension of the library information framework, i.e. information spaces and topics, to encompass information stored on users' desktops. In such a scenario, mediation between the library ontology and users' own ontologies, e.g. as represented by their folder structures, would enable users to search each others' desktops using the library ontology. In a further extension of this P2P scenario, users might be able to search others' desktops, and also the library, using their own ontologies.

6.1   Searching and browsing

The current search facility in the digital library used standard search technology to search for individual words or phrases. The scenario suggests that this be combined with a set of 'filters'. Typical filters might be the author and the document type. The latter could refer to the topic or to some more generic description of the document, e.g. representing its level of difficulty (general reader vs. specialist).

Having found a document of interest the user might wish to find other documents which share some characteristic, e.g. same author, same topic, same level of difficulty. This can be considered as part of the process of 'browsing' the library.

Each user will have a profile which will build up as he uses the library and which will be used, e.g. to define alerts as described in section 6.2. When provided with search results, users will be able to give feedback as to the relevancy of these results, which will influence the development of the profile.

Finally, the digital library already provides the capability for a user to save a query and reuse it at a later date. It is proposed that this feature will be maintained with the advent of the more complex query capabilities.

6.2   Profile editing and alerts

The digital library already has an alerting service so that users are notified when new documents which might be of interest to them are added to the library. This is based on public information spaces which are relatively broad, e.g. 'knowledge management' or private information spaces based on an individual user's particular query, e.g. a set of words which might attempt to define some specific subset of knowledge management.

What is proposed here is something more fine-grained than the information spaces, e.g. 'topics' within information spaces. For example, there is currently an information space 'knowledge management', which is inevitably very broad. Topics within this information space might include 'communities of practice', 'organisational learning', 'managing tacit knowledge' etc. Moreover, the library will suggest changes to the user's profile, based on his searching patterns and his response to his alerts. These changes will also be based on the user's feedback, as described in section 6.1.

It is also proposed that the user will be able, in requesting alerts, to specify additional information other than purely topic information, e.g. level of difficulty, or authors of interest.

6.3   Sharing knowledge

A facility is proposed to 'jot' a WWW or intranet page to the digital library, so that it is automatically classified by the library and treated in just the same way as other information within the library. This would include alerting other users if it corresponded to their profiles. Jot is not just seen as a facility for sharing. It is also hoped that users will find it useful to store information for their own purposes within the classification framework of the digital library. This will enable them to retrieve information more easily than, for example, using bookmarks in their browser. Indeed, given the natural human reluctance to spend time on sharing activities, it is thought that the primary motivation for 'jotting' could be to enable easy retrieval by the user himself, and sharing will be a by-product of this.

Adding new information to the library is one way of contributing to the store of knowledge. Another is to add a comment on existing information. A facility is proposed to enable a user to comment both on items from the main corpus of the library, and on items jotted. In the latter case, the originator of the jotting is notified of the comment and who has made it. This facility could, therefore, be used to ask a question about the jotting.

6.4   Expertise location

Sometimes written information is not enough; a person with a particular problem to solve needs to speak to an expert. One way to identify an expert is to monitor what people are reading in the library. Documents can be classified according to their level of difficulty, e.g. for general reader, professional, and expert. It is a reasonable assumption that individuals who habitually read the 'expert' documents on a particular topic are themselves experts. The user wishing to speak to an expert in some particular domain could use the digital library to identify such a person.

On other occasions an individual may be not so much interested in identifying an expert as in finding other like-minded people, perhaps at the same level of understanding in a particular topic, to form a community of interest. Again, a knowledge of what people are reading can help achieve this.

Another approach to expertise location is to scan the content of individuals' emails using the same classification scheme as is used for the digital library.

Whether based on readership of the digital library or on an analysis of emails, expertise location is clearly subject to concerns about privacy and confidentiality. Experts, for example, may not wish to be identified, if only because of a fear of being overwhelmed with requests for help. One solution to this might be for such experts to remain anonymous, and all queries to be channelled through the digital library itself.

7 Focus group results

N.B. This section reports the main findings of the focus group, not all of which are directly relevant to SEKT.

7.1 Highlights

- Choice & Control: Users should have a choice in every aspect of the Digital Library. The system can advise and help them, but they should have an overriding choice.
- Anonymity: Users would like to remain anonymous unless they choose to contact other users personally. User names and a library assistant were suggested as methods to ensure this.
- Feedback & Recommendations: Users do not like to be prompted by the system to give feedback on the relevancy of an article. They are happy to give recommendations and comments, but only when they choose to do so. The system should be able to deduce how relevant an article is.
- Personalisation & relevance: The Digital Library must be relevant to all users. Participants stated that personalisation to interest group level would be good enough, as each user will have chosen which interest groups they sign up to.
- Regulatory Issues & Competition: Users were worried about security of sharing information across the different parts of BT.
- Clear Structure: Users would like to be able to see easily exactly what is available on the Digital Library.
- History: Users find it very useful for the library to store a history of all their searches and actively alter their profile (with their knowledge), and for them to be able to view their search history.
- Alerts: Users are frustrated by frequent email alerts. Information should be provided for them when they log in, or at intervals they have chosen (once a month etc).
- Expectations: Amazon would be a good site to benchmark as it set high user expectations.
- Time: Users do not have much time to spend searching the Digital Library, they expect to find what they need quickly and easily.
- Loyalty Scheme: Could there be a loyalty scheme for frequent users – rewarded by free articles. (N.B. in some cases the digital library contains both the document abstract and the full text. In other cases, there is only the abstract, in which case a paper copy of the full text needs to be ordered and paid for. This comment is a reference to the requirement to pay for this paper copy.)
- Business Related: Users would like to see more business related journals and publishers available.
- Central Repository: Participants suggested the Digital Library would be a good central repository for computer-based training packages etc.

7.2 Response to Scenarios

7.2.1 *Search and Browse*

- The user profile should show areas of interest and recommendations for the user when he logs on to the Digital Library. [N.B. To some extent this is currently the case. For example, when a user logs on to the Digital Library, he is reminded of which information spaces he is a member.]
- The profile should be personalised and each user should be recognised by the system.
- Whatever search functionality is available the user should be given examples of what the system can accept and how to fill in the field.
- A personal folder would be useful with a history type application, which enables the user to pick up from where he left off.
- Time is a big commodity for users. Searches must be fast – particularly when the user has a clear idea of what they are looking for. "10 minutes is too long". They are happy to take more time when conducting a more open search.
- Participants would like an initial download of everything available based on the keyword they have entered. They can then filter down into more specific categories.
- Participants were reluctant to give prompted feedback. This is because often they were asked to evaluate the document before they had used it. They felt that they would pro-actively add feedback if they wanted to, and that they would expect the system to be able to evaluate which articles were most useful for them.
- Participants liked the idea of being able to leave comments for other users if they wanted to do so. They felt that comments left by other users would be useful for them. [N.B. This feature is currently available, although little used.]
- Participants specified that they would like to be able search by the author.
- Participants would like to see a list of available journals – to help them get straight to the information they need.
- Participants would like to be able to make recommendations to the Digital Library e.g. "I would like to be able to find…………in the Digital Library".

It is important that the users are given an example of how to fill in the search screen. Participants would like a sample to show them how to find what they need. It would also be helpful for the users to be able to have a choice in how wide their search is. This could range from as wide as keywords, to specifics such as a document title or the date the document was published. This, however is subject to what you know about each document.

Users expressed a view that they would like to have a personal folder, which could give them an option to pick up from where they left off or a 'history' function to track what they have previously looked at. This file should also show the user relevant documents, which are related to their select fields of interest.

Participants where adamant they did not want to be emailed with recommendations from the library. They felt these should be saved until they logged in so as not to create email spam. An alternative to this could be for the user to regulate when recommendations come to them in a bulk i.e. weekly or monthly. This would be set by personal choice.

Users expressed a concern that they were often asked to comment on the usefulness of a document before they were able to read it, and because of this they often gave a bad review or cancelled the request. However, people would often still like to give their view but after they have used the document. Ideally an optional feedback button at the bottom of the document would be good.

Due to the growth of the Digital Library the time it takes to locate the document is increasing. This frustrates the users and discourages usage. Ideally they would prefer an Amazon timescale. Along with this, users are not always sure if specific documents will be available and therefore will be discouraged from using the system due to the time that is wasted.

When ordering an article from the British Library when the Digital Library does not stock it, the user has to enter all the article details manually. They would expect the DL to automatically pre-populate the relevant fields to aid efficiency.

7.2.2 *Profile Editing and Alerts in the Digital Library*

- Information Spaces and Topics should have scroll over descriptions so that users can easily see what is meant by each heading.
- Participants liked the idea of having documents classified by different levels of expertise, but were worried about how the classification would be done. They felt a search should present all levels of article, ranked in order, then the user could choose which they wanted to view.
- It was suggested that any emails containing updates should be send out in bulk not as and when the updates occur. It was also implied that the users should be able to have control over how often these e-mails are distributed.
- Interest groups were suggested to give users the ability to gain ideas from colleagues. Users should have the choice as to whether they receive recommendations and updates from groups, and should be able to stop them as and when they wish. [N.B. Users subscribing to a particular information space are currently able to see the other subscribers.]
- Users should be able to unsubscribe from certain groups and interests as and when they choose, or after a reminder from the system. Participants did not like the idea of the Digital Library automatically updating their profile without asking them, or reminding them first.
- The Digital Library should help the users, not control them. The users should always have a choice.

The participants would be interested in receiving emails that contain information about specific areas which they have registered an interest in. However these emails should be limited to what and when people specify. Ideally information should be saved and sent out in one email at a set time.

Participants also noted that it would be valuable to have the documents graded in order of how specialised they are. However all users should be able to access all levels and have control over what they can use. Participants expressed a concern that although they may be at a basic level in a subject area, they may wish obtain information at an expert level, or vice versa.

Users should be able to unsubscribe themselves from different groups and interests as their needs develop and change. This task should not be carried out automatically as users may not need a specific topic for a certain amount of time, but still wish to be able to pick it up at any point. For this to happen it would also be useful for a dialog with the user to be developed. The system should be there to help, but the user should always have choice and control.

All participants expressed a view that they would like to have access to interest groups where people using the same documents or articles could discuss their findings. This would enable the users to gain ideas from colleagues without discussing specific projects. However, as with all other options of the Digital Library, this should be optional. Levels of membership could also differ, some users may wish to be openly involved, others may just wish to receive information now and then.

7.2.3   Sharing Knowledge

- There is a key issue of privacy within the Digital Library in relation to what information people can access about other users.
- It was suggested that people could help other users interested in their area of expertise, however this should be protected by user names to maintain privacy and not risk someone's reputation.
- It could be optional to have an instant messenger type service so that users can see who is online and available. This would give them the opportunity to discuss issues amongst themselves. Users would have the choice to register to be a part of this or to refrain.

Participants were dubious about personal information being given out over the Digital Library, particularly as they felt this could influence their reputation. For example, if a user requires help, and is given the name of an expert by the Digital Library the expectation is then set that they will receive some help. However, the expert may be too busy to give any support at that time, although usually they are very approachable. If the user knows who the expert is they may end up feeling they have been unhelpful, although it is simply that they were busy at the time. This does not encourage networking, and does not give the expert a choice in whether they respond or not. This may discourage usage.

Participants also brought up the issue of competitiveness internally as details of projects could be destructive if shared incorrectly and may breach security issues. Participants were concerned about who would police what was being shared through the library. They all supported the idea of sharing knowledge, but were concerned that an acceptable level should be set.

Participants suggested newsgroups or forums could be a good way to reach wider audiences and give users the opportunity to share information and discuss problems in

a safe environment, without going into specifics. Users would have full control over what they wished to share, and whether they took part at all.

People were also keen on the idea of an instant messenger type service within the Digital Library. This could use usernames or characters to solve the problem of anonymity. This also allows people to share knowledge when it is convenient for them, as they do not need to log in when they are busy, or can show if they do not wish to be contacted. Again this should be optional.

7.2.4   Expertise in location in the Digital Library

- A library assistant would be a useful tool for the users to have to help them with personal queries about the library. An example would be 'Ask Jeeves'.
- Anonymity is important within the library and particularly in the interest groups. People do not want to be contactable unless they give permission. They should also be able to choose at which level of expertise they can help.
- There could be an opportunity to encourage different levels of users, based on their loyalty to the Digital Library – Gold / Silver users. This could perhaps be linked to different pricing structures.

Participants were interested in a library assistant that would be able to put users in contact with people with expertise in particular areas. You should be able to decide which level of expertises you have and therefore can help others at the level they need. This should be anonymous and carried out through the library. The experts the Digital Library contacts should be able to choose whether they remain an expert or not, and should be able to step down at any time. Participants did not like the idea of people being contacted on an individual basis as they felt both the experts and the users privacy should be kept (unless they specifically choose to get in touch). This also means the Digital Library can offer a more reliable service, and is not dependent on one person replying. The library can also monitor requests to help with prioritising interest areas.

Interest groups should be optional to join and users should be able to subscribe to different levels. Again there is an issue of anonymity, so user IDs seem a good idea. Participants also expressed a wish that they were not monitored in a 'big brother' sense, they did not like the idea of emails being tracked to see who was discussing what topics.

Users stated that they would like different levels of membership based on their loyalty – a gold membership for frequent users and helpers that could be rewarded by a certain number of free articles a month; a silver membership that is reward by price reductions etc.

7.3   General comments

Participants believed the Digital Library to be a very useful and valuable resource, which is relevant to their line of work. They also believed that it fitted into the way business was heading.

The library should be tailored to the needs of the users – it must be relevant down to each interest group level at least. People can choose which interest group they sign up to, and are therefore happy to be treated as part of that group. The Digital Library should recognise who its users are, and what requirements they have.

In the future the Digital Library could also hold on-line training which people can carry out in their own time. It could be a central area for the BT Learning Academy, and the CBT (Computer Based Training) packages.

It would also be useful to have more sections of specific publishers, like the existing O'Reilly section.

Users also raised the question of copyright, who owns the copyright of articles? Can copies be made? Can the other people in the team or department use the document as well? People were very unsure of these key issues and this can cause confusion.

Participants suggested that visibility of what type of information is available through the Digital Library would be useful, "with Amazon you kind of know what you can expect to get, I'd like to know that for the digital library too".

Many users would like access to some less academic areas, perhaps free business magazines, high street magazines etc. They would like the Digital Library to act as a central repository for all the information they could need – both from a research or academic point of view, and a technical, business point of view.

Participants mention Amazon a great deal, and it is recommended that they would be a good site to benchmark and look at for ideas, particularly the list functions and the speed of the searches.

8   Conclusions

Both the questionnaire and the focus group confirmed that there is a requirement for the kind of functionality proposed in the scenarios. However, this must not be bought at the expense of slow system response. Users looked favourably on the more advanced alerting features. However, there is a desire to remain in control, e.g. of membership of alerting lists.

It was apparent that users are reluctant to share knowledge because of time constraints and because they do not want to overwhelm their colleagues with information. At the same time users have difficulty retrieving the information they have stored themselves. There would seem to be a need for a system which provides users with a good framework for storing and retrieving their own knowledge, and which is able to make precise judgements about which of this knowledge to share with others. This would help overcome the disincentive to share knowledge, since using this system would be inherently a selfish rather than an altruistic act. The expertise location facilities were also generally well-received. However, there were concerns about privacy and anonymity.

To summarise, the questionnaire and focus group have confirmed a requirement for the proposed features. However, they have provided some valuable feedback about

how those features should be implemented. As far as is practicable, the SEKT project will take into account that feedback as it develops this case study.

Annex A   Questionnaire – questions and detailed results

ReportBuilder:SEKT Digital Library Questionnaire

1. When searching for information how often do you use the BT library?	Percentage	Totals
Daily	2%	13
Weekly	16%	113
Monthly	13%	89
Occasionally	49%	342
Never	20%	136
Total Responses		**693**

2. Do you use the BT library for:	Percentage	Totals
Project-related information	33%	357
Self-development (building my professional or technical skills)	35%	380
Maintaining my professional or technical skills	29%	311
other	3%	35
Total Responses		**693**

3. In terms of searching, how satisfied are you with the BT Library?	Percentage	Totals
Very Dissatisfied	2%	12
Dissatisfied	7%	37
Neutral	21%	116
Satisfied	50%	276
Very Satisfied	19%	104
No Opinion	2%	11
Total Responses		**693**

4. When I search the BT Library I find the information I want with ease	Percentage	Totals
Strongly agree	4%	24
Agree	48%	270
Neutral	28%	154
Disagree	16%	88
Strongly Disagree	2%	11
No Opinion	2%	11
Total Responses		**693**

5. I often give up when searching the BT Library	Percentage	Totals
Strongly agree	2%	10
Agree	16%	88
Neutral	25%	137
Disagree	39%	215

Strongly Disagree	15%	83
No Opinion	4%	21
Total Responses		**693**

6. Could you suggest improvements to the BT Library?

Totals

Most representative responses:

"Better searching"

"more full documents on-line, not just abstracts please."

"Information Spaces often have ambiguous names and cover extremely broad areas. It's difficult to pin them down. Also, the information seems oriented towards research/academia, rather than the everyday world of project support that I need info for."

Total Responses		**693**

7. When searching for information how often do you use Finder (the BT intranet search engine)?	Percentage	Totals
Daily	21%	146
Weekly	28%	191
Monthly	9%	64
Occasionally	30%	205
Never	13%	87
Total Responses		**693**

8. Do you use Finder for:	Percentage	Totals
Project-related information	48%	490
Self-development (building my professional or technical skills)	25%	260
Maintaining my professional or technical skills	23%	232
other	5%	49
Total Responses		**693**

9. In terms of searching, how satisfied are you with Finder?	Percentage	Totals
Very Dissatisfied	12%	70
Dissatisfied	22%	134
Neutral	24%	146
Satisfied	34%	206
Very Satisfied	7%	44
No Opinion	1%	8
Total Responses		**693**

10. When I search using Finder I find the information I want with ease	Percentage	Totals
Strongly agree	2%	14
Agree	28%	167
Neutral	23%	137
Disagree	28%	172
Strongly Disagree	18%	108

	Percentage	Totals
No Opinion	1%	7
Total Responses		**693**

11. I often give up when using Finder for searching	**Percentage**	**Totals**
Strongly agree	12%	75
Agree	34%	205
Neutral	21%	127
Disagree	24%	146
Strongly Disagree	7%	43
No Opinion	1%	7
Total Responses		**693**

12. Could you suggest improvements to finder?		**Totals**

Most representative responses:

 "I want to be able to search based on phrases, combination of words, absence of words or phrases and to be able to search within previous results. Google's got it nearly right - just emulate this."

"Eliminate duplicate hits of the same document / web page. Separate the results for documents and web pages."

Total Responses		**693**

13. When searching for information how often do you use the internet?	**Percentage**	**Totals**
Daily	73%	504
Weekly	19%	133
Monthly	2%	11
Occasionally	6%	38
Never	1%	4
Total Responses		**693**

14. What search engine(s) do you use?		**Totals**

Most prepresentative responses:

"Google"

"Google, Ask Jeeves"

Yahoo, Google, Alta Vista"

Total Responses		**693**

15. Do you use the internet for:	**Percentage**	**Totals**
Project-related information	33%	560
Self-development (building my professional or technical skills)	32%	547
Maintaining my professional or technical skills	30%	499
other	5%	79
Total Responses		**693**

16. In terms of searching, how satisfied are you with the Internet?	**Percentage**	**Totals**

	Percentage	Totals
Very Dissatisfied	3%	22
Dissatisfied	1%	8
Neutral	7%	46
Satisfied	44%	301
Very Satisfied	45%	311
No Opinion	0%	0
Total Responses		**693**

17. I often give up when searching the internet	Percentage	Totals
Strongly agree	1%	8
Agree	8%	56
Neutral	11%	73
Disagree	46%	314
Strongly Disagree	34%	230
No Opinion	0%	2
Total Responses		**693**

18. How much time do you spend each week searching for information?	Percentage	Totals
1 hour	29%	198
2 hours	34%	234
4 hours	21%	145
6 hours	6%	42
> 6hr	9%	64
Total Responses		**693**

19. How much time do you spend each week analysing information?	Percentage	Totals
1 hour	18%	121
2 hours	22%	148
4 hours	21%	144
6 hours	12%	81
> 6hr	28%	188
Total Responses		**693**

20. When you find a useful information source, how do you ensure you can find it again?	Totals

For example: bookmarks, store locally, add to Livelink

Most representative responses:
"bookmarks or local store"
"bookmark mainly - change the title of the bookmark so it is more eye catching. put in folders for ease of reference."
"Usually bookmark, or if it is not self-explanatory I e-mail the url to myself with a description added."

Total Responses	**693**

21. What problems do you have in finding pages again?	Totals

Most representative responses:
"memory sometimes the description of the page is not helpful (I know you can overwrite this yourself, but I don't always do that)."
"Remembering what I've saved and where"
"Trying to remember what the bookmark was called and in which folder I saved it.
URLs change with no autoforwarding (more common on intranet sites than internet sites)"

Total Responses	**693**

22. What techniques do you use to find pages again?

	Totals

Most representative responses:
"use bookmarks or 'history' on browser"
"Key words or phrases"
"Organise favourite links into meaningful folders Organise stored information into meaningful folders. Use PC search facility"

Total Responses	**693**

23. Consider a time when you found information sources on the internet or intranet that you wanted to share with colleagues. What kind of information source was it?

	Totals

For example: website, document, news article

Most representative responses:
. "website, news article"
"website, document, news article & press release"
"Information regarding Digital Rights Management, i wanted to share this with my team."

Total Responses	**693**

24. How did you decide to share it?

	Totals

For example: email, instant messenger, add to Livelink, store in a shared area

Most representative responses:
."email, instant messenger, & store in a shared area"
"email and add to Livelink if large"
"If short copy text & URL into email. If longer copy URL into email If required for longer term reference store in shared area, altert colleagues with email indicating location."

Total Responses	**693**

25. How did you know it was worth sharing?

	Totals

Most representative responses:
. "Looked relevant to the work area."
"because I knew the areas of interest of the people I wanted to share it with."
"Gut instinct, backed up by feedback from those I shared it with after the event"

Total Responses	**693**

26. Was it difficult to share the information? If so, why?

	Totals

Most representative responses:
"Not particularly. Passing urls by IM or email is no problem. E-Mail is obviously not the ideal candidate for passing large documents but file transfer using IM overcomes this. Ferit was an option before IM, but to be frank it was too long winded so I rarely used it."
"Email overload means you have to think carefully about sending emails"
"No but it could have been easier. I had to decide who to share the information with rather than posting to an interest group. Email is less efficient but I believe is more effective. Services like Livelink are there technically but do not have the same level of usage."

Total Responses	**693**

27. What stops you sharing details of useful information sources with colleagues?	**Totals**

Most representative responses:
"fear that i'll add to their email overload"
"timeconsuming"
"Information overload. Work overload."

Total Responses	**693**

28. If you don't want to share useful information sources with colleagues, what are the reasons for this?	**Totals**

Most representative responses:
"If I'm not sure they will be interested err on the side of caution."
"Sometimes there may be some competitive advantage"
"Pressure of workload / time constraints often prevent knowledge sharing."

Total Responses	**693**

29. How do your colleagues share details of useful information sources with you?	**Totals**

Most representative responses:
. "email, MSN Messenger"
"email url or copy of doc's via email"
"put up a link on a common website or by email"

Total Responses	**693**

30. What barriers prevent your colleagues sharing the useful information resources they find with you?	**Totals**

Most representative responses:
"time, information overload"
"they might not realise I'd be interested in the information; they may not want to swamp me with stuff that might only be marginally interesting or useful"
"size of files able to be sent via e-mail"

Total Responses	**693**

31. Thank you for your time. If you'd like to be included in the draw for one of three £30 book prizes, please give your details below:	**Totals**
Total Responses	**693**

32. Would you agree to take part in a focus group to direct the development of the library?	**Percentage**	**Totals**

D11.1.1 / BT digital library initial analysis

Yes	37%	247
No	63%	427
Total Responses		**693**

Annex B   Focus group scenarios and screenshots

B1   Searching and browsing

B1.1   Scenario

Ivana is using a Web browser, is logged in to the BT digital library, and is ready to use the search function. The system prompts her to enter a query phrase, and to select the information sources in which she wishes to search for information (the default is to search all sources). Ivana is prompted to select some additional information filtering rules, e.g. search based on author, type of document, date published etc. Ivana initiates the search by clicking the 'search' button. The search engine processes the query (and information filtering rules) and returns a set of results.

Each result gives Ivana the option to make use of further information filtering rules, for example, if one of the returned results was a document, and that document was authored by George Smithson, then the user should be able to submit a search for other documents authored by that person. In a similar way, if the document was classified as a particular type of document, e.g. a HR policy document, Ivana should be able to modify her search criteria to search for all documents of a similar type. Ivana views the results returned by the system. She now has the option to carry on refining her search or display one of the result items.

Ivana could reset the search to the default settings (specified in her search profile) or save the query and any associated information filtering parameters (Ivana will be given the option to give the query a name and store it in a personal folder).

The system will prompt Ivana to provide some feedback on the relevancy of the information item to the query. She is asked to classify the information item as being either: a) highly 'relevant', b) 'quite relevant', c) of 'some relevance', or d) 'of no relevance' (the feedback prompt will disappear after a predefined timeout period).

Please note: a user's search history and 'interests' profile will be taken into account when ranking the results returned from the search engine. Contextual information will help disambiguate the user's query.

B1.2   Screenshot

1. Please enter your
search here:

2. Please select sources   ☐ Inspec   ☐ HR Web server ☐ Choice 1
of information to search:
                                 ☐ ABI   ☐ BT Intranet   ☐ Choice 2

3. Please select some filtering rules (based on user profile: 'search preferences')

Author:

Document type: [-] Policy
                 [+] Employment
                 [+] Equal opportunities
                 [-] Promotion
                     [+] BT Exact
                 [+] MMP
                 [+] Benefits

BT

B2   Profile editing and alerts

B2.1   Scenario

Michael has just joined BT as a graduate recruit and his manager suggests that joining the Digital library would be a good source of information on BT in general as well as his own work area. After getting his account set up he spends several hours browsing around the library and has a good idea of the types of documents and content available to him. He decides that he needs to integrate his browsing with his day-to-day tasks and also get information in a more structured way. He decides to join some information spaces as then he will be alerted when new items of interest to him are added to the library. Having looked at the whole list, he is not quite sure which ones to join and really wants some to be suggested for him. Fortunately, there is a facility to do this. He is able to select keywords and phrases from a list and also add his own. He can even include details of his project(s), interests and skills. For example, he can input a brief description of a project on which he is working. The library analyses his input and comes back with a list of suggested information spaces that appear to cover his interests. Michael then selects which spaces he would like to join. The library stores details of all the information spaces Michael has chosen to be a member of as well as the information he keyed in.
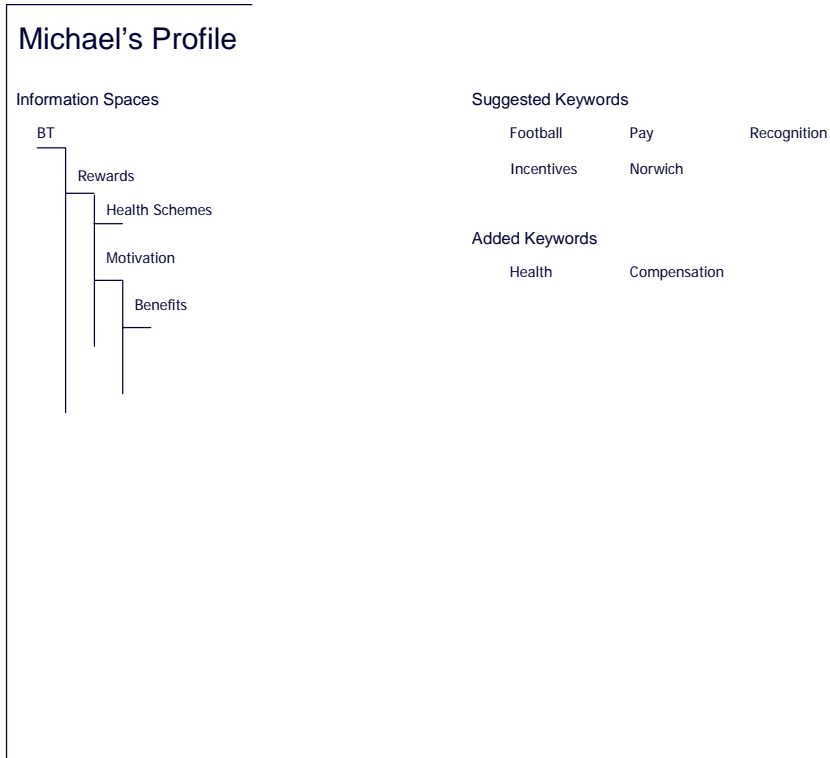
Moreover, some of the information spaces are quite broad, and they are broken down into topics. If Michael wants to be more specific, he can specify topics within the information spaces. The automatic analysis will also select specific topics for him to make the alerts more focussed.

In association with information spaces and topics, Michael can specify what kind of information item is of interest to him, e.g. level of difficulty (general reader, professional, expert). He can also specify an interest in particular authors.

Over the next few weeks, he continues to browse around the information spaces that he has joined usually when he has been alerted to new content. The library monitors his reactions to these alerts, i.e. whether he views new items following an alert or whether he ignores the alerts. The library continually analyses Michael's search and viewing habits with a view to automatically updating his profile with keywords/phrases that it has extracted from items that he has viewed which are outside his current profile. The library will alert Michael when changes are made to his profile and based on this suggest information spaces and topics to which he should subscribe. It will also inform him when a new information space has been created that might interest him. When Michael consistently fails to respond to alerts relating to particular information spaces or topics, it suggests that he might wish to unsubscribe from these.

As time goes by , Michael has become more adept at determining the relevancy of the items he views and starts to feedback this information using the library's voting facility. For every item identified to Michael by a search or by an alert, he is able to vote whether the item is useful to him or not. The library is continually analysing his feedback and amends his profile accordingly. He has also started to contribute items (see the sharing scenario) and the material he contributes is also analysed to update his scenario.

B2.2   Screenshot

Michael's Profile

Information Spaces   Suggested Keywords

BT   Football   Pay   Recognition

   Rewards   Incentives   Norwich

     Health Schemes

    Motivation   Added Keywords

      Benefits   Health   Compensation

B3 Sharing knowledge

B3.1 Scenario

Jane is reading up on presentation skills at her 1-to-1 meeting with her boss. She uses the BT Library and finds an interesting article and wants to note it for future use; she used to bookmark pages to fulfil this function but her bookmark files became unwieldy in no time and besides she couldn't access them from her laptop.

She uses Jot in her bookmark bar to immediately call up the Digital Library. A window pops up asking her to categorise the entry, but what she'd really like is for the Library to examine the document and suggest a category based on the content. Jot allows Jane to remember important pages from inside the Digital Library and also web pages found on the Intranet and the Internet.

The Library encourages her to add some comments as to why she is jotting this document. Jane continues and sees jottings that other people have left. Jane thinks that an entry left by Ben is interesting but has doubts that it would really work for BT, as suggested by Ben's comment. She uses the comments link to add a question, hoping that colleagues will respond. An email is sent to Ben, the original poster, to make him aware of Jane's interest.

Jane is researching into a new HR policy on how to value innovative ideas and reward teams for the development of new products. This is a new project area for her, as she had previously been working on the reviewing annual appraisement system. As she is new to the subject area, she visits the Digital Library to start searching for relevant information. After searching for a short period of time, Jane returns to the Digital Library home page. Based on the documents Jane has recently chosen to read, the Digital Library spots that Jane's current interests have changed: the Digital Library modifies the "what's new" and "hot topics" to match Jane's current interests. Jane now notices that Sarah had jotted pages on the topic of "reward schemes", the week before, and asks the Digital Library to send to Sarah a question.

A few days later, Ben jots two documents. The first document is about "communities of practice", and the other is about "digital rights management". The Digital Library decides that Jane should be alerted that the first document has been stored, as that appears to be highly relevant to Jane. Dorothy also jots a document; Dorothy used to work in Jane's team and thinks this might be useful to them. The Digital Library again analyses the text, but this time, Jane is not directly notified, as it matches her previous interests but not her current work focus. Since Jane's current work focus has changed, the notification is queued, until Jane's activities return to their previous focus.

Jane returns to the Digital Library to read the full document that Ben had stored, and highlights to the Library that she is extremely interested in reading more on that subject area. After updating her profile, Jane notices the document that Dorothy had shared, and decides to read the document anyway, as she knows that Dorothy always finds good quality pages. The Digital Library removes the pending notification, as Jane does not need to be told about a document she has already read. Jane quickly looks at the other pages that Dorothy has jotted to remind herself of Dorothy's interests.

B3.2   Screenshots

All Jottings	My Jottings

By Date	By Topic	By Keyword	By Person

Today:

A New Kind Of Groove - Online Collaboration and Web Conferencing Breaking News - Kolabora.com

> Jotted by Nick Kings: "Groove adds social networking, in V3.0 beta... P2P file sharing on steroids?"
> Jotted by 3 others...
>
> informal, E-Commerce, personalization, search engines

Yesterday:

MIT Project Oxygen

> Jotted by Paul: "Project Oxygen should not be forgotten. Will have impact here."
>
> Collolaborative, sharing, interesting

20th April, 2004:

Another web site

> Jotted by Person B : "Comment made by person on page".
> Keywords added by the person, as personal reminder and keywords extracted by system

BT

All Jottings	My Jottings

By Date	By Topic	By Keyword	By Person

BT (45)

> Rewards (30)
>
> > Health Schemes (3)
>
> Pay (7)
>
> > Benefits (2)

BT, Rewards, Pay, Benefits

20th April, 2004:
> Pensions and Taxation
>
> > Jotted by Ben : "Useful reference page on new thresholds". Jotted by 3 others...
> >
> > Taxation, thresholds, benefits, government, regulation

1st March, 2004:
> Title of web page – extracted
>
> > Jotted by Person B : "Comment made by person on page". Jotted by 4 others...
> >
> > Keywords added by the person, as personal reminder and keywords extracted by system

BT

B4 Expertise location

B4.1 Scenario

Sue works in HR and needs help with regard to a tricky case involving bullying and harassment, relating to someone who is disabled. She has used the digital library to obtain relevant background papers and information about legislation. However, deciding how to handle her problem case she wants to speak to someone within her company who has a deeper understanding than she has of the issues and how to handle them.

Sue uses the expertise location tool. This enables her to identify who has been reading papers on these topics (bullying, disability). She can browse the list of topics, identify the ones she wants and identify the readership level for each topic (e.g. general reader, professional, expert - see 'profile editing and alerts' scenario). She looks particularly for someone who has been reading at the 'expert' level.

Within the topic harassment, she identifies a sub-topic 'minority harassment'. She also wants to identify people interested in 'disabilities'. She searches for people reading articles at the expert level on 'minority harassment' and 'disabilities'. Sue identifies someone appropriate who has been reading at the expert level, and gives him a call.

The system also analyses emails and identifies an interest profile for each user. Sue is able to interrogate the database of e-mail profiles, using the same topics as characterise the digital library database. This provides her with a list of additional people with an interest in the area of her particular problem (i.e. bullying related to disability). As with the readership of papers, Sue is able to categorise the people sending and reading e-mails by readership level. Again, she is interested in the 'expert' level.

Expertise location can also be used to establish communities of interest and communities of peers. Tony is working within HR and currently studying for his professional exams. He wants to make contact with others at the same level, or a little more advanced, than himself. He uses the expertise location facility but looks for people at the 'general reader' and 'professional' level. He contacts the people so identified who are based close to his office, and suggests that they meet occasionally to share experiences and learn from each other.

B4.2 Screenshot

No screenshot was used for this scenario as it was felt that a screenshot would add no new information to the focus group.

References

[1] Alsmeyer, D. and Owston, F (1998). Collaborating in Information Space. *Proceedings of Online Information 98*. 8-10 Learned Information Europe Ltd, pp 31-7

[2] SEKT deliverable D15.1.1, Measurements Manual