Executive Summary

The advent of the Internet has brought about a revolution in the way people and institutions, such as governmental bodies, are able to communicate and interact. Worldwide, governments have begun defining strategies for the online delivery of their services as a means to respond to this changing situation and to the new opportunities it raises. An eloquent example to this effort is the aim of the European Union – outlined in the eEurope 2005 Action Plan – to design and deliver “modern online public services”, such as eGovernment, eHealth and eLearning, to citizens. Nevertheless, despite intensive developments in the delivery of online public services across the EU, the actual degree of their adoption by citizens has disproved initial optimistic estimates. Experience has demonstrated that simply moving a service online fails to deliver the expected results; in effect, eServices need to be appropriately re-designed from within, bearing into consideration, throughout every step of the process, the end-user.

Stemming from the necessity to put the user at the centre of all developments in the Information Society, the EU funded project eUSER (Contract no. 507180) was deployed to address the user perspective in the development and delivery of eServices to citizens. Within the project’s lifespan, an analytical conceptual framework was developed, identifying and presenting past and current developments in the design and delivery of online services with relation to user needs and requirements, as they have been defined in the corresponding literature. During this phase, an approach was proposed to measure a system’s acceptability, in terms of potential user adoption, following all usage lifecycle stages and monitoring the user’s behavioural situation and intentions at each stage. This led to the definition of an evaluation framework for the user-orientation of a system and an inspection tool, called ORIENT, for guiding and implementing expert-based evaluations. ORIENT is aimed to guide experts in inspecting the user-perceived characteristics of an eService and deriving conclusions on the design and delivery features of the system.

This report presents the ORIENT tool with reference to the underlying evaluation framework. Then, information on the pilot application of the ORIENT tool on ten European eServices is provided. Three services from eGovernment, four from eHealth and three from eLearning were the subject of this evaluation. The inspection produced both generic and specific results, providing apart from the reports for each service, summary conclusions for each eService domain. It was generally concluded that electronic services in Europe are merely user-oriented since their overall scores are only just above borderline acceptance levels. In particular, eGovernment services are well available in terms of time, access, costs, etc., but they are more novice-oriented, failing to satisfy the requirements of moderate and experienced users, plus they fail to maintain a close relationship with their customers. eHealth services were found to perform overall better, with quite satisfactory user perceived visibility and utility rates and good relationship maintainability scores. The main point subject to improvement is the actual quality of use of the service functions, i.e., the quality of their user interface. Finally, the results for the eLearning domain reveal that the given services are highly available and approachable to users, they share a good overall quality of use but, as with most eServices, their low point lies in their incapacity to make users re-use their systems.
Acknowledgments

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Chapter 1

INTRODUCTION

From the moment the World Wide Web (WWW) has made clear its real powers, such as its universality, governments and other providers all around the world began outlining their visions for the online delivery of their services. For instance, among the main EU objectives underlining the eEurope 2005 action plan stands the vision of making “modern online public services”, such as eGovernment, eHealth and eLearning, available to all citizens. In this same direction, the current Information Society Technologies (IST) programme has been strategically aligned with the eEurope 2005 action plan in order to “…reinforce and complement the eEurope 2005 objectives and look beyond them to the 2010 goals of the Union of bringing IST applications and services to everyone, every home, every school and to all businesses”. These strategic goals have seemingly been accomplished to a great extent as over 90% of public service providers had an online presence and 40% of basic public services were fully interactive in the European Commission’s fifth annual survey of online government services in Europe by the year 2005 (CapGemini Ernst & Young, 2004).

Nevertheless, despite the impressive progress in developing and delivering public services online across the EU, only half the distance would be covered towards the eEurope 2005 goals unless these services were positively accepted and fully adopted by users. In effect, in spite of significant efforts worldwide, (for example, see Accenture, 2002; Top of the web survey 2003), the realisation of the eServices vision has proven hard, and the offered systems show controversial degrees of success. There is now a growing recognition that the success of eServices, just like other software applications, does not rely solely on technology and its utility. Simply moving a service online has proven problematic. According to collective mindset change, ultimately, both organisation processes and their eServices need to be appropriately (re-) designed in order to put the user, citizen or business, at the centre (Accenture, 2002). In this perspective, user needs, stemming from the traditional way that services were offered in the past, need to be readdressed and appropriately translated in order to reflect the nature of the new communication medium, i.e., the Web. In these terms, it is necessary to study and tackle the barriers that impede the user from using and ultimately adopting IT, in general, and eServices in specific.

Lately it is becoming all the more evident that the problems and challenges faced by governments and organisations when contemplating the design of online services and products for the population are inevitably multi-dimensional since the successful design and the efficient delivery of a product relies on a number of user-related issues. A recent study (Millard et al., 2004) on the organisational challenges faced by public agencies that wish to take their services online has demonstrated that there is a strong link between reorganising government back-offices and the experienced electronic public services by users. Thus, it was deducted that the introduction of ICT combined with organisational change in public administrations has a direct impact at the front-
end for users who save time and effort through the online availability of transactions, automated procedures, accessible and cost-effective services, increased transparency, new possibilities, better service fulfilment and user needs’ satisfaction, greater ease of use and greater user control. A ramification of the efficient and effective re-structuring of public services to integrate new technologies is that interoperability, which is a major milestone for eEurope 2005, is much easier to achieve if the infrastructure for inter-organisational cooperation already exists.

Another issue that requires the attention of electronic service providers is that of trust and security of their systems, not only in terms of actual infrastructure for ensuring secure transactions but also in designing systems that promote the feeling of security to their users. According to statistics (SIBIS, 2003), a large portion of the European population still remains sceptical towards transmitting sensitive personal data over the Internet, as they believe that online transactions are not secure enough. In addition, the same study has identified that European citizens are disappointed by the administrative services provided online by their governments due to their limited relevance to their needs and difficulty in use. This leads to the assumption that the usability of a product, as the quality of use and the effort-free interaction, as well as the utility of the service to users are factors that need to be incorporated in the design of a service in order for it to be successful. Finally, the accessibility of eService user interfaces, as it has been defined in the context of Universal Access (Stephanidis et al., 1998) to include persons with disability, the elderly, minority populations, etc., is fundamental for promoting the Information Society in Europe. Therefore, in such a context, involving the user perspective when designing products and services is the only secure way to ensure that the later will be received positively. Moreover, locating user needs and preferences, explaining their intentions and deciphering the motives behind their actions before, during and after using an online service is an exceptional area of interest that few have attempted to embark on.

Within the context of the above, an EU funded project called eUSER (Contract no. 507180) was deployed to address the user perspective when considering the development and delivery of new IST-based applications and services to European citizens. The focus of the eUSER project was on “the needs of citizens as users of online public services in their interactions with public administrations, in the management of their health and in furthering their education and developing their skills” (eUSER D 1.1, 2004). For the purposes of the project, three major application and service domains were selected, namely eGovernment (considering administrative interactions with central, regional and local governments), eHealth (considering health information retrieval, online management and online monitoring of one’s health), and eLeaning (considering lifelong learning opportunities such as training and furthering one’s skills), for extracting and analysing generic user issues that apply both crosswise and specifically at each service domain, with the aim to identify user requirements and eventually produce sustainable advice and answers to these.

Thereafter, an analytic Conceptual Framework (ibid.) was defined to specify the various characteristics of eServices that may affect the degree to which the population at large will adopt them. The conceptual framework was then further elaborated incorporating a number of well-known models related to the theory of technology.
acceptance in order to also serve as an advanced and generic Evaluation Framework (Mourouzis et al., 2005) for the assessment of electronic services (eServices), in terms of their user-orientation (as the degree to which the user needs and requirements are met throughout the user experience lifecycle), and thereby predicting their adoptability (as the degree of the likelihood to be adopted from their target users) (Mourouzis et al., 2005). This model, the “User-orientation Evaluation Framework”, allows for assessing user perceived qualities (such as visibility-findability, perceived usefulness prior access and use, availability-approachability, interaction qualities (i.e., throughout the actual usage of the system, e.g., accessibility, utility and usability), and user relationship maintainability) at various depths, including at the level of system and system parts such as system functions, interaction controls etc. Furthermore, this model incorporates accessibility as a basic determinant of acceptability and long-term adoption of interactive technologies (Antona et al., 2005), is generic and is claimed to apply to all types of (computer) products and services, including universally accessible systems, as well as systems especially developed for people with disability.

Further to this evaluation framework, ORIENT (Mourouzis et al., 2006), a prototype inspection instrument for the assessment of accessibility and user acceptability of information society technologies (IST) and their interfaces was developed, as an indispensable supplement to the practical and effective deployment of the Framework in expert-based evaluations. ORIENT, currently in a paper-based form, is aimed at guiding and facilitating evaluators to employ the framework in practice to assess, in a cost-effective and timely manner, the qualities of eServices affecting their degree of adoption by target users.

The present work reports on the application of the Instrument to evaluate ten eServices in terms of their user-orientation throughout three major service delivery domains, namely eGovernment, eHealth and eLearning. Results for each eService are presented with the aim to reveal both the strengths and the weaknesses of individual services within specified facets that are indicative of the eServices’ user-centred approach, and also to provide suggestions for improving their user-oriented profile. On a wider axis, an attempt to find common trends and draw elementary conclusions about core functional problems or good practices concerning each eService domain is also accounted in the final part. Considering the above, the present report may be of relevance to anyone involved in user interface design and/or usability and accessibility evaluations who will be able to make use of the lessons and tips for user-centred design that may arise from the inspection of the given eServices. Moreover, the results from the inspection of the selected ten eServices are of interest to the related service providers who have the opportunity to study them and possibly make changes in the way they deliver the services, giving added value to their websites.

The report is structured as follows:

- Chapter 2 presents the background of developing ORIENT;
- Chapter 3 describes the inspection process;
- Chapter 4 presents the analytic results from the inspection of the selected ten eServices;
- Chapter 5 summarises the results per eService domain (eGovernment, eHealth, eLearning);
- Chapter 6 concludes the present report and outlines the future steps.
Chapter 2

BACKGROUND

2.1 The eUSER project

eUSER is a major research and support project, funded by the European Commission, which supports the Information Society Technology (IST) Programme to achieve its key objectives of putting the user and his/her needs at the centre of IST developments. The general focus of the project is on online "services of public interest". For the purposes of the project, online services were defined as “services that are accessed/delivered via web-type platforms, typically accessed over the Internet or in some cases via corporate intranets” (eUSER D1.1, 2004). In addition, the project was concerned with services that are aimed at the general public and not at businesses or administrations. The specific focus is on eGovernment, eHealth and eLearning services, and more specifically on the needs of citizens as users of online public services in their interactions with public administrations, in the management of their health and in furthering their education and developing their skills.

The project’s main goals are to prepare a state-of-the-art resource base on user needs in relation to online public services and on user-oriented methods for meeting these needs, and to use this resource base to actively support the IST programme projects, EU policy and the wider European Research Community to better address user needs in the design and delivery of online public services. In the light of the above, the project set out to collate existing knowledge in the fields of user-centred design and user adoption of technology to develop a comprehensive analytic and conceptual framework that will cross-reference service characteristics with user characteristics, enabling both generic user factors (common issues across clusters of services and/or user groups) and specific factors (characteristics of particular services and/or user groups). The project will also investigate the current eServices market by organising population surveys across the 25 EU Member States to collect robust data on user preferences, experiences and requirements, including both those who are already using online public services and those who have not (yet) accessed them. It will also investigate and benchmark the supply of eServices in each of the selected member states through a comparative analysis of readiness, an analysis of the match between demand and supply in relation to user needs in the online public services domain, and the capacity to provide user-centred online public services through the collation of examples of good practice. The outputs of these works will be brought together in the overall synthesis that is planned to provide for the first time an analysis of the match between demand and supply in relation to user needs in the online public services domain. The synthesis activity will support the actions of stakeholders in the areas of eGovernment, eHealth and eLearning (policy actions, practitioners, current and future...
RTD projects) by producing a set of recommendations for action in order to better address user issues in the design and delivery of online public services. During the initial phase of the project, an analytic and conceptual framework has been developed to serve as a guide to the project’s work, identifying and analysing user issues and service characteristics in relation to online public services in the areas of public administration, health and lifelong learning. This framework, has served as the starting point to developing a methodology and the accompanying tool for evaluating the user-orientation of eServices.

### 2.2 A model of the user-experience lifecycle

For the definition of an appropriate framework for evaluations, a careful consideration of the user’s behavioural situation / intention is required at each phase of the decision making process presented above. In order to be able to determine whether a user will move from one phase to a subsequent one, a careful study of the actual characteristics of the system need to be examined in correlation with the user’s expectations, perceived risks and other contextual parameters, leading to the model presented in Source: Mourouzis et al., 2006a Figure 1.

**Figure 1. User experience state diagram (system acceptability-oriented)**

The user experience lifecycle model can be used to predict (or assess) the acceptability of a system, where acceptability can be considered as “the potential of the system to be accepted by its target users”. The likelihood that a system is
acceptable by its users can be explored by checking users’ behavioural situation / intention at each of the following stages:

- Becoming aware of the system and its objectives (i.e., the person becomes aware of the system’s existence and preliminary expectations are formed).
- Being motivated to gain a personal experience of the system (the person by assessing the perceived usefulness and ease of access and use of the system is persuaded to try out the system – at this stage perceived risks and other external variables such as expectations are also taken into consideration).
- Attempting to reach the system (the person manages to reach the system in an acceptable fashion according to his/her expectations and regardless of disability, skills, etc.).
- Attempting to use the system (i.e., the person manages to use the system in an acceptable fashion according to his/her expectations and regardless of disability, skills, etc).
- Being offered a more satisfying alternative (in order to figure out if one is likely to become a faithful user\(^2\)).
- Being motivated to reuse (i.e., the person has been persuaded to use the system again).

2.3 User-orientation evaluation framework

Through the aforementioned model of the User-Experience Lifecycle, one can assess / estimate what are or could be the characteristics and qualities (to be) perceived from the end-user and which of them act as critical determinants for proceeding to a subsequent phase of the lifecycle (see Figure 2). For instance, each time a user wishes to reuse a system, as a first step he or she (re)attempts to reach the system; in order to move to the subsequent step, which is to actually use the system, the user reassesses the ease of reaching the system based on the expectations built-up up to that stage. Clearly, in each new attempt, the expectations regarding the system may vary, e.g., due to earlier experience with the system.

The proposed Evaluation Framework\(^3\) implies careful consideration of all the factors which may influence an individual at each phase of the lifecycle and concluding upon the likelihood that the individual will proceed or not to a subsequent phase. Ultimately, this allows predicting or assessing the likelihood that a non-user will

\(^2\) Note that there are certain systems where users are not necessarily ‘likely to use the system again’ even if they are fully satisfied after initial goal fulfillment (e.g., trial versions, emergency health services, enrolment at a university). Nevertheless, not only their positive experience can make them potentially faithful to the system provider (which means positive attitude to -and higher expectations from- other products from the same provider), but they may also contribute to the system’s publicity.

eventually become a faithful product user (i.e., the evaluating acceptability of the system).

Figure 2. **Lifecycle vs. perceived system qualities**

The basic determinants of a system’s acceptability and ultimately of its adoption by its target users are (adapted from eUSER, D 1.1, 2004):

- **Visibility** refers to the degree to which a system can become known to **individual** non-users. Obviously the actual location of the system is a major factor for its visibility. Furthermore, it can be increased by providers through **publicity strategies**. Products can, however, be visible to a certain degree even if no promotion has taken place. Awareness might result from unintentionally coming across a service, e.g. while surfing on the Internet. This relates to the definition of findability used in the context of website promotion strategies, which can be structured to a variable degree.

- **Perceived usefulness and ease of use** refer to the usefulness and ease of (access and) use of the system from the viewpoint of **individual** non-users.

---

4 By means of “individual” user we refer to individual contexts of use (user characteristics, equipment, tasks, physical and social environment), user expectations and perceived risks.
They might be derived from the relevance of the product to meet particular goals and needs of the user and the suitability for personal circumstances. It also comprises the variety of tangible aspects, such as time and cost savings resulting from the service itself (rather than the way it is delivered). Finally, it can also incorporate less tangible aspects, such as personal intrinsic gratification that can be derived from the fun of, for example, participating in an attractive learning experience/training course. Other social aspects may also play a role such as prestige and social desirability. All such aspects are considered in the form of perceived risks and user expectations.

- **Availability / Approachability** refers to the degree to which all types of individual willing users can reach the entry point(s) of the system. Certainly, the accessibility (e.g., for anyone, at any time, from anywhere) of the carrier/storage medium of a system is a major factor for its availability/approachability. At this stage, particular needs and requirements of diverse user populations such as people with disability are considered with regards to available ‘routes’ for reaching the system.

- **Quality of interaction experience** encompasses the quality of interaction perceived by individual actual users and refers to the degree to which a system can be used to achieve useful and quality results (i.e., lead to subjective satisfaction). It can also be perceived as the total of the user-orientation of the system’s functions of subjective importance to the individual user. In general, the accessibility, usability, and aesthetics of the UI of a system are main determinants of the quality of usage experience.

- **Relationship maintainability** is the degree to which a good relationship with individual system users is effectively cultivated and maintained while the user is not working on the system (e.g., by means of informing the user for new functionality, content updates, changes of status, etc.). The provider may need to adopt specific strategies to ensure the sustainability of this relation. For example, the system provider may offer a richer service pack in order to maximally fit the goals and needs of individual users.

*NOTE:* Although the more detailed components of this model focus on online services, the basic analysis can also be applied to the study of offline modes of access to services or products.

### 2.4 The User-orientation inspection instrument (ORIENT)

This section briefly presents ORIENT, a novel inspection instrument for the rapid assessment of eServices. The main objective of ORIENT is to facilitate the assessment of eServices in terms of the degree to which their user needs and requirements are met from their design, and to allow deriving, easily and quickly, conclusions about its overall quality end user-orientation.
The underlying rationale for developing this method originated, on the one hand, from the eUSER project need for a quick and reliable method to allow the rapid assessment of existing eServices as part of the planned work in the context of the project (internal use). On the other hand, this activity was also strongly motivated from project’s goal to actively support industry, the IST programme, projects, EU policy and the wider European Research Community to better address user needs in the design and delivery of online public services (external use). In this direction, the internal use of the method facilitated its ‘polishing’ and fine tuning for the benefit of the “external use” goal.

Under the light of the above, the method has been mainly designed for providers and stakeholders in the development of eServices, such as designers, developers, evaluators, managers and other decision makers. In practice, the proposed inspection method can be applied from one individual (called “the inspector”) in five to fifteen full days depending on the size of the eService under question and on the desired depth of inspection. Nevertheless, it is suggested that a group of at least three inspectors run collaboratively the procedure in order to achieve less subjective results.

The methodology involves inspecting the user-perceived characteristics of an eService, further to the Evaluation Framework presented in section 2.3, and deriving conclusions regarding design of features of the system that affect its visibility, perceived usefulness and ease of use, availability / approachability, quality of user experience, and relationship maintainability.

Emphasis is given to the fact that the level of user-orientation depends on the specific circumstances in which the product is used, the Context of Use, including specific user goals, user characteristics (physiological, psychological, socio-cultural), contexts of use (user’s tasks, equipment and surrounding social and physical environment) and user’s behavioural situations (perceived usefulness, ease of access / use and risks, and expectations).

2.4.1 Pilot application of ORIENT

The extensive pilot application of ORIENT to measure the degree of user-orientation of online services was effectuated for the purposes of the eUSER project, in an attempt to uphold and supplement its core aims of actively supporting the IST programme projects, EU policy and the wider European Research Community to better address user needs in the design and delivery of online public services. To this aim, a sample of ten (10) online public services from both new an old EU member states, indicative of all service domains (eGovernment, eHealth and eLearning) as they have been outlined by the Conceptual Framework of the project, were inspected using the ORIENT Instrument to measure the quality of the provided services in terms of the degree to which their design and delivery follow a user-centred approach.
The inspection is expected to produce concrete and analysable results on the match between demand and supply in relation to user needs in the online public services domain since the process takes into account the perspective of the user in relation to what the actual services have to offer. In that way, ORIENT is able to serve the goal of cross-referencing service characteristics with user characteristics, enabling the review and assessment of both generic user factors (common issues across clusters of services and/or user groups) and specific factors (characteristics of particular services and/or user groups). Moreover, the critical assessment of the eServices can produce results and conclusions on the readiness and capacity to provide user-centred online public services and through the implication of two types of outcomes: appraising comments, highlighting the instances of good design; and user-orientation pitfalls and deficiencies.

The application of the ORIENT Instrument is performed by a set of experts in the fields of accessibility and usability of new technologies, one of whom – the Inspection Leader – is responsible for coordinating the process and collecting the final outcomes. The time required to complete an inspection depends largely on the type of service to be inspected and on the depth the inspection is required to reach but, in general, a fully-fledged inspection of a regular service should be accomplished in around ten days. Overall, the ORIENT inspection process\(^5\) involves four phases: the “Preparation phase”, the “Inspection set-up phase”, the “Evaluation phase” and, finally, the “Reporting phase”. All information is assembled in forms, specially designed to accommodate each piece of data, and the assembly process involves all members of the inspection team.

During the preparation phase, the inspection leaders assemble all the necessary data on the inspection process, identifying the inspection objectives and any restrictions to the process such as time, access, resources and other, and they establish an appropriate inspection team. Next is the set-up phase, where background material is collected for three different aspects of the procedure, namely the inspection team, the system under inspection and the respective context of use. The third phase of the inspection is its core one; the evaluation procedure takes place by each inspector separately, who follows a step-by-step process to inspect how the distinct system features influence the users (divided in user groups according to their goals and needs). The inspectors, following the context of use for the given service, note down their comments – positive and negative – and produce scores for each. The actual process of evaluation can be separated into two stages: one for evaluating the system as a whole, based mainly on extrinsic evidence but also on intrinsic system characteristics, and one for “zooming” inside the system and examining its distinct functions, per user group. Thus, for each function but also for the system as a whole the following characteristics are investigated: visibility, perceived usefulness and ease of use / access, availability / approachability, quality of usage experience and relationship maintainability. After all inspectors have examined the system and given their comments and scores for its features, the inspection leader is in charge of reporting the results of the inspection by gathering, sifting and producing the

summary evaluation forms and ultimately issuing the final inspection report, which amasses all the qualitative and quantitative results from the inspection. For a detailed overview of ORIENT, refer to the technical report of FORTH-ICS TR-372 User-orientation Evaluation Framework for eServices: Inspection tool and usage guidelines (Mourouzis et al. 2006).
Chapter 3

ABOUT THE INSPECTION

3.1 Selecting the services for inspection

The initial group of eServices from the European Union (21 in number) was collected by the eUSER project to act as a representative sample of good practice in addressing user needs, although it was noted that these are by no means perfect in confronting all of the facets of interaction with users in an effective and efficient manner. Thus, in order to test the actual value of these services as good design solutions of user-centred design the ORIENT tool and underlying methodology were applied to a sample of those with the aim to evaluate their performance not according to appearances but based on an analytic and in-depth inspection of the actual usage of the systems.

Out of the 21 candidates 10 were selected for the present inspection, three services from the domain of eGovernment, four from the domain of eHealth and three from the domain of eLearning, matching a set of predefined criteria to ensure the optimal representation of European Union public eServices. In particular, these criteria were:

1. equitable eService domain coverage
2. representation of new member states
3. diversity of the provided services
4. diversity of the involved / affected user groups

Added to these requirements, the selected eServices were the ones that would pose minimal restrictions to the inspection process, such as right of access to all functions, open and not restricted membership to password protected areas, no sensitive personal information or citizenship required to access the services, etc. Language was another issue, which was closely linked to the availability and knowledge of the inspection members, thus websites with an English version were preferred. Furthermore, the ability to contact the system providers and developers in order to request information about the service and possibly rights to access parts of controlled access was appreciated.

The pilot application of ORIENT to the ten selected eServices was as comprehensive as possible for two out of them, which have been thoroughly evaluated (Malta’s ETC from eGovernment and UK’s NHS Direct from eHealth) and partial for the remaining eight.
3.1.1 Services overview

In total ten online public services from member states of the European Union were selected for inspection, three from the domain of eGovernment, four from the domain of eHealth and three from the domain of eLearning, according to the aforementioned criteria. A short presentation of the services follows here, before the long presentation of the services and inspection results in the next section.

**eGovernment**

**Employment and Training Corporation (ETC), Malta**
Malta’s public employment service maintains an online register of available job vacancies and CV’s of persons seeking employment, for assisting employers find suitable personnel. It also provides vocational training courses to its clients and provides counselling and placement services.
Available at [www.etc.gov.mt](http://www.etc.gov.mt)

**National Higher Education Admissions Bureau (Felvi), Hungary**
National Higher Education Admissions Bureau is a service provider office, which provides offline and online information about higher education admissions. The online services are mainly addressed to potential students, whether from Hungary or from abroad, and to parents. The interactive tools of the portal include a forum and the ability to maintain a personalised application form online.
Available at [www.felvi.hu](http://www.felvi.hu)

**Berlin city portal (Berlin.de), Germany**
Berlin.de is the official city information portal of Berlin, providing not only a wide range of informational material but also a variety of citizen-oriented services, given that most administrative services are linked to the portal.
Available at [www.berlin.de](http://www.berlin.de)

**eHealth**

**NHS Direct Online (NHS), UK**
NHS Direct is a website that provides high quality health information, supported by a variety of media, such as the 24-hour advice and information helpline and digital TV. The website features a health encyclopaedia, a self-help guide and a Body Key index with health-related topics edited by health professionals.
Available at [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)

**Vhi Healthcare (Vhi), Ireland**
Vhi Healthcare specialised in the field of health insurance, offering a wide range of healthcare plans to its clients. In an effort to increase contact with its customers and to meet the demands for health and lifestyle information it has set up the portal service as an electronic gateway to a library of health and
lifestyle articles, an a-z of medical matters, health news, and interactive features such as an advice communication service, SMS messaging and others. Available at www.vhi.ie

**Telewelfare (Telewelfare.com), Poland**
The online service of Telewelfare consists of four interactive applications for checking one’s eyesight, hearing and speech. In the Polish version of the service, users who have been diagnosed with a possible hearing impairment have the ability to automatically send their results to the ‘Institute of Physiology and Pathology of Hearing’ in Warsaw. Available at www.telewelfare.com and www.telezdrowie.pl (Polish version)

**Lasanté (Lasante.be), Belgium**
Lasanté is one of the most popular health information web portals in the Belgian francophone community. The web portal combines a directory, an up-to-date medical encyclopaedia, links to health actors in Belgium, latest news, health advice and prevention, as well as a forum. Available at www.lasante.be

**eLearning**

**Formavia, France**
The Regional Network for Open and Distance Training in Rhône-Alpes promotes Open and Distance Training by providing specific training modules on ICT to facilitate access to distance training. The technological platform also interconnects training institutions and websites offering open distance training. Available at www.formavia.fr

**Open University, UK**
The Open University is UK’s largest university, with over 200,000 students, 10% of which have disabilities. It provides education based on the principles of Supported Open Learning by achieving the appropriate balance of media – text, audio, video, interactive simulations, database resources, IT tools and communication environments. Available at www.open.ac.uk

**Miun, Sweden**
Miun is a Swedish university that offers distance education online courses in cooperation with the Swedish Net University. Miun offers 159 e-based distance education programmes of a mixed type, thus students can either choose a mix of online and traditional components or they can obtain their entire course degree online. Available at www.miun.se
3.2 Defining the context of use

Normally, for each individual inspection, a separate analysis of the context of use has to be conducted in order to also address issues such as nationalisation. For the needs of this study a common analysis of the Context of Use was produced. The reason for this was twofold:

(a) Because there is limited available knowledge on the cultural differences between citizens of different EU countries, which may affect their behaviour and expectations towards an eService.

(b) Because in this way, a common analysis was produced that is reusable and reduces the need for (technical) expertise from an inspection group for future inspections. In these terms, this analysis can serve as a useful basis for any future eServices inspections by teams even outside the eUSER consortium.

The context of use for the target user groups for public eServices can be examined through six categories of user interaction requirements:

1. Interaction Requirements induced by user characteristics, which encompass physical and mental user characteristics,

2. Interaction Requirements induced by user task characteristics, which include various real-life user tasks in terms of task characteristics and conditions, and induced interaction requirements, e.g., often interruptions, duration, interrelations with other tasks, etc.,

3. Interaction Requirements induced by user equipment characteristics, which examine user requirements according to user equipment (software and hardware) in terms of induced interaction requirements, e.g., compatibility, performance, etc.,

4. Interaction Requirements induced by user environment characteristics, which include various types of user environment in terms of induced interaction requirements, e.g., noise, luminance, privacy issues,

5. Interaction Requirements induced by user expectations and perceived risks characteristics, which concern user expectations that may emerge, e.g., from previous experience, personal needs, implicit service communication, values and beliefs, views about the provider, explicit service communication, and word-of-mouth communication, and finally

6. Complex interaction requirements, which cover any combination of the above.

In the first category of requirements thirteen types of users have been added. One major group, gathering three types of users is persons with visual impairments. These include blind users, who cannot use the mouse, therefore need to be able to interact through keyboard only or speech entry if available, etc. Moreover, they cannot use the display, therefore interaction dialogues should be made “visible” through sound, results should be in “non-visual” form and text may need to be rendered in Braille. Lastly, since blind users rely on their memory only to integrate portions of a
document, they should use minimum memory load, for instance chunking, and there should also be some mechanism for recalling or replaying audio messages easily. Low vision users should be able to employ special magnifiers available in common operating systems, visual feedback and signs should also be rendered in a non-visual form to increase visibility, and the key page elements should be presented close together since users might miss on something due to a narrow field of view. When it comes to colour blind users, colour alone should not be used for distinguishing items or for signalling information, and users need to be able to adjust contrast and brightness on their own. A second group is motor impaired users, who cannot use keyboard and mouse, therefore interaction should be possible through special switches and special software that simulate keyboard entries such as Space, Enter, Tab, Shift Tab, Backspace, and mouse actions such as Right Click and Double click virtual keyboard for text entry. A third group is users with some kind of hearing or speech impairment. In the case of deaf users any audio information should be given in an alternative visual or tactile output; for deaf – mute users the provision of an online dictionary both in text and sign language is indispensable; for hearing impaired users there should be audio controls to adjust volume properties and the ability to replay the audio data as many times as needed. Moreover, cognitively impaired users, who do not understand complex information, require simple syntax and vocabulary, and navigation should also be kept simple. Furthermore, low literacy users, who plod text rather than scan it, should have short texts and sentences; menu, button labels, etc. should be short and related items should be presented together, since the user might miss page elements due to a narrower field of view. Also, dyslexic users should be able to alter page elements such as font size, background colour, contrast, line spacing, etc. in addition, a specialised case are photosensitive epileptics whose health may be endangered by certain repetitive visual stimuli, thus the system should avoid flashing banners and flickering lights. Furthermore, a common user category is persons with low familiarity to the Internet and computer technologies that may encounter difficulties understanding technical jargon, and following complex procedures. A final group of users that joins together all previous requirements in combination and in variant degrees is elderly users.

In the second category of requirements, three subcategories have been created to accommodate the specific characteristics that apply to each user task according to the type of service in question. In other words, different sub-forms have been set up for eGovernment, eLearning and eHealth related user task characteristics, since these different eService sections have intrinsic attributes that need to be examined separately. Thus, in a series of user tasks specific to eGovernment, including information retrieval, public databases, questions about administrative procedures, obtaining and sending forms, online transactions, registrations, declarations, etc. there are some major recurring user requirements: need for updated information, transparency in transactions, impartiality and equal rights, security and privacy of personal data, control over administrative procedures, participation in administrative and political actions, efficiency of procedures and last but not least personalisation of rendered services. eHealth related tasks include simple tasks such as finding information on health matters, looking up pharmacies, hospitals or medication online, as well as more advanced ones such as online consultation with a doctor and/or diagnosis, communication and advice, maintaining a health record. All these tasks are normal to require advanced structures for communication, security of transactions,
reliable and up-to-date information, timely system response and personalisation of services. The eLearning sub-group involves tasks related to getting information about the eLearning offer, participating in computerised courses – whether self- or employer-initiated – and accessing online material. The induced user requirements give great emphasis to the need to control the process of learning, such as being able to monitor one’s performance and keep track of essays, exams, etc. and the need to have equal treatment of all students. Also, all sorts of transactions should be secured and privacy of students needs to be guaranteed. Finally, courses should not only be available at all times but also through various communication channels.

In the third category of requirements, various types of equipment that users may utilise when accessing the system have been reported, namely various types of operating systems, visual or other displays such as PDAs, mobile phones, etc., assistive technologies such as screen readers, low rate connections and various types of web browsers.

In the fourth category of requirements, the environment in which the system is accessed has been examined, namely in terms of external conditions (lighting and noise), security and privacy, and accessibility. For instance, mobile phone access and home access presupposes the same requirements for users: sound alerts should also be available in visual form, and colours and contrast should be in appropriate forms for various lightening conditions. In addition, when a service is accessed through a public device, privacy of data is crucial since users give away sensitive information that might be stored locally in the computer. More on the matter, disabled users who can only access a service through a public device, such as computer or kiosk, should be able to install the required assistive technology but before this they should also be able to access the system in terms of its location.

The fifth category contains user requirements related to expectations and concerns sensed by all users, regardless of the type of service used. More specifically, this category gathers perceived user risks related to time, privacy, accidents and mistakes during system manipulation, user or system performance, system accessibility and lastly, security of financial transactions.

Finally, for the needs of this pilot study, no complex interaction requirements (sixth category) were specified.

### 3.3 Setting-up the inspection team

The establishment of an appropriate inspection team was crucial to the successful implementation of ORIENT to inspect the ten selected eServices. After a close examination of the interaction character, the qualities and specifications of each eService under inspection, the requirements for professional qualities and expertise of the inspection team were drawn up. Moreover, other parameters related to the inspection such as time restrictions and human resources availability shaped the final number of inspectors. Thus, an Inspection Team of 12 experts was formed, two of which were appointed Inspection Leaders. The whole process was overseen by two
Supervisors who are senior experts in user-centred design, accessible technologies and usability evaluations.

The role of the Inspection Leaders was to oversee the inspection team, and to interact with and debrief each inspector. The Inspection Leaders take the ultimate responsibility for compiling the inspection results, edited by each inspector, and producing the final inspection report for each eService. The Inspection Leaders may also undertake the role of the Inspector. The team of Inspectors have been engaged from various fields of expertise, including accessible and usable technologies, web design and development, linguistics, etc. in order to form a multidisciplinary group. By means of the Instrument, they walkthrough the product’s interface in order to diagnose possible programming mistakes, usability or accessibility failures, etc., and to distinguish points of good design that may serve as examples to others.

Finally, in order to reach the point that the actual inspection process can be initiated, the Leaders have made sure that: (a) the product has been available to all Individual Inspectors so that they can interact and assess it; (b) a communication channel has been established that allows fast interaction among the inspection members, and (c) that every Inspector is fully aware of his/her responsibilities.
Chapter 4

RESULTS OVERVIEW AND DISCUSSION

In this section, the results emerging from the application of the user-orientation inspection instrument to the ten selected eServices are presented in separate subsections: first three services from the eGovernment domain; second, four eServices from the eHealth domain; and finally, three from the eLearning domain. The eServices are grouped by domain and presented in alphabetical order.

Each individual service inspection is presented using the following structure:
(a) description of the system under inspection,
(b) presentation of the inspection team members,
(c) brief description of the target User Groups (identified with respect to patterns of interest towards the available functions offered by a service),
(d) description of the functions (categorised according to their interactivity type: i.e., publish\(^6\), interact\(^7\), transact\(^8\), collaboration\(^9\), communication\(^10\), or social interaction & navigation\(^11\)) per User Group, and
(e) an analytic presentation of the evaluation results.

This report presents both the qualitative results, drawn by the comments of the inspectors on the user-orientation features of the systems, and the respective quantitative results, the scores assigned to each good design example or pitfall by the inspectors, which are presented in tables. Apart from the actual scores, the tables also use colour coding to facilitate their interpretation by readers from the first glance by using cool colours to indicate positive values (good practice examples) and warm colours to indicate negative values (user-orientation problems).

It ought to be noted that the results for each inspected service are based on an evaluation during a specified time period, by expert individuals who had absolutely no relation to the eServices under inspection or to their service providers. Moreover, the goal of the inspection was not to arbitrarily put to the contest ten eServices and select the best among them, but to perform a pilot testing of some of the most popular public electronic services and to reveal to what extent these have been designed with user needs in mind, as well as to what degree they actually help fulfil the needs of their

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\(^6\) Publish: the user simply accesses (searches and retrieves) information; there is no other communication between the user and the system.

\(^7\) Interact: the user accesses dynamic information but does not act upon it (i.e., cannot modify the system’s data).

\(^8\) Transact: the user accesses dynamic information and has rights for changes.

\(^9\) Collaboration: can be asynchronous (e.g., track changes facilities, shared documents area) or synchronous (collaborative virtual environments)

\(^10\) [human-human] Communication: can be asynchronous (emails, message boards, annotations, etc.) or synchronous (chat, webcams, etc.)

\(^11\) Social interaction & navigation: can be real or virtual (i.e., through the system)
target user groups. This is performed in the hope that the results and conclusions from each separate case may help derive the overall image of public eServices in Europe, as they are perceived by users. Another objective of the study was to test the evaluation framework and the inspection instrument through concrete practice.

- **Red** for values from "-4" to "-3" (i.e., user-orientation catastrophes):  
- **Orange** for values from "-3" to "-2" (i.e., major problems):  
- **Yellow** for values from "-2" to "-1" (i.e., minor problems):  
- **Green** for values from "-1" to "1" (i.e., cosmetic problems and / or examples of design solutions)  
- **Blue** for values from "1" to "2" (i.e., minor examples of good design solutions)  
- **Indigo** for values from "2" to "3" (i.e., major examples of good design solutions)  
- **Violet** for values from "3" to "4" (i.e., best design solution example (maximal fit))

Figure 3. **Colour coding for reporting tables**
4.1 ETC, Malta (eGovernment)

4.1.1 System Description

The ETC portal (see Figure 4) has been developed as an entry point to enable citizens to access quickly and easily information on the Internet in relation to the Government of Malta IT Strategy, as well as to provide access to a number of services.

http://www.etc.gov.mt/

Malta’s public employment service introduced its web portal to provide services to the unemployed, who can submit their CV to the database for employers to look through.

It also provides a list of job vacancies and vocational training courses.

The Employment & Training Corporation (ETC) is Malta’s public employment service, founded in 1990. The actual platform of the eService is a combination of portal-based services (web software application), mobile-delivered services (software) and personnel-based services (human resources), which are all fully operational. No information could be found on the developer of the ETC eService. According to the provider, ETC’s objectives are to provide and maintain an employment service, to find suitable employment and to assist employers in finding suitable employees, and to provide training services to clients seeking new jobs and to clients already on the job but wanting to improve their knowledge and skills. ETC addresses a wide range of potential users, in particular all those who are at a working age. More specifically, potential clients are all persons seeking employment, and special attention is handed to the issue of the youth, which make up the major part of new entrants to the labour market. Every effort is made to refer such persons to a training programme/scheme or job as soon as possible. Also, measures to encourage women to return to work are implemented. Persons with disabilities qualify for exclusive services, with the objective to integrate them into society and the working world. Moreover, former drug addicts, alcoholics and correctional facilities’ inmates are given personal attention. Clients over 40 are given priority and the problem of long-term unemployment is carefully analysed. Employers play a key role in the Corporation’s activities. Finally, government and support organisations rely on ETC for information on Malta’s labour market.

The specific application field of ETC is employment: it maintains a nation-wide register of people seeking employment and of available job vacancies, and processes...
them in order to find the best matches. ETC’s staff provides career and vocational
guidance, counselling services and placement services to job seekers based on their
qualifications, interests and disposition. Job seekers can be referred to training
programmes organised by ETC or by other organisations.

The service is offered in a web-based navigation style, and supports a combination of
synchronous and asynchronous communication with other humans (clerks and other
personnel). The communication means are email, telephone, fax, postal
 correspondence, M-Government, through mobile telephones, and face-to-face
interaction at the job centres.

Based on the above description, the target population of the eService can be divided in
two major user groups: job seekers and employers. Accordingly, the service offers
various functions, targeted to these groups, with the aim to fulfil their needs and
expectations. The degree to which the service actually meets these demands with the
offered functions is the subject of this inspection method; but first, the actual
functions and the degree of interaction they assume need to be established.

4.1.2 Inspection team

The inspection team was made up of four members, the inspection leader (Inspector
1), who is also an expert in user interface design, accessibility issues, and usability
evaluations, and other three members (Inspector 2, Inspector 3 and Inspector 4). Two
of them were male. The three inspectors had diverse background and expertise,
ranging from user interface design, web design, accessibility issues and usability
evaluations to linguistics. None of the inspection members had any relation to the
product or to the service provider, and this was the first time they accessed the system
in question. The average familiarity of the inspection members with similar systems
was moderate, and familiarity with one of the languages that are supported by the
system (i.e., English) was high. To be exact, the system supports Maltese and English
and since both inspectors were fluent in English only, this exemplary inspection
concerns the English part of the system only. Moreover, the inspection group was
sufficiently familiar both with the inspection method at hand and with inspection
methods and tools in general.

Inspector 1 (Leader)
Inspector 1 (also Leader of the inspection group), is a native
Greek speaker with fluent knowledge of English. His
educational background consists of a BSc in Computer Science
and he is currently a graduate student in Human-Computer
Interaction. As he is excellently familiar with other similar
purpose tools, he is also quite familiar with the current tool
also. However, he is not the least familiar with the system
under evaluation nor does he have any connection with the
developers or providers of the system.
Inspector 2 is Greek and has a BSc in Education (Degree in Mathematics). He has expertise in user interface design and web design. The inspector has no link to the system developers or providers and navigated around the system for the first time during the assessment phase. On the other hand, he is very familiar with the language in use by the system (here the English version of the system is implied) as well as with other systems of this kind. He was no to much familiar with the inspection tool in question before using it, and moderately familiar with inspection tools and methods in general.

Inspector 3 has expertise in user interface design, web design and usability evaluations. She has no connection to the system under evaluation or to its providers and has accessed the system for the first time for the purposes of this inspection. Nevertheless, she is very familiar with both the current inspection method and with similar evaluation tools. Finally, she has an excellent command of the English language, which is used by the system and by the evaluation method at hand.

Inspector 4 is a native Greek speaker with fluent knowledge of English. His educational background consists of a BSc in Computer Science and MSc in Multimedia Technology. He, as the developer of the method, is excellently familiar with it, as well as with other similar purpose tools. However, he is not the least familiar with the system under evaluation nor does he have any connection with the developers or providers of the system.

4.1.3 Target User Groups

On a par with the information by the system provider, the inspection team has categorised potential users to three user groups:

1. **Job seekers:** includes citizens of Malta (foreigners that want to move to Malta for employment are also included) and want to be informed about new job vacancies or submit their CV in order to be selected for employment. They can also apply for vocational training courses, organised by the ETC training services.

2. **Clients wanting to improve their knowledge and skills (already employed):** includes citizens of Malta (since there is only the Maltese version of the service) that want to be informed about events such as training and courses at their current (or future) jobs.

3. **Employers:** includes Maltese employers that want to announce new job vacancies, search for submitted CV’s, inform about job employments or announce for the termination of job vacancies. Finally, they can potentially order ETC certificates.
4.1.4 Functions per User Group

User Group 1: Job Seekers
The functions addressed to ETC Job Seekers are the following (the selected ones for inspection in are indicated in **bold**):

1. Training and courses – applications online
2. **Job search online**
3. **Job application online (CV submission)**
4. Automated job notification via mobile and email
5. European job search
6. **Registration**
7. Contact

Of those functions, only those which involved *interaction* or *transaction* (see footnotes 6-11, page 21) between user and system were assessed, namely functions 2, 3 and 6.

User Group 2: Clients wanting to improve their skills
The functions for the second user group, those who wish to take up a vocational training course are the following:

1. Training courses – application online
2. Registration
3. Contact

However, it was not possible to access and assess any of these functions because registration to the system is required prior entering user-specific data.

User Group 3: Employers
The functions for the third user group, employers, are equally or even more sophisticated that the ones for the unemployed. These are, by order of relevance:

4. **Apply for access**
5. **Search CVs**
6. **Submit vacancy form**
7. Order ETC certificates
8. Registration
9. Contact

However, it was not possible to access and assess any of these functions because registration to the system is required prior entering user-specific data.
4.1.5 Inspection results

User-orientation of the system (all user groups)

The results from the inspection of the system showed that it presents some degree of user-orientation; however, it is on the low point of the scale, which means that potential usability problems are not unfamiliar to the system (see Table 1). More specifically, the inspection of the system in relation to user needs revealed that the service is more oriented to novice and to expert users, who would probably consider using it again, while it is less satisfactory for moderate users.

With regards to the quality of the usage experience, it could be deducted that novice users will have neutral impression of the system, followed by expert ones, but neither group should actually be extremely approving. Moreover, as indicated previously, moderate users will probably find the experience with the system neutral to negative, thus, they are the least likely to be satisfied with the service. The reasons for this are that expert users will find the degree of availability and approachability of the service not up to their expectations and they will form a more or less indifferent view of the use of the system they have just experienced. In the end, they develop a poor reliability relationship with the service, however considering the nature of the service (helping the unemployed retrieve employment) this is not so important for this category of users, since if they keep coming back again and again to use the service, this would mean that it has failed in its central role. On the negative scale, novice users will encounter problems of relation maintainability with the system. This last characteristic tends to be neutral for expert users, who will probably appreciate the system more for its quality of usage experience, but not so much for its availability and approachability.

Therefore, both in terms of user perceived usage quality of the system’s functions and in terms of user-orientation of the system as a whole, first time to novice and moderate users, i.e. job seekers, will gain the most from using ETC. In the given context, this remark is not negative since, due to the nature of the services provided by the ETC, a successful and efficient interaction should quickly produce the desired results to users, i.e. finding a job, which means that they will have no use of the service in the near future. In the case that users become very experienced with the system this could imply an insufficiency to satisfy the core aims of the users who access it. Nevertheless, the fact that the service gradually becomes unappealing to users that access it more regularly should not be left aside.
Table 1. **ETC – Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>ETC (Employment &amp; Training Services Corporation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of assessment</td>
<td>October 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users (Form 4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of first-time and novice users (Form 7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for first-time and novice users (Form 8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to moderate users (Form 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of moderate users (Form 7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for moderate users (Form 8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to expert users (Form 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of expert users (Form 7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for expert users (Form 8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**USER GROUPS:** User Group 1 ‘Job Seekers’
User-orientation of the system (User Group 1)

Job Seekers (User Group 1)

Visibility

Scored: -2

The providers of the ETC portal have not done very well in the area of visibility; firstly, the terminology used at the portal is not specific and it also lacks much in matters of help and FAQ. Moreover, there is no alternative text used for the “Submit CV” banner at the main page and as a result the portal becomes less accessible, especially for people with visual impairments. On the other hand, the use of a sitemap and a search engine have a positive impact on the visibility for job seekers.

Perceived usefulness and ease of use

Scored: -1

Help and FAQ are again the source of the negative score for the perceived usefulness and ease of use of the portal, as due to their absence users are not supplied with enough guidance. Moreover, some of the content of the portal may have a result of confusing job seekers, such as misperceiving important processes.

Availability / Approachability

Scored: novice 1, moderate -2, expert 0

The system appears to be inadequately approachable to new users and a main reason for this is the use of large banners at the main page that display the available services. In addition, moderate users feel that they have no support on reviewing their CV or removing it. Lastly, expert users may face the same issues as moderate ones, but their score is at borderline acceptance levels because each supplied service can be separately bookmarked for direct access.

Overall quality of interaction experience

Scored: novice 0, moderate -1, expert -1

When it comes to the overall usage experience from the functions the portal offers to its users, moderate and expert users seem to have more negative scores than novice ones. This is mainly due to relationship maintainability bad scores for both categories and, more specifically, the lack of information and lack of guidance, which appear to be the weakest points of the portal. Moreover, in some cases, flaws in the quality of the provided services, such as text of bad quality, decrease user satisfaction. On the other hand, novice users tend to face the supplied services more neutrally, except from relationship maintainability. This is mainly because of the simplicity of most functions, but also because of the awareness of the system providers that the portal needs to be attractive for new visitors of the portal.

---

12 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability

Scored: novice -2, moderate -1, expert -2

Despite the fact that ETC is a source of valuable information of high quality to end-users, which would motivate users to reuse the system, all of the ETC functions that have been evaluated have proven to be not less reliable and usable than expected. In addition to this, the system does not provide feedback to users. Due to the aforementioned reasons, relationship maintainability reaches negative, though not extremely disappointing levels.
### Table 2. ETC - **Summary of Quality of Interaction Experience (User Group 1)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>ETC (Employment &amp; Training Services Corporation)</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Job Seekers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td>Function2</td>
<td>1.14</td>
<td>0.58</td>
<td>3</td>
</tr>
<tr>
<td>Function3</td>
<td>-0.10</td>
<td>-0.47</td>
<td>-3.25</td>
</tr>
<tr>
<td>Function6</td>
<td>0.37</td>
<td>0.40</td>
<td>1.50</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 2 ‘Job Search Online’
- Function 3 ‘Job Application Online’
- Function 6 ‘Registration’
List of findings on the quality of interaction experience per function
(User Group 1: Job Seekers)

(the symbols \( \uparrow \), \( \downarrow \), and \( \Rightarrow \) indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 2: Job Search Online</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The portal has a negative impact as far as relation maintainability is concerned, as the non-existence of profiles and proper bookmarking of pages respectively are disappointing for moderate and expert users. Visibility and perceived usefulness and ease of use to non users are quite good, while availability and approachability gather good scores, descending from novice to experts users. Finally, quality of usage experience for first-time and expert users has good scores, in contrast with scores for moderate users, mainly due to the fact that the service should support more personalisation options upon registration</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

\( \uparrow \) The function is quite visible (it is the third main menu item labelled “Job Searching”).

\( \uparrow \) The search function can be also reached through the “Latest Vacancies” link

\( \uparrow \) Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to effectively increase or decrease the font size

\( \uparrow \) The visibility of the function is indifferent of the Browser used (this is a good design example)

\( \uparrow \) There is an area displaying the most recent jobs, which is good in terms of visibility of the function

\( \uparrow \) At the homepage of the eService there is a banner prompting users to ‘submit their CV’. In general this idea is not bad as it increases the visibility of the “job search online” function

\( \uparrow \) The sitemap increases the visibility of the function

\( \downarrow \) As this is a major function for this user group, there is lot of space for improvement. For example it could be better having a “Job seekers Services” list just like that for “Employers Service”

\( \downarrow \) The ‘Submit CV’ banner has no alternative text and as a result this becomes invisible to blind users, users using text browsers, or users who disable images through their browsers

\( \downarrow \) The help and FAQ functions (are not visible themselves and) do not increase the visibility of the function at all
### Usefulness

- The preliminary information provided after clicking on the “Job searching” menu item helps the user to quickly understand that the function will be easily carried out (since there is a quite useful categorisation: most recent, by industry, by occupation, by region)
- There is an area displaying the most recent jobs, which is good in terms of perceived usefulness, since the user needs up-to-date information
- It is useful for users to search jobs by different categories
- The description of the search categories is inconsistent and may be difficult for users with cognitive impairments and low literacy users
- The help and FAQ sections do not contain information about the utility of the function, neither on how to use this function

### Availability – approachability

**Novice users**
- First time users should find it quite easy to locate and reach the entry point of the function

**Moderate users**
- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point

**Expert users**
- The user can bookmark the homepage of the function

### Quality of usage experience

**Novice users**
- The fact that the form consist of drop down menus, and not open-ended text field, reduces the potential of user errors
- When no results are found, no explanation is provided
- Buttons “search” and “back” should follow standard conventions
- When a first time user will click on “Most recent”, the produced display is an empty form and an empty table (because there were no recent vacancies). This design will confuse the user, who may incorrectly assume that some input is expected here (e.g., to define an occupation)
There should be a message explaining that no vacancies have been announced recently (within the past 2 days), and prompt the user to search for old vacancies (e.g., 7 days, etc.)

- The terms “date created” and “closing date” are not familiar to the user; these are rather programming jargon that could confuse or slow down inexperienced users

- There is no appropriate help (e.g., to explain what is “Job Ref. No.”)

- The “drop down” menus have lots of items, making their scanning and use difficult. Drop down menus could be replaced by radio buttons

- The drop down menu “job type” has an extra empty field

- Buttons “search” and “back” should follow standard conventions according to which “Ok” is on the left and “Cancel” on the right. The current design does not prevent users clicking on the wrong button

- For first time-users and novice Internet user it would be better having dialogue-based interaction conducted step-by-step (wizard-like)

- There is no guidance for the user. Default, place-holding characters should be included in edit boxes and text areas

- The quality of the results is not totally satisfying, as there is no consistency (e.g., there are “cleaners” and “cleaner”)

- Apparently the search results are listed according to the job type (“full day”, “part time”, and “summer work”), mentioned at the second row. However this may confuse users who may think there is no order at all. The first row of the results table should be the type of the work or the default order could be based on the alphabetic order of “job descriptions”

- The system does not prevent the user from making conflicting selections (e.g., occupation—“chef” and industry “constructions”)

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ETC, MALTA (eGovernment)  
TR-373, February 2006
The system does not inform the user about mistakes nor about how to recover.

Blind users will find it difficult to fill-in the form as there are no appropriate Labels to the fields.

No colour is used for distinguishing items.

**Moderate users**

There is no numbering in the results lists (which would help occasional users to quickly calculate new vacancies entries since last viewed.

The system should support more personalisation options upon registration.

**Expert users**

Use of banners for major services, such as CV submission.

Subscribed users can get job listings via e-mail, SMS or both.

There is no facility for viewing the results with various sorting.

### Relationship maintainability

**Novice users**

Users should have the ability to sort the results or the results must be sorted when presented.

**Moderate users**

The system should allow saving profiles for quicker searches (upon Registration).

**Expert users**

When the user bookmarks a search result, the search parameters are not part of the saved address.

<table>
<thead>
<tr>
<th>Function 3: <strong>Job application online</strong></th>
<th>Score: <strong>-2</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CV submission concentrated negative scores, especially as far as availability and approachability is concerned, for all user groups. Terminology again is a negative source, as well as the bad design of the required steps. Errors in guidance and wrong design of the interface produce negative comments for the quality for usage experience for novice users. Finally, once again relationship maintainability tends to be bad factor for expert and novice users.</td>
<td></td>
</tr>
</tbody>
</table>

### Visibility

The Function is primarily made visible to (sighted) users through a banner with eye-catching graphics at the ETC home page.
The Function is made visible also through the sitemap

The Function is also made visible through the main menu as a submenu of the “Job Search” option. However, as this is a major function for this user group, there is lot of space for improvement. For example it could be better having a “Job seekers Services” list just like that for “Employers Service”

Users may not notice the existence of the submenu (as focus will in most cases be at the content of the page, i.e., the results of his previous action “Job search”)

The selected menu items and sub-items should be highlighted

While the user is viewing the search results, there should be a note about the availability / utility of the “Submit CV” function

Blind users will not be able to perceive the “Submit CV” banner at the homepage

The title “Submit your CV” points to the technical part of the function

The user interface gives a jobseeker several options but it is not understood which one is the main or the proper function for him/her (from jobs via e-mail, CV submission etc)

Usefulness

It is good for the user to know what is required in order to proceed (i.e., the sentence “Please note that you will need to register in order to submit CV”). There is an area displaying the most recent jobs, which is good in terms of perceived usefulness, since the user needs up-to-date information

There is a note about the privacy policy at the right place

The information provided prior to submitting the CV is of low quality and could make the user sceptical about the quality of the overall Function/results. A lot of syntax errors and typos.

“Submit CV

You can fill in the online form below to place your CV on this web site. Your Curriculum Vitae will be viewed by employers with access to the restricted area of this website. The CV will be displayed for 30 days. You will be e-mailed with a renewal notification 5 days before this period is over. On confirmation of renewal, CV will be displayed for a further 30 days.

Foreigners are advised to ensure that they are eligible to work on the island before submitting their CV.

Please note that you will need to register in order to submit CV.

Submit CV: Job seekers can submit their CV through this web site. Your Curriculum Vitae will be made available to all employers authorised to access
More specifically, regarding the above information the sentence “you can fill-in the online form below” is misleading as there is no form below. Furthermore, the perceived usefulness is questionable, as the sentence “Your Curriculum Vitae will be viewed by employers with access to the restricted area of this website” is not user goal-oriented. Finally, the language used is programmer-oriented and not user-oriented.

It is good for the user to know what is required in order to proceed (i.e., the sentence “Please note that you will need to register in order to submit CV”)

However, in the login page this is not clear enough: “If you are not a registered user, register with us”. The message should state clearly that registration is required in order to submit a CV.

There is no explanation (link) about the Data Protection Act.

Instructions may be confusing.

First time visitors interested in finding a job are uncertain about the efficiency and the results of the service. There is no statistical data to inform about the benefits for using the service.

There are no cases of use (examples of use) shown in web site for first time visitors.

Availability – approachability

Novice users

For first time users, registration is required, but this in some cases requires useless steps that could be reduced.

The link “here” is very badly labelled, as blind users scanning the links on this page will not be able to know what this is about. Rename the link (and rephrase the sentence accordingly) to “Job Seeker Registration”.

The user (even when logged in) does not get any guidance about how to modify the online CV.

The user steps required to review and modify a CV are not appropriate for novice users, since the user in most cases will have to guess what the right action is.

Moderate users

Users that haven’t visited the CV area for long time will easily forget how to get there.

There is no guidance at all about how to return to the CV area in order to modify a CV.
Expert users

Expert users should be able to shortcut to specific steps of the process (e.g., step 4 for “Work experience”)

Users are unable to know how close they are to complete the function. For example, users have to complete several forms but there is no information about how many are completed (overall process)

Quality of usage experience

Novice users

For first time-users and novice internet user, it would better to have dialogue-based interaction conducted step-by-step (wizard-like)

There is no guidance for the user. Default, place-holding characters should be included in edit boxes and text areas

Buttons continue (left) and back (right) are placed in the wrong order

The design of the CV is in many cases inconsistent, (e.g., the labels “Started Job on” and “Joining Date” are both about dates, but different words are used)

In the CV form, related interaction controls are not appropriately grouped together. Placeholders for grouping input controls and display areas that are related should be considered

The CV form is not accessible for blind people (fields need to be labelled appropriately)

The user can make errors in filling in the CV form, and the system does not help the user identifying, comprehending and recovering from errors

The language and design of the CV form is inappropriate for users with cognitive impairments and low literacy users

There is insufficient navigation support for novice users (e.g., there should be a navigation status bar mentioning the step currently displayed)

There is no way of cancelling the CV entry

The resulting CV, when displayed, has many formatting inconsistencies, which could disappoint some users

Moderate users

The CV forms use standard interaction controls and metaphors, and therefore should be OK for moderate users

The system has a standard presentation, avoiding unnecessary elements. So moderate users can access it without getting bored or delayed
**Expert users**

- There is no problem with the function for the mentioned specific group

**Novice users**

- Upon completion of the CV entry, the system could propose to the user some training courses
- The user would probably like to know how many employers have viewed the CV
- The system could provide additional / external guidance for editing a high quality CV
- The system should explain the purpose/importance of each CV section and encourage the user to fill-in all the fields
- The system informs users with a standard way that a user typically has met before, but this is not the case for first time and novice users. They need more than the typical information that they have submitted their registration info. They need to know now what functions they are able to use and how
- Mails from the site for accepting users’ registration are treated as a spam mail from yahoo, one of the most popular free mail services

**Moderate users**

- There are notifications that the CV will “expire” and be removed from the publishing area
- The user would probably like to know when the CV was updated for the last time

**Expert users**

- The user cannot maintain a CV online for long periods, and will have to go over the process again every 2 months
- The system does not provide information about the correct form of the data. Guidelines and examples are given just after the error occurred

<table>
<thead>
<tr>
<th>Function 3: Registration</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>For this function it has to be noted that there can not be comments for expert and moderate users, as it is supposed to be used only once. As a result, it makes no sense to be re-used by these user groups. Novice users tend to face registration generally neutrally, with lack of feedback being the weakest point and simplicity the strongest point.</td>
<td></td>
</tr>
</tbody>
</table>
### Visibility

- It is the second option on the top page link bar
- The user is asked to register whenever it is necessary in order to proceed
- There is no login option for already registered users in the home page
- After login, there is a log out option but it is somewhere hidden and users might forget to log out. This should be considered, since users may access the function from a public computer

### Usefulness

- It is very simple and easy to register
- There is no reference to the registration process in the help and FAQ sections

### Availability – approachability

#### Novice users

- The entry point of the function is straightforward to find
- There is no login beside register, so there will be an increase of duplicated profiles and records from users who just want to use the system again or use another service that is offered

#### Moderate users

- Not applicable

#### Expert users

- Not applicable

### Quality of usage experience

#### Novice users

- The entry point of the function is straightforward to find
- Errors can take place through submitting invalid data. Error messages are provided by the system, but after the error. There is no error prevention

#### Moderate users

- Not applicable

#### Expert users

- Not applicable

### Relationship maintainability

#### Novice users

- The function uses standard interaction controls
- The structure and colour and range may discourage novice and first time users
There is no feedback about what is left for the user to do in order to complete the task. Also, there are no encouraging messages that help the user not to quit the process.

<table>
<thead>
<tr>
<th>Role</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate users</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Expert users</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
4.2 **Felvi.hu, Hungary (eGovernment)**

4.2.1 **System Description**

The National Higher Education Admission Bureau (Országos Felvételi Iroda - OFI) is a service provider office, which provides offline and online information about higher education admissions. The online services (see Figure 5) are addressed foremost to potential students, secondly to parents, thirdly to foreign students who want to study at a Hungarian University, and lastly to the general public. The online services can be accessed through an interactive homepage, which contains forums, and the tools/services e-application (e-jelentkezés), and my-application (én-felvim). Within the forums, people can exchange experiences with each other. Within my-application, it is possible to have a personalised application page for the Universities candidate students are interested in, and the application criteria at these institutions, etc. The e-application is available and includes the online application.

![Image of Felvi.hu](http://www.felvi.hu/)

- The national Higher Education Admission website provides related information for students/parents/foreign students
- Forum and personalised space available
- The section for foreigners is in English and offers information and a search function for the academic programmes

**Figure 5. Felvi.hu, HUNGARY (eGovernment)**

Its major objective is to have a well functioning service provider office, which helps people who are interested in the admission procedure through the Internet, with an informative and interactive online service due to the growing demand of electronic information. Based on the above description, the target population of the eService can be divided in five major user groups: information seekers, people that already have applied for higher education admission, the parents of people that already have applied for higher education admission, foreigners and administrative employees at universities and colleges. Accordingly, the service offers various functions, more or less targeted to these groups, with the aim to fulfil their needs and expectations. The degree to which the service actually meets these demands with the offered functions is the subject of this inspection method.
4.2.2 Inspection team

The inspection team was made up of three members, the inspection leader (Inspector 1), who is an expert in user interface design, accessibility issues, and usability evaluations, and other two members (Inspector 2 and Inspector 3). Both of them were female. The two inspectors had diverse background and expertise, ranging from user interface design, web design, accessibility issues and usability evaluations to linguistics. None of the inspection members had any relation to the product or to the service provider, and this was the first time they accessed the system in question. Other than that, the average familiarity of the inspection members with similar systems was moderate, and familiarity with one of the languages that are supported by the system (English) was high. To be exact, the system supports Hungarian and English and since both inspectors were fluent in English only, this exemplary inspection concerns the English part of the system only. Moreover, the inspection group was sufficiently familiar both with the inspection method at hand and with inspection methods and tools in general.

**Inspector 1** (Leader)  
Inspector 1, and Leader of the inspection group, is a native Greek speaker with fluent knowledge of English. His educational background consists of a BSc in Computer Science and he is currently a graduate student in Human-Computer Interaction. He is excellently familiar with other similar tools, as well as quite familiar with the current tool. However, he is not the least familiar with the system under evaluation nor does he have any connection with the developers or providers of the system.

**Inspector 2**  
Inspector 2 is Greek and has a BSc in Computer Science and an MSc in Information Systems and Health Telematics. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system (here the English version of the system is implied) as well as with other systems of this kind. She was slightly familiar with the inspection tool in question before using it, and moderately familiar with inspection tools and methods in general.

**Inspector 3**  
Inspector 3 is Greek and has a BSc in Computer Science and she is currently a graduate student in Human-Computer Interaction. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system (here the English version of the system is implied) as well as with other systems of this kind. She was slightly familiar with the inspection tool in question before using it, and moderately familiar with inspection tools and methods in general.
4.2.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users to four user groups:

1. **Information seekers**: this group is about everyone that accesses the system in order to be informed about an academic issue through any means made possible by the system, such as the news section, forums or by searching for the relevant information.

2. **People that already have applied for higher education admission**: everyone that already has applied for higher education admission offered by the portal and wants to be informed about the progress of his/her application or other academic aspects belongs to this group.

3. **The parents of people that already have applied for higher education admission**: same as the user group 2, except that this group does not have the availability to register and to look for new academic programs.

4. **Foreigners**: includes people that do not come from Hungary. There is an English section for this group and consequently only the functions for this group were evaluated, since the evaluators did not know Hungarian. Foreigners can also use functions such as look for information or contact with the administrative employees.

5. **Administrative employees at universities and colleges**: this group of users is responsible for announcing new academic programmes and submitting information about current academic programmes such as deadlines, results, etc.

4.2.4 Functions per User Group

User Group 1: **Information Seekers**

The functions aimed at Felvi Information seekers are:

1. On-line registration  
2. Forums  
3. Downloadable applications for admission forms  
4. Search Engine for academic programs  
5. General Search Engine with keywords  
6. News about academic programs  
7. Outlook on academic programs  
8. Personalised application page for the universities that the user is interested in  
9. Contact

User Group 2: **Applicants**

The functions aimed at applicants for higher education admission at Felvi are:
1. On-line registration
2. General Search Engine with keywords
3. Search Engine for academic programs
4. News about academic programs (deadlines, results etc)
5. Forums
6. Contact
7. News about academic programs
8. Outlook on academic programs
9. Personalised application page for the universities that the user is interested in
10. Contact

User Group 3: Parents of Students
The functions aimed at the parents of applicants for higher education admission at Felvi are:

1. News about academic programs (deadlines, results etc)
2. General Search Engine with keywords
3. Search Engine for academic programs
4. Contact

User Group 4: Foreigners
The functions aimed at foreigners who visit the portal of Felvi are the following (in bold are the selected ones for inspection):

1. Search Engine for academic programs
2. General Search Engine with keywords
3. News about academic programs (deadlines, results etc)
4. Outlook on academic programs
5. Contact

User Group 5: Administrative Employees at Universities and Colleges
The functions aimed at administrative employees at universities and colleges are:

1. On-line registration
2. Announcements of new academic programs
3. Submission of news about academic programs (deadlines, results etc)
4. Forums
4.2.5 Inspection results

User-orientation of the overall system (all user groups)

The summary results from the application of the inspection method to the portal of the National Higher Education Admissions Bureau in Hungary suggest that the system is insufficiently adapted to the needs and requirements of its target audience. By target audience during this inspection only the user group of foreign students who wish to be informed about the registration procedure in a Hungarian university is implied, because, due to language constraints, only the English and not the full Hungarian version of the system has been inspected. Thus, for the given case, the system is equally challenging to novice, occasional and expert users, and almost equally unsatisfactory in all characteristics in the domain of user-orientation. It ought to be noted though that no usability aspect poses catastrophic errors, thus no extreme negative values have been reported; in fact, all scores are between minus one and zero.
Table 3. **Felvi - Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>National Higher Education Admission Bureau (Országos Felvételi Iroda - OFI)</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users</td>
<td></td>
<td>September 2005</td>
</tr>
<tr>
<td>Perceived usefulness and ease of use to non-users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to first-time and novice users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of first-time and novice users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for first-time and novice users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to moderate users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of moderate users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for moderate users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to expert users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of expert users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for expert users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**User Group 4: ‘Foreigners’**

---

**Felvi.hu, HUNGARY (eGovernment)**

FORTH-ICS

TR-373, February 2006
**User-orientation of the system** (User Group 4)

**Foreigners** (User Group 4)

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Total Score = -1</th>
</tr>
</thead>
</table>

The providers of the Felvi portal have done well in advertising their portal on related institutional websites, such as the Hungarian Ministry’s of Education official site, so that Felvi is referenced in them. On the other hand, the portal does not enjoy much search engine coverage, even if citizens enter the exact name of the service. Moreover, the inspectors have not been able to find any efforts to advertise the system in the media and Press, although, publicising an online service on the Internet is rarely sufficient on its own, since this would mean targeting existing Internet users and not trying to entice all citizens, through various communication means, to enter the new virtual service.

<table>
<thead>
<tr>
<th>Perceived usefulness and ease of use</th>
<th>Scored: -1</th>
</tr>
</thead>
</table>

Foreign prospective students at Hungarian universities will face difficulties in locating information about the service and even more importantly about its benefits, since much of the information that circulates on the Web about Felvi is in Hungarian. Thus, unless they are familiar with the language, they might miss on this service.

<table>
<thead>
<tr>
<th>Availability / Approachability</th>
<th>Scored: novice 3, moderate 0, expert 1</th>
</tr>
</thead>
</table>

The system appears to be inadequately approachable to new users and the main reason for this is its extensive graphics that pose an obstacle for both users with low bandwidth Internet connections and users who access the service through mobile device. Added to this, some information requires additional plug-ins to operate normally, such as Macromedia Flash 7.0, also JavaScript is extensively used and the page cannot be viewed when it is disabled. Another problem connected to the user group under inspection is language; the portal supports English as a foreign language, but in the English version there is some text in Hungarian. Moreover, the url address is not self-evident and representative of the site’s content, however it is not difficult to type or remember. Finally, it is appreciable that the portal works with all types of web browsers and operating systems.
Overall quality of interaction experience

Scored: novice -2, moderate -1, expert -3

When it comes to the overall usage experience, the portal’s functions appear to be more appropriate for novice users than for more practiced users. The positive highlights of the usage experience are availability and approachability, which scores considerably high for new users, and visibility to a lesser extent. The part of the system that needs attention is the way expert users would assess the quality of use of the system’s functions, but the same stands for less experienced users, even though the system’s disadvantages would be less detrimental to them. Furthermore, as it is the case in other systems that have been inspected, the poor usage quality can not leave user relationship maintainability unaffected; therefore, for all types of users, the odds are against them forging a relationship with the system. More detailed results and conclusions from the inspection of the individual intrinsic and extrinsic characteristics of the system are reported hereafter.

Relationship maintainability

Scored: novice -2, moderate -2, expert -1

The inspection revealed that the relationship between the portal and its target users, foreign students, is least likely to stand the test of time. This is due to various factors ranging from system reliability (during inspection the system crashed at multiple instances) to barriers related to language (Felvi.hu does not offer a full English version of the site so foreign students may not be as motivated to use it). Another crucial point is that Felvi does not offer any kind of contact services or the ability to establish other forms of offline relationship with foreign users, since all registration, e-mail and contact information is in Hungarian. Nevertheless, Felvi is a source of valuable information to end users, if not the only one. The quality of the provided information is high and motivates users to reuse the system. Novice users in particular may appreciate some of the functionalities offered to them, especially those that are quite easy to use such as search engine for academic programs.

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13 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
### Table 4. Felvi - Summary of Quality of Usage Experience (User Group 4)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>National Higher Education Admission Bureau (Országos Felvételi Iroda - OFI)</th>
<th>Period of assessment</th>
<th>September 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Foreigners</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>Quality of usage experience of first-time and novice users</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------</td>
<td>-------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Function 1</td>
<td>0.76</td>
<td>0.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Function 2</td>
<td>1.83</td>
<td>-2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Function 3</td>
<td>1.14</td>
<td>-0.66</td>
<td>3.00</td>
</tr>
<tr>
<td>Function 4</td>
<td>1.75</td>
<td>-1.20</td>
<td>3.00</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>-1</td>
<td>3</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 1 ‘Search Engine for Academic Programmes’
- Function 2 ‘General Search Engine with Keywords’
- Function 3 ‘News about Academic Programmes’
- Function 4 ‘Outlook on Academic Programmes’
List of findings on the quality of interaction experience per function
(User Group 4: Foreigners)

(the symbols †, ‡, and ‡‡ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: <strong>Search Engine For Academic Programmes</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The portal has a search engine dedicated to finding academic programmes in Hungarian Universities, which offers many functionalities and options to users. Its visibility and perceived usefulness and ease of use are satisfactory, but availability of the function is more noteworthy, especially for novice users. However, the average score for the function is negatively influenced by the not so good quality of usage experience and user relationship maintainability.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

† The search function appears in the centre side of the screen and is quite visible

† The system provides two titles for the specific function. The first notes the category named “Academic programs” and the second the function named “search engine”

† The function remains visible on the left side menu of the page even if the page content changes

† The visibility of the function is indifferent of the Browser used

‡ Visibility for low vision users is not good as the font sizes in the pages are strict, thus preventing users from being able to increase or decrease effectively the font size. (This also depends on the browser, e.g. at I.E. the font does not change, at Mozilla Firefox it does change, but not effectively)

‡ The “ok” button uses text to represent the search action and as a result becomes not visible and clear to blind users and to users using text browsers

**Usefulness**

† There are examples of the pattern of the results of a search, thus motivating users to use the function

† The menu button title ‘Academic Programs’ clearly states that selecting it the user will receive information about academic programs

‡ However, the same label does not explicitly state that the user is about to search for academic programs

‡ There isn’t any help or FAQ sections for the function
### Availability – approachability

**Novice users**
- First time users should find it quite easy to locate and reach the entry point of the function

**Moderate users**
- The function can be easily accessed by users with moderate expertise. This group will not encounter any problems remembering the actions needed to reach the function entry point
- The events search procedure steps are simple and easy to remember

**Expert users**
- The function is easily accessible and simple to use

### Quality of usage experience

**Novice users**
- There is an area with the most recent results, which is good in terms of perceived usefulness, since the user needs up-to-date information
- When the user search criteria do not match any of the events, the system provides information with an error message and gives a chance to search again. This is a good design example
- Additional information is presented for each result, thus helping the user to select the appropriate one
- The results use line separators which make them visible for colour blind users
- The results appear in pages (20 results per page). This can decrease the information that appears in one screen, making the results more readable
- The system gives the possibility to determine how many results should be presented in each page
- The fact that the form consist of dropdown menus, and not open-ended text field, reduces the potential of user errors
- No colour is used for distinguishing items
- The function does not work when the user has JavaScript disabled

** ⇩ The top navigation bar is in Hungarian and all the rest of the system is in English. This is confusing for the user
** ⇩ There is no available help in any of the function’s steps
There is no guidance for the user. Default place holding characters should be included in edit boxes.

Blind user will find it difficult to fill-in the form as there are no appropriate Labels to the fields.

When a user clicks on a result for viewing more information, using the back browser button causes a system crash.

There is no available help in any of the function’s steps.

The label “ok” on the search button is not very descriptive of its operation (“Search” is better).

Although there is a list of numbers leading to each page of results, the user has no feedback about the current page, the segment of currently being viewed or the total number of results (e.g., “Page 2 of 20” or “Results 21-40 of 234”).

There is no link to the home page of the international version of the site except from the “For Foreigners” tab on the top of the page, which is not very representative of its function.

Apparently academic programs are sorted alphabetically, but there is no way for the user to change this sorting (ascending or descending, by university, by language etc.).

**Moderate users**

There is an area with the most recent results, which is good in terms of perceived usefulness, since the user needs up-to-date information.

When the user search criteria do not match any of the events, the system provides information with an error message and gives a chance to search again. This is a good design example.

Additional information is presented for each result, thus helping the user to select the appropriate one.

The results use line separators which make them visible for colour-blind users.

The results appear in pages (20 results per page). This can decrease the information that appears in one screen, making the results more readable.

The system gives the possibility to determine how many results should be presented in each page.

The fact that the form consist of dropdown menus, and not open-ended text field, reduces the potential of user errors.
No colour is used for distinguishing items

The function does not work when the user has JavaScript disabled

The top navigation bar is in Hungarian and all the rest of the system is in English. This is confusing for the user

There is no available help in any of the function’s steps

There is no guidance for the user. Default placeholder characters should be included in edit boxes

Blind user will find it difficult to fill-in the form, as there are no appropriate labels to the fields

When a user clicks on a result for viewing more information, using the back browser button causes a system crash

The label “ok” on the search button is not very descriptive of its operation (the standard label “Search” would be better)

Although there is a list of numbers leading to each page of results, the user has no feedback about the current page, the segment of results currently being viewed or the total number of results. (e.g. “Page 2 of 20” or “Results 21-40 of 234”)

There is no link to the home page of the international version of the site, except from the “For Foreigners” tab on the top of the page, which is not very representative of its function

Apparently, academic programs are sorted alphabetically, but there is no way for the user to change this sorting (ascending or descending, by university, by language etc.)

Expert users

There is no way for users to perform this function more effectively and efficiently (e.g., no sorting or filtering are provided)

Novice users

Users should have the ability to sort the results or the results must be sorted when presented

The user is not informed about new academic programs or changes in the previously existing ones
Moderate users

⇩ The system has no mechanism to remember user preferences and choices when performing the function. It should allow saving profiles for quicker searches (upon Registration)

Expert users

⇧ Expert users can easily make use of the function because the only steps needed is to locate the function and fill the search parameters

⇩ There are no better or faster ways of achieving the same result

<table>
<thead>
<tr>
<th>Function 2: General Search Engine With Keywords</th>
<th>Score: -1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The function in question has an overall negative score, however many of its characteristics would appear favourable to new users. For instance, its visibility is very high, being on the main menu page, as well as its availability. However, the scores fall sharply when quality of use is considered, for all types of users. Similarly and not without relation to the previous, the function is likely to deter users from revisiting it.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

⇧ The “search” button uses text to represent the search action, and as a result becomes visible to blind users and users using text browsers

⇧ The function remains visible on the right side of the page even if the page content changes

⇧ The visibility of the function is indifferent of the Browser used

⇧ The search function can also be located by selecting the link “search in archives” included in the introduction page

⇧ The accommodation search function appears in the top and right side of the screen and is quite visible

⇩ Visibility for low vision users is not good as the font sizes in the pages are strict, thus preventing users from being able to increase or decrease effectively the font size

Usefulness

⇩ No information is given about the potential results of a search thus not motivating users to use the function

⇩ There is no help or FAQ sections for the function

⇩ Default, place-holding characters are not included in the search text field to
### Availability – Approachability

#### Novice users
- First time users should find it quite easy to locate and reach the entry point of the function.

#### Moderate users
- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.
- Although the search procedure steps are simple, almost all text is in Hungarian.

#### Expert users
- The user can bookmark the homepage of the function.
- The system has no mechanism to remember user preferences and choices when performing the function.

### Quality of usage experience

#### Novice users
- The results use line separators which make them visible for colour blind users.
- Additional information is presented for each result, thus helping the user to select the appropriate one.
- No colour is used for distinguishing items.
- When users clicks on a result for viewing more information using the back browser button causes a system crash.
- There is no available help in any of the function’s steps.
- When the user search criteria do not match any of the events, the system provides information with an error message in Hungarian.
- There is no paging, grouping, numbering or sorting of the search results.
- There is no link to the home page of the international version of the site, except from the “For Foreigners” tab on the top of the page, which is not very representative of its function.
- There is no guidance for the user. Default, place-holding characters should be included in edit boxes and text areas.
The result page provides users with the ability to perform a new search, but the form is in Hungarian.

All labels in the results’ page are in Hungarian.

The quality of the results is not totally satisfying, as there is no consistency (e.g. there are programs and program).

Blind user will find it difficult to fill-in the form as there are no appropriate Labels to the fields.

**Moderate users**

- Moderate users can easily make use of the function, because the only steps needed is to locate the function and fill the search parameters.
- The existence of a mechanism for filtering and sorting the results of searches would provide the means for moderate users to use more efficiently the function.
- There is no numbering in the results lists (which would help occasional users to quickly calculate the results).
- Although the search procedure steps are simple, almost all text is in Hungarian.

**Expert users**

- There is no facility for viewing the results with various sorting.
- There is no facility for filtering the results.
- The users cannot establish any shortcuts.

**Relationship maintainability**

**Novice users**

- Users performing a search must have the possibility to filter the results.
- Users should have the possibility to sort the results or the results must be sorted when presented.
- The user is not informed about new content in the site.

**Moderate users**

- The system should allow saving profiles for quicker searches (upon Registration).
- The total number of search results is not presented (which would help occasional users to quickly calculate new academic programs entries since last.
Expert users

- There are no better or faster ways of achieving the same result
- Expert users can easily make use of the function because the only steps needed is to locate the function and fill the search parameters
- The search results page does not offer facilities that expert users can use when accessing search results

Function 3: News About Academic Programmes

<table>
<thead>
<tr>
<th>Function 3: News About Academic Programmes</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The news section of the portal displays some good and some very bad elements, resulting in a positive even if low average score. Its strongest aspects are visibility and approachability for all users, while few major pitfalls in the actual usage of the function create a negative climate for its quality. Similarly, there is high probability that users will become so disappointed by the function as to avoid its use.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

- The news function appears as a selection in the left navigation bar and is quite visible
- The visibility of the function is indifferent of the Browser used
- The function remains visible on the left side menu of the page even if the page content changes
- Visibility for low vision users is not good as the font sizes in the pages are strict, thus allowing the user to increase or decrease effectively the font size

Usefulness

- The menu button title ‘News’ clearly states that selecting it the user will receive information about academic programs
- There is no help or FAQ sections for the function

Availability – Approachability

Novice users

- Novice users should easily locate the function, since it is the third item on the left side menu (which has only three options)

Moderate users

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point
### Expert users

⇧ The user can bookmark the homepage of the function

⇧ The function is easily accessible and simple to use

### Novice users

⇧ The results use line separators which make them visible for colour blind users

⇧ Additional information is presented for each result, thus helping the user to select the appropriate one

⇧ No colour is used for distinguishing items

⇩ Blind user will find it difficult to read the news, because there are no appropriate headers to the fields

⇩ When a user clicks on the “more” link to view more information about a topic, hitting the back browser button causes a system crash

⇩ There is no available help in any of the function’s steps

⇩ There is no grouping, paging or categorization of news (e.g. per month or year, per university, content category etc.)

⇩ There is no link to the home page of the international version of the site except from the “For Foreigners” tab on the top of the page, which is not very representative of its function

⇩ Apparently, the news are sorted by descending date, but there is no possibility for the user to change this sorting (ascending, alphabetically, by content category etc.)

### Moderate users

⇩ Moderate users can easily make use of the function because the only steps needed is to locate the function

⇩ The existence of a mechanism for filtering and sorting the news would provide the means for moderate users to use more efficiently the function

⇩ There is no numbering of the results lists (which would help occasional users to quickly calculate the results)

### Expert users

⇩ There is no facility for viewing the results with various sorting
There is no facility for filtering the results

There is no way for users to perform this function more effectively and efficiently except for their own usage experience

### Relationship maintainability

**Novice users**

- The system has no mechanism to remember user preferences and choices when performing the function

**Moderate users**

- The system has no mechanism to remember user preferences and choices when performing the function

**Expert users**

- Expert users can easily make use of the function because the only steps needed is to locate the function
- The news page does not offer facilities that expert users can use when accessing news items
- There are no better or faster ways of achieving the same result

### Function 4: Outlook On Academic Programmes

<table>
<thead>
<tr>
<th>Function 4: Outlook On Academic Programmes</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The final inspected function of the English version of the Felvi portal has an overall neutral score. The function is clearly visible to non-users, but it contains no hints as to its value for them. Also, the function is highly approachable to all users, regardless of familiarity with the system, but when accessed, familiarity plays a part in the impression users are left with from the use of the function; in effect, the less experienced users are the worse the function appears to them. Relationship maintainability follows the same pattern.</td>
<td></td>
</tr>
</tbody>
</table>

### Visibility

- The function remains visible on the left side menu of the page even if the page content changes
- The visibility of the function is indifferent of the Browser used
- The function is visible on the first page the user sees, and is clearly stated by the button ‘Outlook’ of the left side menu (2nd item on the menu)
- Visibility for low vision users is not good as the font sizes in the pages are strict, thus preventing users from being able to increase or decrease effectively the font size
### Usefulness

- The menu button title ‘Outlook’ is representative of its function
- There is no help or FAQ sections for the function
- The menu button title ‘Outlook’ does not clarify that it refers to an outlook of academic programs (maybe it should be a subcategory link or the “academic programs” link of the menu)

### Availability – Approachability

**Novice users**

- Novice users should easily locate the function since it is the second item on the left side menu (which has only three options)

**Moderate users**

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point

**Expert users**

- The user can bookmark the homepage of the function
- The function is easily accessible and simple to use

### Quality of usage experience

**Novice users**

- The results use line separators which make them visible for colour blind users
- Additional information is presented for each result, thus helping the user to select the appropriate one
- No colour is used for distinguishing items
- There is no grouping, paging or categorization of items (e.g., per month or year, per university, content category etc.)
- Blind user will find it difficult to read the news, because there are no appropriate headers to the fields
- The system does not support additional functionality for filtering or sorting the search results
- When a user clicks on the “more” link to view more information about a topic hitting the back browser button causes a system crash
- There is no available help in any of the function’s steps
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There is no link to the home page of the international version of the site, except from the “For Foreigners” tab on the top of the page, which is not very representative of its function</td>
</tr>
<tr>
<td></td>
<td>Apparently, the items are sorted by descending date, but there is no possibility for the user to change this sorting (ascending, alphabetically, by content category etc.)</td>
</tr>
<tr>
<td></td>
<td>When the user selects an item, there is no way to navigate to the next or previous one or even return to the news’ list (except for the browser’s back button)</td>
</tr>
</tbody>
</table>

**Moderate users**

- Moderate users can easily make use of the function because the only steps needed is to locate the function
- The existence of a mechanism for filtering and sorting the results of outlook would provide the means for moderate users to use more efficiently the function
- There is no numbering in the results lists (which would help occasional users to quickly calculate the results)

**Expert users**

- There is no facility for viewing the results with various sorting
- There is no facility for filtering the results
- There is no way for users to perform this function more effectively and efficiently except for their own usage experience

---

**Relationship maintainability**

**Novice users**

- Users must have the possibility to filter the results
- Users should have the possibility to sort the results or the results should be sorted when presented
- The user in not explicitly informed about new items on the list

**Moderate users**

- The system has no mechanism to remember user preferences and choices when performing the function

**Expert users**

- Expert users can easily make use of the function because the only steps needed
is to locate the function

- The outlook page does not offer facilities that expert users can use when accessing news items
- There are no better or faster ways of achieving the same result
4.3 Berlin.de, Germany (eGovernment)

4.3.1 System Description

Berlin.de is the official city information system of the city of Berlin (see Figure 6). Apart from a wide range of information about Berlin City, including that relating to tourism and economic issues, Berlin.de provides a variety of citizen-oriented online services. Integrated into this service are almost all public administration offices of Berlin that provide pre-printed forms in electronic version for downloading. The user is guided around the website via a lifecycle oriented glossary, which guides the user through substantial information concerning nearly all institutions and offers in the field of public affairs.

![Berlin.de, Germany (eGovernment)](http://www.berlin.de/)

- The official portal for Berlin City
- Contains information on tourism and economic issues, plus online services for Berlin citizens
- All public administration offices in Berlin are linked to the portal and offer forms for downloading
- The English version offers information to tourists and the possibility to make online hotel reservations

Figure 6. Berlin.de, GERMANY (eGovernment)

eGovernment services include, for instance, a tax return form for enterprises and for individuals, which can be downloaded from the site. Apart from special governmental issues, nearly all public institutions provide a list of products via internet. This offer ranges from public dance schools (that make an application form available online) to the opportunity to gain specific information concerning the public library. Altogether, the service gives the opportunity to interact virtually with nearly all public offices concerning citizen affairs. The portal also provides a link to a website offering a variety of health-related information, such as addresses of hospitals, etc.

The implementation of the service was initiated by the Senatsverwaltung (City Administration) of Berlin, whose main goal was to cut down financial expenses in the public administration sector. The implementation of technological means therefore improves effectiveness and efficiency by reduction of material consumption as well as putting less emphasis on location and staff. Besides, the service accounts for the increase in work satisfaction. The automation of the working process allows staff time to concentrate on new tasks, by gradually eliminating the routinised / repetitive tasks now taken over by the new service. The time saved by implementing eGovernment services will lead to a reduction of staff, and will therefore help to limit financial...
expenditures, as well as to improve online services provided to citizens: by using integrated information systems, public administration becomes more transparent, as a consequence of the implementation of eGovernment.

Berlin.de appears to have partly achieved its original objective of modernising local public administration, also offering more user-friendly and effective services to the citizens. The European E-City Award, established in 2002, is assigned to the city with the best Internet portal in the whole of Europe. In 2002, the Berlin.de prevailed in the category ‘firms’, because of the detailed information offers for prospective firms and investors, while in the category ‘tourists’ it reached the third place. Overall, it was given second place by the jury of the E-City Award.

From the results of the conducted studies, it emerges that Berlin.de is a comprehensive site which figures amongst the highest ranked municipality portals in Germany. The portal has been distinguished by many studies and surveys in the field of eGovernment, as a result of its high service quality and user-orientation. Berlin.de ranked 7th out of 50 Germany’s biggest city portals regarding Internet performance, it took the 12th place on “website quality” in the 2003 DM Euro study and the 2nd place in the 2002 E-City Awards. This case provides an example of how thrust towards modernisation of government services can be utilised to increase their user-orientation, e.g., better organisation of the back-office can be undertaken in a way to increase transparency and efficiency of the services offered to citizens.

4.3.2 Inspection team

The inspection team was made up of three members, the inspection leader (Inspector 1), who is an expert in user interface design, accessibility issues, and usability evaluations, and other two members (Inspector 2 and Inspector 3). The two inspectors had diverse background and expertise, ranging from user interface design, web design, accessibility issues and usability evaluations to linguistics. The inspection leader was male and both members were female. None of the inspection members had any relation to the product or to the service provider, and this was the first time they accessed the system in question. Other than that, the average familiarity of the inspection members with similar systems was moderate, and familiarity with the language supported by the system (English) was high. It should be noted that the system’s full version is in the German language, however there is a slightly lighter version of the portal in English, which was the object of the present assessment. Moreover, the inspection group was sufficiently familiar both with the inspection method at hand and with inspection methods and tools in general.
Inspector 1 and leader of the inspection group is a native Greek speaker with fluent knowledge of English. His educational background consists of a BSc in Computer Science and he is currently following his postgraduate studies in Human-Computer Interaction. He is quite familiar with the current inspection instrument and he is excellently familiar with similar purpose tools and methods. However, he is not the least familiar with the system under evaluation nor does he have any connection with the developers or providers of the system.

Inspector 2 is Greek and has a BSc in Computer Science and an MSc in Information Systems and Health Telematics. The inspector has no link to the system developers or providers and navigated around the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system (here the English version of the system is implied) as well as with other systems of this kind. She was slightly familiar with the inspection tool in question before using it, and moderately familiar with inspection tools and methods.

Inspector 3 is Greek, has a BSc in Computer Science and is currently studying Human-Computer Interaction at a postgraduate level. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system (here the English version of the system is implied) as well as with other systems of this kind. She was slightly familiar with the inspection tool in question before using it, and moderately familiar with inspection tools and methods in general.

### 4.3.3 Target User Groups

According to the system provider, everyone is eligible to become a member of berlin.de, including Berlin citizens, job seekers, employers, juniors, students, senior citizens, disabled citizens, socially disadvantaged citizens, homosexuals, minority populations of Berlin and visitors of Berlin (tourists, businessmen). On a par with the information for the system provider, the inspection team has categorised potential users in four user groups:

1. **Berlin citizens**: citizens of Berlin may enter the portal to retrieve various information about, e.g., accommodation, restaurants, offices, pharmacies, doctors, events at Berlin, find a street, see a map of Berlin or find products to buy and purchase tickets for several events.

2. **Minority populations living in Berlin (International version)**: this group can use the international version of Berlin.de and include people that live in Berlin but is not
from Germany. They have the possibility to browse information or download the information package.

3. *Tourists / visitors (International version)*: Includes people that plan to visit Berlin for business or vacation and want to look for accommodation packages or other information.

4. *Businessmen (International version)*: Includes people that want to move temporarily to Berlin and search for related information.

### 4.3.4 Functions per User Group

**User Group 1: Berlin Citizens**

Functions addressed to Berlin citizens are:

1. Download information package (for newcomers)
2. Apply for licence plates
3. Download forms
4. Enrol in public schools
5. Download forms
6. Search
7. Find accommodation, restaurants, offices, pharmacies, doctors, events in Berlin
8. Find a street, see a map of Berlin
9. Get a printer-friendly copy of the page in question
10. Recommend the page to a friend (email)
11. Find products to buy (but actual purchase is made through other sites)
12. Purchase tickets for events (theatre, sports, etc.)
13. Purchase email account
14. Register for communication services
15. Browse advertisements
16. Chat
17. Enter forum
18. Create log

**User Group 2: Minority Populations Living In Berlin (International Version)**

1. Browse information about Berlin
2. Download information package

All functions of this user group have been assessed.

**User Group 3: Tourists / Visitors (International Version)**

1. Information browse
2. Event search
3. Accommodation search

All functions of this user group have been assessed.
User Group 4: **Businessmen**

1. Browse information
4.3.5 Inspection results

User-orientation of the overall system (all user groups)

The English version of the Berlin.de portal displays a neutral picture regarding its user-orientation across the user groups that have been assessed. Furthermore, none of the scores for individual user-orientation characteristics touched the extremities, showing the portal’s moderate concern for usability and user acceptance of its functions. More specifically, both visibility and perceived usefulness have a score of zero, which is a borderline score, while availability scores slightly better throughout novice to expert users. The overall quality of usage experience displays an interesting pattern, ranging from positive scores when it comes to first-time and novice users, falling slightly at zero as users become more familiar with the system and its functions, and further descending to negative values when taking into account expert users. Thus, the system is more oriented towards new users and tends to disappoint those who explore the system in depth. Berlin.de is also least strong in providing incentives to its users to become regular users of the portal and forge a relation with it.
Table 5. **Berlin.de - Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Berlin.de</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th></th>
<th>Moderate users</th>
<th></th>
<th>Expert users</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use for non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>Quality of usage experience of first-time and novice users</td>
<td>Relationship maintainability for first-time and novice users</td>
<td>Availability &amp; approachability to moderate users</td>
<td>Quality of usage experience of moderate users</td>
</tr>
<tr>
<td>User Group 2</td>
<td>-0.46</td>
<td>0.11</td>
<td>1.00</td>
<td>0.00</td>
<td>0.66</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>User Group 3</td>
<td>0.38</td>
<td>0.29</td>
<td>1.00</td>
<td>1.00</td>
<td>-0.50</td>
<td>1.00</td>
<td>-1.00</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**USER GROUPS:**
- User Group 2 ‘Minority Populations Living in Berlin (International Version)’
- User Group 3 ‘Tourists/Visitors (International Version)’

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*Berlin.de, GERMANY (eGovernment)*

FORTH-ICS

TR-373, February 2006
Minority Populations Living In Berlin (International version)
(User Group 2)

Minority Populations Living In Berlin (International version)  
(User Group 2)  
Total Score = 0

Visibility  
Scoring: 0

The visibility of the system for foreigners living in Berlin is on borderline acceptance levels; the portal does have a medium reference rate with some of the most popular search engines, although it is referenced in some German websites. However, during the inspection, no other means of promotion were found, in spite of the fact that one would expect additional publicity actions such as leaflets or brochures in printable form, short user guides, radio and TV promotion and even public access points such as information kiosks located at central parts of the city. Also, the Berlin portal displays a low degree of accessibility for disabled users and for the elderly.

Perceived usefulness and ease of use  
Scoring: 0

The international version of the Berlin.de portal overall attains borderline perceived usefulness levels, due to various good and bad user-orientation examples. One of the high points of the portal is that it offers information about Berlin city, including business, entertainment, accommodation and politics, which tempts users to follow at least one of the links with keywords that appeal to their case (e.g., “Berlin Capital city”, “Business in Berlin”, “Hotels and Apartments”, “Entertainment”). Moreover, the site includes a specific domain that welcomes new citizens to Berlin city and provides information (available for downloading) about housing, working, child-care and other basic facts, motivating users to gain personal experience of the system. Nevertheless, most of the information is amassed in the homepage and except from the left navigation bar the information is not organised very well and it is not easily accessed by users. For instance, the site contains two or more services in the same page referring to the same domain (e.g., find hotel) without being grouped. Also, some German language is mixed in the English version of the portal, confusing people who speak only English. Finally, the portal lacks critical information for the given user group such as green cards, employment and insurance rights, foreign associations and societies, religious buildings, etc.
Availability / Approachability

*Scored: novice 1, moderate 1, expert 0*

The portal is adequately available and approachable to all users, regardless of their experience with the system. Novice users will have no problem remembering the url address, which is actually very self-evident and easy to memorise. Also, the website contains information in more than one language. On the other hand, some of the information and links on the international version are in German, which undoubtedly confuses users who do not know the language. Moreover, there are some specific operating constraints, such as the need to have the Macromedia Flash plug-in in order to view some pieces of information, and the fact that the site cannot be accessed through a mobile device as it contains too many graphics. The extended use of graphics also increases the loading time of the Berlin.de website for slow Internet connections.

When the question comes to more experienced users, moderate users will be able to bookmark the homepage of the system and will have no problem relocating it, since the bookmark is stored with the accompanying text “Berlin.de Information in English”, which is representative of the bookmark in question. Moreover, the site features a logo when bookmarked, although the logo icon is not easily associable with Berlin. Finally, expert users should have no problem reaching the Berlin.de portal.

Overall quality of interaction experience

*Scored: novice 0, moderate 1, expert 0*

Although the visibility of the portal’s functions is high, users who are not yet familiar with the portal’s functions may not attempt to use them simply because they may not see the benefit from using them. Another weak point is the system’s function availability, especially when it comes to less experienced users, since expert users are usually apt in overcoming minor issues in accessing a system’s functions. The actual quality of the functions is also mostly negative, with the only exception being moderate users, who are more likely to be satisfied from using the functions than other user types. Finally, relationship maintainability seems to present fluctuations and discrepancies depending on the amount of experience of the users with the system. In effect, novice and moderate users are least likely to reuse the system’s functions, while expert users are more likely to make use of the system’s functions in the future.

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14 The inspection scores on the *quality of interaction experience* for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.

Berlin.de, GERMANY (eGovernment)  
FORTH-ICS  
TR-373, February 2006
Relationship maintainability

*Scored: novice 1, moderate 1, expert 1*

Berlin.de scores positively in relationship maintainability because it is a source of valuable information to end-users and the quality of information motivates users to reuse the system. On the other hand, the score could have been greater if the system offered some kind of contact services or other forms of offline relationship maintainability to its users.
### Table 6. Berlin.de - Summary of Quality of Usage Experience (User Group 2)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Berlin.de</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of assessment</td>
<td>August 2005</td>
</tr>
<tr>
<td>User Group’s brief description</td>
<td>Minority Populations Living In Berlin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>Quality of usage experience of first-time and novice users</td>
</tr>
<tr>
<td>Function1</td>
<td>1.82 -0.22 -1.25 -1.50 -2.33</td>
<td>-4.00</td>
<td>2.20</td>
</tr>
<tr>
<td>Function2</td>
<td>1.23 -0.66 -2.40 -1.66 0.33</td>
<td>2.00</td>
<td>-1.00</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>0</td>
<td>-2</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**

Function 1 ‘Browse Information about Berlin’
Function 2 ‘Download Information Package’
List of findings on the quality of interaction experience per function
(User Group 2: Minority Populations Living in Berlin)

(the symbols ⦿, ⊶, and ⇐ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: Browse information about Berlin</th>
<th>Score: -1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first function that was assessed was somewhat disappointing with regards to its user-orientation. Although the score for visibility was very encouraging, the system didn’t score so well in utility and in addition many problems were revealed regarding its approachability, especially for moderate users. It also appeared that the quality of usage experience was mostly bad, with the only exception being moderate users, who find the happy medium between difficulties for new users and limited features for expert ones. Relationship maintainability is also mostly negative, due to the system’s limited efforts to forge relations with its users.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

† The function is visible on the homepage and is clearly stated by the title ‘Information in English’. Furthermore, information is separated into sections, a brief description of which is presented in the first page

† The menu on the left, which includes the sections that information is divided in, is consistently used and remains visible in almost all information pages

† In addition, there are event and hotel search engines visible on the first page (for users that seek particular information), which also increase the visibility of this function

† The English flag icon is always present on the top right corner of the page, so the function is easily visible whenever it is needed

† The English flag icon has alternative text and is visible to blind users, users using text browsers or users who disable images through their browsers

† Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size

† The visibility of the function is indifferent of the Browser used

† Apart from the pages containing information in English, there are links to other languages too, clearly visible on the left side of the page

〆 However, some of the menu options lead to other affiliate sites or other pages of the Berlin.de portal that are written in German and do not include the main information browsing menu that is in English. As a result, the function is not visible to the user any more
There is a lot of information in one page and this, along with pop-ups and advertisements, decreases the visibility of the function for users with cognitive impairments and low literacy users.

**Usefulness**

- The page title ‘Information in English’ clearly states the purpose and nature of the function.
- The menu categories (‘Hotels & Apartments’, ‘Visitor’s guide’, ‘Entertainment’, ‘Politics’ etc) describe exactly the utility of the function and provide clear and direct guidance for using the function.
- The category guidance provided by the left side menu is simple and comprehensible for users with cognitive impairments and low literacy users.
- The left side navigation bar provides the same functions presented in the centre of the homepage, which may confuse users.
- FAQ and help do not exist.

**Availability – approachability**

**Novice users**

- Novice users should easily locate the function and its subcategories since they are all contained and briefly described in the initial page.
- Two or more services referring to the same domain presented in the homepage in different locations.
- No clear distinction between internal and external links of the system; as a result, sometimes pages open in new windows and other times they are part of the website, thus confusing the users.

**Moderate users**

- The information structure and hierarchy is not deep, so it is quite easy for occasional users to remember the function’s steps and choices.
- Some information about Berlin is linked to pages in the same site, but when they are selected the left navigation bar disappears and the user has to click browser’s back button to recover the previous state (e.g., The Constitution of Berlin).
- Although the information that is referred above is presented in English, the navigation bars are in German and users may feel at a loss.

**Expert users**

- Users can bookmark any page that refers to information about Berlin.
Novice users

- The menu on the left side of the page displays the information about Berlin into separate sections, which is very useful for novice users in order not to be confused by the large amount of available information.

- Search fields for events are easy to understand and the user is informed in case a mistake occurs.

- An indicator icon denotes that a link will open a new window.

- In general, the function’s various steps and choices lack consistency in many aspects (buttons, menus, text fields, links, page layout etc.).

- When cascading menus open, they hide the content of the page.

- Some information about Berlin is linked to pages in the same site, but when they are selected the left navigation bar disappears and the user has to click browser’s back button to recover the previous state (e.g., The Constitution of Berlin).

- There is no available help in any of the function’s steps.

- There are many buttons and links in German that might disorient the user (e.g., print, contact, menu buttons).

- There is an extensive use of pop up windows and links to other sites, which is not always obvious to the user (e.g., the link ‘more>>’ sometimes leads to another page inside the site and other times to other sites with relevant information).

- The left side menu disappears when error messages or event search results are shown. So, the only way for users to return to what they were doing is through the Browser’s “Back” button.

- There is a danger of mental user overload since there are many different pieces of information as well as advertisements that disorient and distract the users’ attention when performing the task.

- The date of the site content’s last modification is not stated, so the user is not informed whether the presented information is up-to-date, which is very important especially in case of events.

Moderate users

- The buttons and links use the same patterns.

- The system supports a clear two-level menu and standard links to more details.
and other types of information

However, not all interaction controls cause the same results when activated. For example, other links lead to page inside the site and other create pop-up windows of other sites

**Expert users**

↓ The site does not support ways in which expert users could make use of the function effectively and efficiently

**Relationship maintainability**

**Novice users**

↓ In order to explore this function in width, novice users must read much information and spend time experimenting with the function’s facilities

↓ Users are not informed about content changes and there is no last modification date presented

**Moderate users**

↓ The system has no mechanism to remember user preferences and choices when performing the function

**Expert users**

⇧ The user can bookmark each page that refers to Berlin Information

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**Function 2: Download information package**  |  **Score: -1**

Foreigners in Berlin should have no trouble locating the link for downloading the information package on the city, although the utility of the guide is no so clear. The function is easily approachable, since it is on the main page. However, due to design problems, users - especially novice - might have trouble reaching it. With regards to the actual usage experience, the results of the inspection were disappointing for all users. In addition, moderate users are least likely to wish to reuse the function, while the respective scores for novice or expert users are at borderline levels.

**Visibility**

⇧ The image that can be used to download the information package has alternative text and is perceivable for blind users, users using text browsers or users who disable images through their browsers

⇧ Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size

⇧ The visibility of the function is indifferent of the Browser used

⇧ Apart from the package containing information in English, there are links to
the package in other languages too, placed below the main English version links

↑ The function is on the first page

↓ However, the title and link ‘Welcome to Berlin’ does not imply that this is a pdf document available for downloading. Users realise this after reading the entire text

↓ The file type and size is not clearly stated and visible. An icon representing the file type would increase the function’s visibility

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ The entry point of the function is on the first page, so no guidance is necessary</td>
</tr>
<tr>
<td>↓ The link for downloading the file is named “free PDF-download”, thus helping user to understand the use of the function</td>
</tr>
<tr>
<td>↓ FAQ and help does not exist</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability – approachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice users</td>
</tr>
<tr>
<td>↓ Novice users would not easily locate the function, since the function’s description and the many different ways to accomplish the same task (download the package) are misleading and not self-explanatory</td>
</tr>
<tr>
<td>↓ There is a lot of information in the first page and the location of the function becomes very difficult for the novice user</td>
</tr>
<tr>
<td>↓ When the user selects the link “free pdf download”, the destination file opens in the same window instead of prompting the user to either save or open the file</td>
</tr>
</tbody>
</table>

Moderate users

↑ The function’s entry point is on the first page, so a moderate user will easily locate the information package

Expert users

↓ There is no way for the user to personalize this function

<table>
<thead>
<tr>
<th>Quality of usage experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice users</td>
</tr>
<tr>
<td>↑ The information package exists in many languages</td>
</tr>
<tr>
<td>↑ The default information package is in English (international language)</td>
</tr>
<tr>
<td>↓ There is no available help in any of the function’s steps</td>
</tr>
</tbody>
</table>
The title on the frame containing the information about this function, the image below, the link “free pdf download” and the link “more >>”, all lead to the same result: the pdf file opens inside the explorer window. This fact can be very confusing to novice users.

The link “free pdf download” does not open a dialogue box asking the user to either save or open the file.

The file size (1.5MB) is too large to open in the Browser’s window. Users with low rate connection will have trouble viewing the file and, in addition, there is no option offered by the system for them to save the file.

In the page where the information package is offered in other languages, clicking on the pdf format icon opens the file in a new window, whereas clicking on the title opens the file in the same window. This inconsistency can be misleading for novice users.

Additionally, in the same page the main English menu disappears and almost all the links, buttons and text are in German.

**Moderate users**

- The system supports standard view the information package.

- However, when clicking on the “free pdf download” link, the user would expect to see the standard file download dialogue box (see below).

**Expert users**

- There is no way for users to perform this function more effectively and efficiently.

*Relationship maintainability*

**Novice users**

- The user carries out the function easily.

- The user is not informed about content changes and there is no last modification date presented.

**Moderate users**

- The system has no mechanism to remember user preferences and choices.
when performing the function

*Expert users*

- The user can bookmark each page that refers to Berlin Information
- There are no better or faster ways of achieving the same result
User-orientation of the system (User Group 3)

Tourists / Visitors (International version) (User Group 3)  
Total Score = 0

Visibility

Scored: 0

The visibility of the portal to visitors of the city of Berlin is neutral. A positive remark is its high search engine reference when searching with common keywords such as ‘Berlin’ or ‘Berlin official site’. Also, popular travel sites both nationally and internationally mention Berlin.de as a reference point for travellers to Berlin. On the downside, users must only rely on the Internet to find the portal, when, taking into account the needs of the user group in question, it would be better to have public access points, for instance information kiosks, placed in central locations of the city in order to be visible to travellers. The system should also ensure accessibility for all, including persons with motor or cognitive impairments, low literacy users as well as the elderly.

Perceived usefulness and ease of use

Scored: 0

The portal’s perceived usefulness and ease of use is also neutral, due to the fact that the site may contain much information about accommodation, entertainment, getting around in Berlin, etc., which is extremely useful to visitors of the city, but it is poorly organised, gathering too much information on the homepage without a clear rationale behind the given grouping.

Availability / Approachability

Scored: novice 1, moderate 1, expert 2

Availability and approachability are the same as for user group 2.

Overall quality of interaction experience

Scored: novice 1, moderate -1, expert -1

The overall visibility and perceived usefulness of the system’s functions are neutral as far as the third user group is concerned. In general, novice users should be able to benefit from the system more than others, since the inspection revealed that although availability is neutral in their case, the quality of use and the relationship maintainability are considerably high. On the other side of the scale, moderate users are likely to face problems in accessing the system’s functions, while they may not form a positive opinion on their experience with using the system. Further to this, they are unlikely to return to the system in the future. Finally, expert users should have no trouble locating the functions they wish to access, however, they are more likely to form a negative opinion on the functions after using them, and they are also less likely to reuse them.

15 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability  

*Scored: novice -1, moderate -1, expert -1*  
Despite the fact that Berlin.de is a source of valuable information of high quality to end-users, which would motivate users to reuse the system, some of the Berlin.de functions that have been evaluated have proven to be less reliable and usable than expected. In addition, the system does not offer any kind of contact services or other forms of offline relationship to its users. Due to the aforementioned reasons, relationship maintainability reaches negative, though not extremely disappointing levels.
Table 7. Berlin.de - Summary of Quality of Usage Experience (User Group 3)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin.de</td>
<td>October 2005</td>
</tr>
</tbody>
</table>

User Group’s brief description: Tourists / Visitors

<table>
<thead>
<tr>
<th>Function</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td>Function 1</td>
<td>1.82</td>
<td>-0.22</td>
<td>-1.25</td>
</tr>
<tr>
<td>Function 2</td>
<td>1.70</td>
<td>-0.09</td>
<td>1.00</td>
</tr>
<tr>
<td>Function 3</td>
<td>-3.00</td>
<td>0.66</td>
<td>0.80</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

FUNCTIONS: Function 1 ‘Browse Information about Berlin’  
Function 2 ‘Event Search’  
Function 3 ‘Accommodation Search’
List of findings on the quality of interaction experience per function
(User Group 3: Tourists / Visitors (International version))

(the symbols ⬆, ⬇, and ⇑ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: <strong>Information Browse</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The means to browse for information in the portal should be obvious and clear to users; however, no efforts are made by the system to promote the user perceived usefulness of the function. Furthermore, the function’s quality of usage and its relationship maintainability are highly negative.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**
Same as for User Group 2 (see Function 1 - Browse information about Berlin).

**Usefulness**
Same as for User Group 2 (see Function 1 - Browse information about Berlin).

**Availability – approachability**
Same as for User Group 2 (see Function 1 - Browse information about Berlin).

**Quality of usage experience**

**Novice users**

⇧ The menu on the left side of the page has information about Berlin separated into sections, which is very useful for novice users in order not to be confused by the large amount of available information

⬇ In some case the indicator icon is used to denote that the link will open a new window

⬇ When cascading menus are opened, they overlap with the existing text on the site

⬇ Content advertisements and other services are presented in a confusing way (too many links).

⬇ Some information about Berlin is linked to pages in the same site, but when they are selected the left navigation bar disappears and the user has to click browser’s back button to recover the previous state (e.g., The Constitution of Berlin).

⬇ There is no available help in any of the function’s steps

⬇ There are many buttons and links in German that might disorient the user (e.g., print, contact, menu buttons)

⬇ There is an extensive use of pop up windows and links to other sites, which is not always obvious to the user (e.g., the link ‘more>>’ sometimes leads to
another page inside the site and other times to other sites with relevant information)

- The left side menu disappears when error messages or event search results are shown. So, the only way for the user to recover the previous state is through the browser’s “Back” button

- There is a danger of mental user overload, since there are many different pieces of information as well as advertisements that disorient and distract the users’ attention when performing the task

- The date of the site content’s last modification is not stated, so the user is not informed whether the presented information is up-to-date, which is very important especially in case of events

**Moderate users**

- The buttons and links use the same patterns that doesn’t confuse the user

- The system supports a clear two-level menu and standard links to more details and other types of information

- However, not all interaction controls cause the same results when activated. For example, some links lead to page inside the site and other links create pop-up windows of other sites

**Expert users**

- The site does not support more effective and efficient ways to perform the function

**Relationship maintainability**

**Novice users**

- Novice users in order to explore in width this function must read much information and spend time experimenting with the functions facilities

- The user in not informed about content changes and there is no last modification date presented

**Moderate users**

- The system has no mechanism to remember user preferences and choices when performing the function

**Expert users**

- The site does not support more effective and efficient ways to perform the function

<table>
<thead>
<tr>
<th>Function 2: <strong>Event Search</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitors of Berlin who enter the portal to search for an event in the city should easily</td>
<td>Berlin.de, GERMANY (eGovernment)</td>
</tr>
</tbody>
</table>
locate the function, although they may not see the utility of the function at a first glance. The availability of the function is also high for all users; however, the quality of use has room for improvement. Accordingly, relationship maintainability is considerably low, especially in the case of novice and moderate users.

<table>
<thead>
<tr>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>➕ The event search function appears in the centre side of the screen and is quite visible</td>
</tr>
<tr>
<td>➕ Visibility for low vision users is quite good as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size</td>
</tr>
<tr>
<td>➕ The “search” button uses text to represent the search action, and as a result it is perceivable to blind users users using text browsers and to users who disable images through their browsers</td>
</tr>
<tr>
<td>➕ The visibility of the function is indifferent of the Browser used (this is a good design example)</td>
</tr>
<tr>
<td>➕ The function remains visible on the right side of the page even if the page content changes</td>
</tr>
<tr>
<td>➕ The search event function can also be reached through the menu option “Entertainment”, in the “Event calendar” frame, by clicking on the “more &gt;&gt;” link</td>
</tr>
<tr>
<td>➡️ There is a page showing the top 10 events but it is not easily visible because it is accessible only after selecting the “entertainment” or “What to do” menu</td>
</tr>
<tr>
<td>➣ The title of the domain including the event search function has words that are too near together</td>
</tr>
<tr>
<td>➣ The visibility of the function is different when disabling JavaScript</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>➕ The frame title ‘Event search Berlin’ clearly states the purpose and nature of the function.</td>
</tr>
<tr>
<td>➕ The date text fields, as well as the drop down list of events’ categories, guide the users to locate events that interest them</td>
</tr>
<tr>
<td>➣ There are no clear instructions or guidance on which text fields are optional</td>
</tr>
<tr>
<td>➣ The text field “Keywords” is not that important to be the first one that the user must fill in. It can be helpful only in some cases, so it should be optional</td>
</tr>
<tr>
<td>➣ The text field for entering the event’s date should have a calendar for the user to select the date instead of typing it</td>
</tr>
<tr>
<td>Availability – approachability</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>↑ Novice users should easily locate the function since it is contained in the initial page</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>↑ The events search procedure steps are simple and easy to remember</td>
</tr>
<tr>
<td>↓ The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>↑ The function is easily accessible and simple to use</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of usage experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>↑ When the search criteria inserted by users do not match any of the events, the system informs them with an error message and gives them a chance to search again</td>
</tr>
<tr>
<td>↑ The results appear in pages. This can decrease the information that appears in one screen making the results more readable</td>
</tr>
<tr>
<td>↑ Grey colour is used for distinguishing items</td>
</tr>
<tr>
<td>↑ Only 10 search results are shown on each page, the user is informed about which results are currently shown (e.g., label “Hits 1 - 10 out of 725”) and there are arrow buttons for the user to navigate through the results’ pages</td>
</tr>
<tr>
<td>↑ The results are well categorised with colour coding to separate different results (this is a good design example)</td>
</tr>
<tr>
<td>↓ There is no available help in any of the function’s steps</td>
</tr>
<tr>
<td>↓ The ‘more advanced search’ form does not state which fields are optional and which are not</td>
</tr>
<tr>
<td>↓ The label “go” on the search button is inconsistent with the label “search” on the button of the initial page, and is not very descriptive of its operation (“Search” is better)</td>
</tr>
<tr>
<td>↓ In general, the function’s various steps and choices lack consistency in many aspects (buttons, menus, text fields, links, page layout etc.)</td>
</tr>
<tr>
<td>↓ The “New Search” button does not follow the format of all the other buttons in...</td>
</tr>
</tbody>
</table>
the site

There is no link to the home page of the international version of the site, except from the English flag on the top right corner, which is not very representative of its function

Apparently, events are sorted by their starting date, but there is no way for the user to change this sorting (ascending or descending, alphabetically etc.)

Ticket availability is not shown and there is no functionality available for booking tickets

There is no possibility for the users to contact a person or get more information about an event

First time users can’t use effectively and efficiently the function. The function is presented among many other functions in the same page

The form that the user has to fill in consists of two fields requiring a date in the form (dd.mm.yy), which is too difficult for a non-experienced user to understand. A good design would be the provision of an electronic calendar for selected dates

The system doesn’t prevent the user from making mistakes filling the form

The system doesn’t inform the user about mistakes nor about how to recover from them

For the first time users and novice internet user, it would be better having dialogue-based interaction conducted step – by – step

Blind user will find it difficult to fill in the form, as there are no appropriate Labels to the fields

The results pages provide users with the ability to perform a new search by clicking button “new search”. This action navigates the user to a new page (having no association with the form that has used previous) for searching

**Moderate users**

Moderate users can easily make use of the function because the only steps needed is to locate the function and fill in the search parameters

The existence of a mechanism for filtering and sorting the results of searches would provide the means for moderate users to use more efficiently the function

There is no numbering in the results lists (which would help occasional users to quickly calculate the results)
Expert users

⇩ There is no way for users to perform this function more effectively and efficiently (filtering and sorting)

Relationship maintainability

Novice users

⇩ Users performing a search must have the possibility to filter the results

⇩ Users should have the possibility to sort the results or the results must be sorted when presented

⇩ The user in not informed about new events

Moderate users

⇩ The system has no mechanism to remember user preferences and choices when performing the function. It should allow saving profiles for quicker searches (upon Registration)

Expert users

⇧ Expert user can easily explore this function in depth, because the steps needed in order to perform a search are quite common with other search functions

⇧ The search results page does not offer advanced facilities that expert users can use when accessing search results

---

Function 3: Accommodation Search | Score: 0

The third function presents both positive and negative characteristics, which shape its final score. Both visibility and perceived usefulness of the function to non-users is at borderline acceptance levels, while availability is particularly low for moderate users. The quality of use is also exceptionally low, while relationship maintainability displays a good design example in the case of moderate users.

Visibility

⇧ The accommodation search function appears in the centre side of the screen and is visible, since it is labelled by the title ‘Hotel’

⇧ The “search hotel” image button uses alter text to represent the search action, and as a result it is perceivable for blind users, users using text browsers, and users who disable images through their browsers

⇧ The function remains visible on the right side of the page even if the page content changes

⇧ The search hotel function, as well as some hotel offers, can also be reached through the menu option “Hotels & Apartments” “Hotels”
Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size.

There are two functions for accommodation search in the system, one for searching inside the site and the other for searching outside the site: however, this is not made clear to the users and might confuse them.

The title of the domain including the accommodation search function contains an image with some text that is difficult to read.

The visibility of the function is affected by the type of Browser used.

There is a lot of information in one page, which along with pop-ups and advertisements decreases the visibility of the function for users with cognitive impairments and low literacy users.

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
</table>
| 🆕 Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size.
| 🔽 There are two functions for accommodation search in the system, one for searching inside the site and the other for searching outside the site: however, this is not made clear to the users and might confuse them.
| 🔽 The title of the domain including the accommodation search function contains an image with some text that is difficult to read.
| 🔽 The visibility of the function is affected by the type of Browser used.
| 🔽 There is a lot of information in one page, which along with pop-ups and advertisements decreases the visibility of the function for users with cognitive impairments and low literacy users. |

Usefulness

The frame title ‘Hotels’, as well as the button label ‘Search hotel’, clearly state the purpose and nature of the function.

The text fields’ and drop down lists’ labels guide the users to find hotels that interest them.

There isn’t information about what will be the results of a search, thus not motivating users to use the function.

There isn’t any help or FAQ sections for the function.

There are no clear instructions or guidance on which text fields are optional.

Availability – approachability

Novice users

Novice users should easily locate the function since it is contained in the initial page.

However, there is another hotel search function visible on the initial page that links to an external site, a fact that is not clearly stated and as a result confuses the novice user.

Moderate users

The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.

The hotel search and booking procedure steps are complicated, incoherent and totally disorienting.
<table>
<thead>
<tr>
<th>Expert users</th>
<th>Novice users</th>
</tr>
</thead>
<tbody>
<tr>
<td>The support provided by the system (help) is more confusing than helpful</td>
<td>The results are well categorised with colour coding to separate different results (this is a good design example)</td>
</tr>
<tr>
<td>The user can bookmark the homepage of the function</td>
<td>When the user enters the search criteria in the initial page and clicks on the “Search hotels” button, a new, more advanced search form is presented instead of search results</td>
</tr>
<tr>
<td>The function is very complicated and the users are most likely not to use it more than once</td>
<td>When the user search criteria do not match any of the hotels, the system does not issue an error message</td>
</tr>
<tr>
<td></td>
<td>The second search form is inconsistent with the one included in the initial page. It contains more criteria and choices. This more advanced form should be accessible from the initial page through an explicit link and not by clicking on the search button</td>
</tr>
<tr>
<td></td>
<td>The left side menu disappears both in the more advanced search form and the results’ page. The user can return to the previous step only by clicking on the browser’s back button</td>
</tr>
<tr>
<td></td>
<td>The more advanced search form does not state which fields are optional and which are not</td>
</tr>
<tr>
<td></td>
<td>Although the site is about Berlin, the hotel reservation service is worldwide. In addition, there is no country/ city/ region predefined list or a map. The user has to type in the place</td>
</tr>
<tr>
<td></td>
<td>In general, the function’s various steps and choices lack consistency in many aspects (buttons, menus, text fields, links, page layout etc.)</td>
</tr>
<tr>
<td></td>
<td>Blue colour is used for distinguishing items, which can be a problem for colour-blind users. Also there are no appropriate Labels to the fields</td>
</tr>
<tr>
<td></td>
<td>The layout of the search form has no structure or alignment</td>
</tr>
<tr>
<td></td>
<td>There is no link to the home page of the international version of the site, except from the English flag on the top right corner, which is not very representative of its function</td>
</tr>
</tbody>
</table>
| | There is no guidance for the user. Default, place-holding characters should be
included in edit boxes and text areas

✧ The image that is next to every field in order to provide information does not have consistent functionality. In some cases it opens a new window with instructions and in other cases in presents a new page in the same window.

✧ Blind users will find it difficult to fill in the form, as there are no appropriate Labels to the fields.

✧ The frame below the form contains unordered links and buttons that confuse users (see below). It is not clear which one should be selected to proceed to the next step.

✧ There is no possibility for users to contact a person or get more information about a hotel.

✧ The search results are unorganised (no sorting or paging).

✧ All icons are broken links.

✧ A booking can be changed or cancelled only if the user remembers two different special code numbers. There is no support in case the user has forgotten these numbers.

✧ First time users can’t use effectively and efficiently the function. The function is presented among many other functions in the same page.

✧ The function does not work when the user has JavaScript disabled.

✧ The function requires filling a form. The word PAX means Total number of People and there is not appropriate help to explain it.

✧ The system doesn’t inform the user about mistakes nor about how to recover from them.

✧ For the first time users and novice internet user, it would be better having dialogue-based interaction conducted step – by – step.

✧ When there are no search results found, this should be made clear to the user explicitly.

✧ While the user tries to search, the system continuously requests more information and the user has to complete too much steps to complete the function.

_Moderate users_

✧ Moderate users can’t easily make use of the function because too much steps...
and search parameters are needed

- The existence of a mechanism for filtering and sorting the results of searches would provide the means for moderate users to use more efficiently the function

- There is no numbering in the results lists (which would help occasional users to quickly calculate new events entries since last viewed)

**Expert users**

- There is no facility for viewing the results with various sorting

- There is no way for users to perform this function more effectively and efficiently

### Relationship maintainability

**Novice users**

- Users performing a search must have the possibility to filter the results

- Users should have the possibility to sort the results or the results must be sorted when presented

- The user is not informed about hotel vacancy or offers

**Moderate users**

- The system has no mechanism to remember user preferences and choices when performing the function. It should allow saving profiles for quicker searches (upon Registration)

**Expert users**

- Expert user can’t easily make use of the function because too much steps and search parameters are needed that are not common with other search functions

- The search results page does not offer advanced facilities that expert users can use when accessing search results

- There are no better or faster ways of achieving the same result
4.4 **NHS Direct, UK (eHealth)**

4.4.1 **System Description**

NHS Direct Online is a website which provides high quality health information, and is supported by a 24-hour advice and information helpline staffed by nurses, which offers quick access to health care advice (see Figure 7). The NHS Direct Telephone Service gives advice and support on self-treatment, or if further help is deemed necessary, they will direct to, or connect a caller with the right service. NHS Direct Online features a self-help guide - an easy to use guide to treating common health problems at home. Using a Body Key, users can identify symptoms and by answering simple step by step questions, work out the course of action.

![Figure 7. NHS, UK (eHealth)](http://www.nhsdirect.nhs.uk/)

The website features health information about the most common illnesses, information about a particular health condition or type of treatment. Its health encyclopedia contains over 700 topics covering illnesses and conditions, tests, treatments and operations. Many topics are supported by illustrations or photographs. It also provides a searchable database of hospitals and community health services, GPs, dentists, opticians and pharmacies. Hence the online service is primarily focusing on information provision, rather than on advice and consultation provision. Although an e-mail inquiry can be posted (regarding 'named diseases'), users are advised to use the telephone service when and if deemed more appropriate. Equally, although their e-mail inquiry is dealt with by a health professional, the provider emphasises that the service is not suitable for diagnosis purposes. Furthermore, the online well-structured self-help facility might direct them to the telephone service when appropriate. A new initiative called NHS Digital TV will use digital interactive television to provide health information. The system was piloted in 2002 and was due to become generally available in 2004.
4.4.2 **Inspection team**

The inspection team comprised of three members, one male and two females. The team members were experts in user interface design, web design, usability evaluations, eHealth and web accessibility. None of the members had any relation to the system or to its providers, and most members had not seen the portal prior to its evaluation. Nevertheless, all members were moderately familiar with similar eHealth systems. Moreover, the average familiarity with the current inspection method was good and all members also had used some similar evaluation tool in the past. Lastly, the English language, which is used by the portal and by the inspection tool, was not a barrier for the inspection team.

**Inspector 1**

Inspector 1 and leader of the group has expertise in computational linguistics and web usability issues. She has no link to the NHS system or to its providers but she has accessed the system few times in the past. Moreover, she is very familiar with similar eHealth systems and portals. The inspector is also very familiar with the inspection method at hand and moderately familiar with similar inspection methods and tools. Her command of English is excellent, thus there was no problem accessing and using the NHS system or the inspection tool.

**Inspector 2**

Inspector 2 is Greek and has expertise in eHealth systems and web usability and accessibility issues. He has no relation to the NHS system or to its providers and this was the first time he accessed the system under evaluation. He is very knowledgeable of eHealth systems in general. He was unfamiliar with the inspection method he has called to implement but moderately familiar with similar methods. Finally, has good written English comprehension.

**Inspector 3**

Inspector 3 is an expert in user interface design, web design and usability evaluations. She had never accessed the NHS portal prior to its evaluation and has no relation to the system or to its providers. Moreover, she was moderately familiar with similar systems. Furthermore, she has an excellent knowledge of the present inspection tool and of similar inspection and evaluation methods and tools. She also has no problem working with the English language.

4.4.3 **Target User Groups**

On a par with the information for the system provider, the inspection team has categorised potential users to four user groups:
Chapter 4 - Results Overview and Discussion

1. **Health information seekers:** this group of users accesses the system in order to obtain information about a health condition, read the news on health and healthy lifestyle, solve questions on a health matter, etc.

2. **People facing an emergency:** the NHS offers assistance to persons who are facing an emergency health situation, whether through the 24-hour helpline or through the online services that help identify a health emergency and give advice.

3. **Users with personalised access to health information:** residents of the UK are able to benefit from personalised services of the NHS, such as maintaining an online record of their health, monitoring their medications, receiving notifications and using other interactive tools that help them monitor their health.

4. **Those who wish to book a hospital appointment:** some users may access the portal every time they wish to book an appointment with a professional or change their previous arrangements.

5. **Healthcare professionals:** the NHS portal offers reliable and thorough information to healthcare professionals, who may also wish to access it in order to be informed quickly about a health condition and perhaps use the references to look for further information.

### 4.4.4 Functions per User Group

**User Group 1: Health Information Seekers**

The functions addressed to information seekers are (in **bold** are the selected ones for inspection):

1. Browse health information  
2. Search NHS  
3. Search for local NHS services  
4. Call NHS Direct helpline  
5. Submit an online enquiry  
6. Contact NHS  
7. Use calculators  
8. Take a quiz

**User Group 2: People Facing an Emergency**

The functions addressed to persons that need advice on a health emergency are the following (in **bold** are the selected ones for inspection):

1. Call NHS Direct helpline  
2. Search for local NHS services  
3. Search NHS  
4. Browse health information

**User Group 3: Users with Personalised Access to Health Information**

The functions addressed to persons that need advice on a health emergency are (in **bold** are the selected ones for inspection):
1. Register
2. Save personal details
3. Save health details
4. Save medications
5. Save web links
6. Save address book

7. Find local NHS services
8. Keep notes
9. Keep calendar
10. Receive email notifications
11. Contact NHS

User Group 4: **Those who Wish to Book a Hospital Appointment**
The functions addressed to persons that wish to book an appointment with a doctor are:

- 1. Register
- 2. Book/change/cancel a doctor appointment
- 3. Find information about the service

User Group 5: **Healthcare Professionals**
The functions addressed to persons that wish to book an appointment with a doctor are:

- 1. Browse for information
- 2. Search NHS
- 3. Register
- 4. Contact
4.4.5 Inspection results

User-orientation of the overall system (all user groups)

The NHS Direct services apply to a wide range of users, with different needs, goals and expectations, but the system proves apt at accommodating all requirements with extremely satisfactory results. One of the strong points of the NHS service is its high publicity with the media and the WWW, which makes it very recognisable to citizens. In addition, the conveyed message from the information about NHS creates the perception that the service has many things to offer to its users, thus enticing them to enter its portal. Subsequently, upon entering the portal, users should not face any major problems accessing the system, although the score is moderately good, revealing that there is room for improvement. The actual quality of use is also far from disappointing, although the system’s functions are slightly more oriented towards novice and moderate users, while expert users may find that some of the functions’ characteristics are not entirely up to their standards. Finally, the system provides open communication channels as well as enough means and incentives to ensure the longstanding use of its services by users.

Overall, the NHS service presents a uniform positive image concerning its user-orientation, both across service usability characteristics and across individual user groups. This shows that enough has already been done to ensure user-orientation of the service and its functions. However, certain individual domains may need restructuring in order to ensure optimal usability. These aspects are analysed in detail reporting the subsequent parts of this report.
Table 8. **NHS Direct - Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>NHS Direct</th>
<th></th>
<th></th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First-time and novice users</td>
<td>Moderate users</td>
<td>Expert users</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visibility to non-users (Form 4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td>Quality of usage experience for first-time and novice users (Form 7)</td>
<td>Relationship maintainability for first-time and novice users (Form 8)</td>
</tr>
<tr>
<td>User Group 1</td>
<td>3.00</td>
<td>3.44</td>
<td>1.73</td>
<td>2.58</td>
<td>3.75</td>
</tr>
<tr>
<td>User Group 2</td>
<td>2.90</td>
<td>2.75</td>
<td>1.73</td>
<td>2.23</td>
<td>2.66</td>
</tr>
<tr>
<td>User Group 3</td>
<td>N/A</td>
<td>N/A</td>
<td>-0.70</td>
<td>1.80</td>
<td>1.66</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**USER GROUPS:**
- User Group 1 ‘Health Information Seekers’
- User Group 2 ‘People Facing an Emergency’
- User Group 3 ‘Users with Personalised Access to Health Information’
User-orientation of the system (User Group 1)

Health Information Seekers (User Group 1)  

Visibility  

Scored: 3  

The NHS portal scores very well in visibility, due to a number of factors; firstly, the visibility of the service has been enhanced by the distribution of the NHS Direct self-help guide in Thomson Local directories - approximately 16 million copies of the NHS Direct self-help guide have been distributed since April 2004. Visibility has also been enhanced via promoting the NHS remote services in “own” and associated, brick and mortar institutions and outlets. Additionally, the NHS portal is referenced in strategic websites, such as the official website of the British Department of Health, the Wikipedia and in various health related websites and portals. The only improvement to the visibility of NHS Direct would be to render in Braille all printed material on the NHS.

Perceived usefulness and ease of use  

Scored: 3  

The website holds a high potential to become an extremely useful resource for all with a health issue inquiry. Thus, it connects users to local NHS services and provides national information about the NHS, while there are some very practical features; for instance, on this website users can find contact details for services in their local area, including Doctors, Dentists, Opticians, Pharmacies and Walk-in Centres. The website also features a new NHS Search Engine, which allows users to search over 600,000 web pages that provide NHS and health information. Moreover, the NHS Direct Self-help guide covers the most common symptoms. In order to make sure that users eventually get the required information, the Self-Help guide alerts users that it does not cover all symptoms and that they should call NHS Direct for advice if this turns out to be the case for them. Finally, in any case, users are convinced about the utility of the service from the fact that some of the most popular health portals reference the NHS as one of the top choices to be informed about one’s health.
Availability / Approachability

Scored: novice 2, moderate 3, expert 2

The NHS service has a high degree of availability and approachability, especially for occasional users. All services of NHS Direct are constantly available to users, who will have no problem remembering the Internet address of the NHS since it is easy to pronounce, transfer mouth-to-mouth and memorise. Furthermore, moderate users are likely to appreciate the fact that each bookmarked page of the NHS service has a special descriptive label. Moreover, the website is rendered correctly by all major web browsers, even old-style ones. Also, in an effort to meet the needs of all its users the, NHS service offers access to its content through touch screens in health information points placed in libraries, post offices and health centres, which are aimed at those with relatively low digital skills or without readily available access to the Internet. More to this, the NHS offers a text phone system, in relation to the telephone service, that can be used by deaf people. On the downside, users may experience problems with search, submission of an online enquiry and use of calculators due to the inaccessibility of the html code, which could be amended by providing a text-only version for all pages as well. Moreover, due to the volume and quality of the services and the information provided, a great amount of mental effort is required from the part of the users, which may pose a barrier to persons with low literacy skills or cognitive difficulties. More to the point, the website does not comply with W3C-WAI guidelines for level 1 priority, as the font sizes are specified in absolute terms and there is currently no “text-only” version or access key facility, making the site very hard to use without a mouse. Thus, special navigation elements, such as shortcuts and access keys, should be considered.
Overall quality of interaction experience\textsuperscript{16}

Scored: novice 3, moderate 2, expert 1

The design of the NHS system functions accommodates the needs of new users somewhat better than those of moderate or expert ones. All the functions of the system score extremely well in visibility and perceived utility for potential users, which means that not only are the functions straightforward to find, but also users are very likely to form the opinion that they should access the functions because they are of interest to them. The overall availability and approachability of the functions is also very high for novice and moderate users, while it falls a little when examining the viewpoint of expert users. The quality of use, as perceived by novice and expert users, is considerably good. However, it is better for moderate users, who are likely to find more usability features that are adapted to their needs. The lowest score of the usability inspection came from the overall potential of the functions to retain their users by means of communication with them or by offering them motives to reuse the functions.

Relationship maintainability

Scored: novice 4, moderate 4, expert 3

The system is very simple and useful; it contains many functions that help users find what they are looking for. Moreover, even new users are not disappointed or confused by the system and its services. Besides, the value and reliability of the offered information is unquestionable and the amount of information is so great that most users are expected to leave the system satisfied. Moreover, the NHS newsletter will be appreciated by users that seek personalised information on a regular basis and helps reminding users of the NHS service and its functionalities.

\textsuperscript{16} The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
### Table 9. **NHS Direct - Summary of Quality of Usage Experience (User Group 1)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>NHS Direct</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Health information seekers</td>
<td>October 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functions</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td>Function1</td>
<td>3.60</td>
<td>2.50</td>
<td>3.85</td>
</tr>
<tr>
<td>Function2</td>
<td>3.66</td>
<td>3.33</td>
<td>3.71</td>
</tr>
<tr>
<td>Function3</td>
<td>2.20</td>
<td>2.00</td>
<td>1.66</td>
</tr>
<tr>
<td>Function5</td>
<td>3.50</td>
<td>1.66</td>
<td>3.33</td>
</tr>
<tr>
<td>Function7</td>
<td>3.75</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Function8</td>
<td>3.85</td>
<td>3.14</td>
<td>3.66</td>
</tr>
<tr>
<td>Total</td>
<td>3.65</td>
<td>2.50</td>
<td>3.85</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 1 ‘Browse Health Information’
- Function 2 ‘Search the NHS’
- Function 3 ‘Search for Local NHS Services’
- Function 5 ‘Submit an Online Enquiry’
- Function 7 ‘Use the Calculators’
- Function 8 ‘Take a Quiz’
List of findings on the quality of interaction experience per function  
(User Group 1: Health Information Seekers)

(the symbols ↑, ↓, and ⇑ indicate a positive, negative, and neutral inspection finding respectively)

### Function 1: Browse for Health Information

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Usefulness</th>
<th>Availability – approachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ The interface makes the function visible to users</td>
<td>↑ The information provided is well structured and useful, there are descriptive names and icons for the links and the buttons</td>
<td>↑ The entry point of the function is straightforward to find</td>
</tr>
<tr>
<td>↑ Users can easily get to health information using alternative ways</td>
<td>↑ The main menu is consistently present on every page</td>
<td>↑ The interaction is effective enough through many links</td>
</tr>
<tr>
<td>↑ The visibility of the function is indifferent of the Browser used</td>
<td>↑ Health encyclopaedia and existing categorization helps users find information they seek</td>
<td>↑ There are no deadlocks</td>
</tr>
<tr>
<td></td>
<td>↑ Guidance is comfortable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>↓ Users could benefit from an advanced help</td>
<td></td>
</tr>
</tbody>
</table>

**Score: 3**

The primary function for the user group in question scores extremely well in its user-orientation. The function is particularly visible to non-users and scores very satisfactorily in the fields of perceived usefulness. Moreover, it is highly available to novice users, but the score falls considerably when experienced users are taken into account, since the function does not provide much flexibility. On the other hand, the score for the actual quality of use reveals that moderate and expert users are likely to particularly enjoy the function, although novice users should face no devastating usability problems either. Finally, the function is more apt at maintaining the relationship with its newest users than with those who are more experienced.
The navigation helps users return to previous steps.

Multiple channels for accessing health information (printed booklet, Satellite TV, telephone) are available.

The path and appropriate help should be available.

*Expert users*

- The users can bookmark the homepage of the function.
- The function is very simple.
- Except from browser bookmarks users cannot utilize shortcuts.

### Quality of usage experience

*Novice users*

- There are links and buttons with distinctive names in order to help the users to interact with the system.
- The process is short and not boring.
- The interaction doesn’t lead to deadlocks or unexpected situations.
- The system output is always visible to the users.
- Various ways of finding information through a-z index, graphic display, interactive tools, search, etc.
- There are ‘home’ and ‘top’ buttons at the end of each page.
- Selected seasonal topics appear in a special right-hand pane.
- There is a disclaimer on the information presented on the site.
- The information is presented paragraph per paragraph in each page, with links above if users wish to navigate within the information.
- External links open in the same window.
- Flash messages and colours that users may experience difficulties distinguishing should be avoided.
- Lack of default text in text areas and informative form validation messages.
- There is no ‘back button’.

*Moderate users*

- The system supports standard interaction controls and metaphors.
<table>
<thead>
<tr>
<th>Expert users</th>
<th>Novice users</th>
</tr>
</thead>
<tbody>
<tr>
<td>The interaction doesn’t lead to deadlocks or unexpected situations</td>
<td>The information that resides in the right-hand column is relative to the main content</td>
</tr>
<tr>
<td>The system output is always visible to the users</td>
<td>Users can subscribe for a free newsletter</td>
</tr>
<tr>
<td>Various ways of finding information through a-z index, graphic display, interactive tools, search, etc.</td>
<td>Users are sure to find what they came into the site for, through the ‘can’t find the information you want?’ link</td>
</tr>
<tr>
<td>Selected seasonal topics appear in a special right-hand pane</td>
<td>Users can get the contact details of their local agents</td>
</tr>
<tr>
<td>There is a disclaimer on the information presented on the site</td>
<td>The system could benefit from personalization tips</td>
</tr>
<tr>
<td></td>
<td>Users are sure to find what they came into the site for, through the ‘can’t find the information you want?’ link</td>
</tr>
<tr>
<td>Expert users</td>
<td>Users can get the contact details of their local agents</td>
</tr>
<tr>
<td>The interaction with the function is as efficient as possible</td>
<td>The system does not remember specific interests and preferred configurations</td>
</tr>
<tr>
<td>Users can make use of the RSS feed to be updated on the content of the website</td>
<td>Users are sure to find what they came into the site for, through the ‘can’t find the information you want?’ link</td>
</tr>
<tr>
<td>Users can subscribe for a free newsletter</td>
<td>Users can get the contact details of their local agents</td>
</tr>
</tbody>
</table>

**Relationship maintainability**

**Function 2: Search the NHS**

<table>
<thead>
<tr>
<th>Score: 2</th>
</tr>
</thead>
</table>

The search function is both highly visible and useful to its potential users. Nevertheless, it displays a
different pattern for its actual users depending on how familiar they are with it. In effect, searching proves to be extremely approachable, easy to use and worthwhile revisiting to novice users, while although moderate users may find the interaction rewarding, they are not motivated to re-use it. Even more so, the function scores neutrally in all user-orientation features with expert users.

**Visibility**

- The search function can be reached easily, because it is at the top and central part of the webpage
- The visibility of the function is indifferent of the Browser used
- In case users cannot find what they are looking for, the website suggests they perform a search and provides the link to the function
- Adjustable fonts and search box size increase visibility for persons with visual problems

**Usefulness**

- The use of the function is immediate with no extra steps
- Simple and standard text box with the search button on the right
- There is a help section for this function

**Availability – approachability**

*Novice users*

- The function has no time limitations
- The function can be found at the centre of the homepage
- Orientation is sufficient and the search box is present in all pages
- Users can navigate in search results efficiently
- The textbox and the button have sound output and descriptive labels

*Moderate users*

- The function is on the homepage so users will be able to return whenever they like very easily
- The provided help contains all necessary information
- Navigation helps users return to previous steps
- Help about search is presented in a new window
- Users would benefit from the presence of a path
**Expert users**

- The function can be completed fast enough and reach maximum quality of results
- Personalised version of newsletter and filter selections may help users find more easily what they are looking for
- No shortcuts can be established

---

**Quality of usage experience**

**Novice users**

- Clear and consistent interaction in all cases
- Search results are displayed in an appropriate way (e.g., fast and informative, sorted by relevance)
- The process is fast and not boring
- The system output is visible to the users
- The results are sorted, by default, by relevance and can also be sorted by date
- Each page contains maximum 10 results. The rest can be reached through paging
- It has recommended links
- When there are no results, this is indicated and the system makes suggestions
- Each result has summaries that can also be hidden
- There is a special ‘help’ function for the search function
- There are descriptive symbols to determine how the users can see the next 10 results
- Lack of default text in text areas and informative validation messages
- Consider replacing the ‘GO’ image (search NHS Direct) with a more visible button or text and using the search box area in a consistent manner

**Moderate users**

- The results are relevant enough to the search key, rendering the function reliable
- Function is highly prioritized and visible to the users. The search task is easy to accomplished
- Search results are displayed in appropriate way (e.g., fast and informative,
sorted by relevance) and contain relevant information

- The system supports standard interaction controls and metaphors
- The users can complete the function in few steps
- There is a disclaimer on the information provided
- Users that utilize assistive technology could benefit from shortcuts to main content (search results)

**Expert users**

- The system uses standard interaction controls and metaphors
- The information provided is very useful and very well organised
- Expert users could benefit from even more advanced filtering of the search results
- There are no examples that show how to complete the process more efficiently, and the system cannot be configured in this direction

**Novice users**

- The “Recommended links” section contains most relevant information for the user
- The function is efficient, empowering and provides many results

**Moderate users**

- In case users search many words, there is the opportunity to use some filters for the searching. In this case, the results should match any word or all words or exact phrase.
- The system does not remember previously entered data
- Users may benefit from the addition of a feature such as most requested search cases

**Expert users**

*Same as above*

---

### Function 3: Search for Local NHS services

<table>
<thead>
<tr>
<th>Score: 2</th>
</tr>
</thead>
</table>

Searching for local NHS services is adequately visible and utile to the system’s users. Furthermore, the availability of the function seems to be greater for new users than for practiced ones. On the contrary, the quality of use should be perceived more positively as users become more experienced with the function. Finally, the system gives few incentives to users to return to the function, thus much remains to be done.
in order to increase the function’s potential to maintain relationships with its users.

<table>
<thead>
<tr>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ This function can be reached through the main menu at the left part of each webpage. It is the 6th link. Besides, there is a link “Find your nearest doctors, dentists, opticians and pharmacies” in the page that leads to the same results</td>
</tr>
<tr>
<td>↑ There is a site map</td>
</tr>
<tr>
<td>↑ Highly prioritized function</td>
</tr>
<tr>
<td>↓ Due to the fact that postal code is essential for this function, users should be helped in retrieving – finding their postal code (maybe consider providing external links to proper service)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ The link has a descriptive label, so the users understand the effect of their action</td>
</tr>
<tr>
<td>↑ There is no need for a help section in order to complete this function</td>
</tr>
<tr>
<td>↑ Users can understand the purpose of this function, although the system should consider providing an example of use</td>
</tr>
<tr>
<td>↑ Users can find the five (or more) nearest pharmacies, dentists, opticians or GPs with opening hours and full contact details</td>
</tr>
<tr>
<td>↓ Lack of page sensitive help</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability – approachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice users</td>
</tr>
<tr>
<td>↑ It is very easy to find how to use this function</td>
</tr>
<tr>
<td>↑ The link to access this function is correctly labelled</td>
</tr>
<tr>
<td>↑ The function is highly prioritized</td>
</tr>
<tr>
<td>Moderate users</td>
</tr>
<tr>
<td>↑ The function is highly prioritized</td>
</tr>
<tr>
<td>↑ Users are being properly informed about the purpose of this function</td>
</tr>
<tr>
<td>↑ It is very easy to find out how to use this function</td>
</tr>
<tr>
<td>↑ The link to access this function is correctly labelled</td>
</tr>
<tr>
<td>↓ Users must provide a valid postal code in order to use the function. A proper example of use (e.g., how to enter a valid postal code format) must be provided</td>
</tr>
</tbody>
</table>
presented

\[\downarrow\] In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

\[\downarrow\] Consider providing a text-only version that does not employ javascript

**Expert users**

\[\uparrow\] The function is highly prioritized

\[\uparrow\] It is very easy to find out how to use this function

\[\uparrow\] The link to access this function is correctly labelled

\[\downarrow\] In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

\[\downarrow\] Consider providing a text-only version that does not employ javascript

### Quality of usage experience

**Novice users**

\[\uparrow\] The system informs users that they should enter their postcode in order to complete the function and in case users enter an incorrect postcode, the system will inform them

\[\uparrow\] It is very clear and easy to interact with the system, the results are well organised and correctly labelled

\[\uparrow\] The results and the completion of the function are visible to the user

\[\uparrow\] Details about each doctor open in a separate window

\[\uparrow\] The system remembers users’ postcode for future use

\[\uparrow\] There is a disclaimer on the presented information

\[\downarrow\] Users must provide a valid postal code in order to use the function. A proper example of use (e.g. how to enter a valid postal code format) must be presented

\[\downarrow\] Consider providing a text-only version that does not employ javascript

\[\downarrow\] In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

**Moderate users**

\[\uparrow\] The system informs users that they should enter their postcode in order to complete the function and in case users enter an incorrect postcode, the system will inform them
It is very clear and easy to interact with the system, the results are well organised and correctly labelled.

The results and the completion of the function are visible to the user.

The function is highly prioritized.

Users are properly informed about the purpose of this function and search results are presented in an organized manner.

Details about each doctor open in a separate window.

The system remembers users’ postcode for future use.

There is a disclaimer on the presented information.

**Expert users**

- The system informs users that they should enter their postcode in order to complete the function and in case users enter an incorrect postcode, the system will inform them.

- It is very clear and easy to interact with the system, the results are well organised and correctly labelled.

- The results and the completion of the function are visible to the user.

- The function is highly prioritized.

**Relationship maintainability**

**Novice users**

- Consider informing the user about changes (new entries, updates) in areas of interest (e.g., subscription to an email notification function).

- The function remembers users’ postcode.

**Moderate users**

Same as above.

**Expert users**

Same as above.

**Function 5: Submit an Online Enquiry**

| Score: 2 |

Users of NHS who would like to receive a more personalised opinion about their health condition should readily find that they can submit their enquiry to a health professional who will personally address their issue. Users are also likely to judge that this function is of interest to them. However, the perceived usefulness of the function could have been even higher. The availability of the function is highest for new users; nevertheless, moderate and expert users should also find no problem approaching it.
The quality of use is also satisfactory, but the function’s potential to create longstanding relations with the system’s users is only moderate.

<table>
<thead>
<tr>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>✈️ Highly prioritized function, which can be easily reached</td>
</tr>
<tr>
<td>✈️ This function can be reached through the main menu in the left part of each webpage. It is the 2nd link</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>✈️ All form elements are accessible with the use of mouse and/or keyboard</td>
</tr>
<tr>
<td>✈️ Valid guidance is offered through the process</td>
</tr>
<tr>
<td>✈️ There is a disclaimer upon entering the function</td>
</tr>
<tr>
<td>✈️ Consider providing an error proofing mechanism</td>
</tr>
<tr>
<td>✈️ Consider providing a text-only version that does not employ JavaScript, so users can access help pages</td>
</tr>
</tbody>
</table>

| Availability – approachability |

**Novice users**

| ✈️ The function is highly prioritized |
| ✈️ Users are being properly informed about the purpose of this function |
| ✈️ The navigation in order to reach this function is very simple |
| ✈️ The system commits to process the enquiry within five working days from receipt |

**Moderate users**

| ✈️ Highly prioritized function, which can be easily reached |
| ✈️ Answers are delivered through email |
| ✈️ Users are properly informed about the purpose of this function |
| ✈️ The navigation in order to reach this function is very simple |
| ✈️ The system commits to process the enquiry within five working days from receipt |
| ✈️ Consider providing an error proofing mechanism |
| ✈️ Consider providing a text-only version that does not employ JavaScript |
### Expert users

- Highly prioritized function, which can be easily reached
- Answers are been delivered through email
- The navigation in order to reach this function is very simple
- The system commits to process the enquiry within five working days from receipt
- Due to personal data involved, the submitted data should not be stored server side. Users can be helped if client-side data can be easily retrieved (e.g., cookie)
- Consider providing an error proofing mechanism

### Quality of usage experience

#### Novice users

- Users are being properly informed about the purpose of the function and the input that must be provided in order to use it
- The system is not error prone
- The process is fast and not boring
- The system provides a confirmation page with users’ personal data before sending their data
- There is a disclaimer
- Help is provided at all stages
- A personal code is given to users in order to access their results
- The ‘cancel’ button helps users exit the function
- Consider providing an error proofing mechanism
- Consider providing a text-only version that does not employ javascript
- The text box descriptive text should disappear upon clicking on it
- If users seek for help and they are near the bottom of the page, then they are automatically taken to the top and have to scroll back down to where they were

#### Moderate users

- Users are being properly informed about the purpose of this function and answers are delivered through email
The users are appropriately informed about the required input

The system is not error prone

The process is fast and not boring

The system provides a confirmation page with users’ personal data before sending their data

There is a disclaimer

Help is provided at all stages

A personal code is given to users in order to access their results

The ‘cancel’ button helps users exit the function

If users seek for help and they are near the bottom of the page, then they are automatically taken to the top and have to scroll back down to where they were

Consider providing an error proofing mechanism

The text box descriptive text should disappear upon clicking on it

Expert users

Users are properly informed about the purpose of this function and answers are delivered through email

The users are appropriately informed about the required input

The system is not error prone

The process is fast and not boring

The system provides a confirmation page with user’s personal data before sending this data

The ‘cancel’ button helps users exit the function

Consider providing an error proofing mechanism

The text box descriptive text should disappear upon clicking on it

If users seek for help and they are near the bottom of the page, then they are automatically taken to the top and have to scroll back down to where they were

Relationship maintainability

Novice users
Answers are being delivered through email

There should be some way to save the form and complete it at a later stage

**Moderate users**

*Same as above*

**Expert users**

*Same as above*

### Function 7: Using the Calculators | Score: 2

The calculators of the NHS portal are extremely straightforward to find, easily perceived as useful and present an excellent quality of use, regardless of users previous experience. Nevertheless, what lowers the total user-orientation score of the function is its poor relationship maintainability.

#### Visibility

- The interface makes this function visible to the users through a descriptive link and an image
- Visibility for low vision users is quite good as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size
- The visibility of the function is indifferent of the Browser used
- Interactive forms can be easily filled in and submitted

#### Usefulness

- The information provided after selecting the options to complete this function is very analytical and useful
- Valid guidance is offered as the user navigates to this function
- All form elements are accessible with the use of mouse and/or keyboard
- The title of the function is very catching and descriptive
- The logo is meaningful
- Each calculator is accompanied by its own logo and short introduction

#### Availability – approachability

**Novice users**

- The entry point of the function is straightforward to find
- The options are simple and correctly labelled
| Users are properly informed about the purpose of each tool |
| The function is highly prioritized |
| Moderate users |
| The options are simple and correctly labelled |
| Users are properly informed about the purpose of each tool |
| Expert users |
| The function is highly prioritized |

**Quality of usage experience**

| Novice users |
| All the options of this function follow the same interaction style |
| The function is not error prone |
| There are interesting images, so the interaction is amusing |
| The aesthetics of the interaction controls are nice, clear and consistent |
| The users can easily take the results of several calculations |
| The form fill-in interaction style is nice, clear, pleasant and consistent |
| Results are been presented in an organized manner |
| Users are been properly informed about the purpose and the input that must be provided in order to use each tool |
| Users can click on both the title and logo to take the test |
| The ‘calculate’ button clearly takes users to the next step |
| Consider providing error proofing mechanisms for the following tools: Five-a-day quiz, Safe drinking, Body mass index (BMI) calculator |
| Moderate users |
| The form fill-in interaction style is nice, clear, pleasant and consistent |
| Results are presented in an organized manner |
| Users are properly informed about the purpose and the input that must be provided in order to utilize each tool |
| All the options of this function follow the same interaction style |
The function is not error prone

**Expert users**

- The form fill-in interaction style is nice, clear, pleasant and consistent
- Results are presented in an organized manner
- Users are properly informed about the purpose and the input that must be provided in order to utilize each tool

**Visibility**

- The interface makes this function visible to the users through a descriptive link and an image
- Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size
- The visibility of the function is indifferent of the Browser used
- The interactive form can be easily filled and submitted
- A link to the function is available almost throughout the website

**Usefulness**

- The information provided after selecting the options to complete this function
is very analytical and useful

 Granite guidance is offered as the user navigates to this function

 All form elements are accessible with the use of mouse and/or keyboard

 The title is catching and descriptive, the logo is meaningful

 The main page of the interactive tools offers short introductions and a logo for each

### Availability – Approachability

**Novice users**

† The entry point of the function is straightforward to find

† The page has a correct title

† Users are properly informed about the purpose of the tool

† The function is highly prioritized

† Adjustable fonts and text boxes

**Moderate users**

† The function is highly prioritized

† Adjustable fonts and text boxes

**Expert users**

† The function is highly prioritized

† Adjustable fonts and text boxes

### Quality of usage experience

**Novice users**

† All the options of this function follow the same interaction style

† The function is not error prone

† The aesthetics of the interaction controls are nice, clear and consistent

† The users can easily take the results of this quiz through few steps

† Users are properly informed about the purpose and the input that must be provided in order to utilize the quiz

† Questions are constantly updated

† The language is simple and thus understandable by all
The ‘score me’ button at the end of the quiz is descriptive enough of its function.

Users are given the results after they finish the test, including where they did wrong.

There are links to related websites at the end of the test.

Consider providing error proofing mechanism.

There should be a link leading back to all quizzes and prompting users to take another test.

**Moderate users**

- Users are properly informed about the purpose and the input that must be provided in order to utilize the quiz.
- Questions are constantly updated.
- All the options of this function follow the same interaction style.
- The function is not error prone.
- There are interesting images, so the interaction is amusing.
- The aesthetics of the interaction controls are nice, clear and consistent.
- The users can easily take the results of this quiz through few steps.
- There are links to related websites at the end of the test.
- There should be a link leading back to all quizzes and prompting users to take another test.

**Expert users**

- The form fill-in interaction style is nice, clear, and pleasant.
- Results are been presented in an organized manner.
- Questions are constantly updated.
- There are links to related websites at the end of the test.
- There should be a link leading back to all quizzes and prompting users to take another test.

**Relationship maintainability**

**Novice users**
Quizzes are a fun way to test one’s knowledge and learn about one’s health.

Users should be prompted to suggest a quiz they would like to find.

Users should be alerted when new quizzes are added.

*Moderate users*

   Same as above

*Expert users*

   Same as above
User-orientation of the system (User Group 2)

People Facing an Emergency (User Group 2)  
Total Score = 2

Visibility  
Scored: 3
It is highly probable that anyone who thinks is facing an emergency health situation is already familiar with the NHS service from past publicity activities of the service, such as promoting the NHS remote services in “own” and associated, brick and mortar institutions and outlets, and may have the NHS Direct self-help guide in printed form at home. In effect, it has been estimated that approximately 16 million copies of the NHS Direct self-help guide have been distributed since April 2004, amounting to 85% coverage of households that Thomson Directories distribute in England. On the low part of the scale, the inspection revealed that when users search the Internet for advice on an emergency, the visibility of the NHS service is only moderate. Nevertheless, the NHS is often reported in some of the most popular health portals, thus users may be informed about it from these. A step towards improving visibility would also be rendering all printed documents about the NHS in Braille.

Perceived usefulness and ease of use  
Scored: 3
Users who believe they are meeting a health emergency are most in need of quick and precise ways to get their hands on reliable information. The NHS offers a 24-hour telephone service where health professionals are able to speak with citizens, identify the severity of the emergency and offer solutions. Users who may access the online service for information can also use the new NHS Search Engine, which allows to search over 600,000 web pages that provide NHS and health information. On the other hand, a missing feature towards increasing the ease of use of the portal would be to add personalised tips for users who may face an emergency on a known chronic health condition.

Availability / Approachability  
Scored: novice 2, moderate 3, expert 2
Same as for User Group 1
**Overall quality of interaction experience**

Scored: novice 2, moderate 1, expert 1

The results from the overall quality of the system’s functions reveal that the functions are designed to suit the needs of novice users more than those of practiced ones. The overall visibility is satisfactory and the perceived utility is considerably elevated. Novice users should have no trouble locating and reaching the functions or making use of them, however, the system does little to ensure that its users will keep using the functions. Moderate users are more contented with the functions’ availability and quality of use, and in addition they have better chances at re-using the system functions. Finally, expert users would like better availability and usage features, which is why the functions score only neutrally in their case; besides, the relationship maintainability of the functions is on the negative scale.

**Relationship maintainability**

Scored: novice 3, moderate 3, expert 3

Persons who are dealing with a possible health emergency are very likely to turn to the NHS because of many factors; firstly, the service is highly referenced by some of the most important health portals and search engines, so even if users haven’t bookmarked the NHS url, they are likely to come across it while surfing on the Web. Moreover, important information is easy to find on the portal, and since there are many alternative ways to get to fast and reliable advice, such as the health encyclopaedia and telephone hotline, users have many reasons to prefer the NHS services. One minor improvement, which could increase the relationship maintainability with the portal’s users, is to provide alternative methods of presenting the NHS telephone number, which is currently displayed in the upper right corner of the webpage and is embedded in a fixed dimension image.

---

17 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
#### Table 10. **NHS Direct - Summary of Quality of Usage Experience (User Group 2)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Direct</td>
<td>October 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group’s brief description</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Function 2</td>
<td>1.66</td>
<td>2.40</td>
<td>2.60</td>
</tr>
<tr>
<td>Function 3</td>
<td>3.40</td>
<td>3.00</td>
<td>2.22</td>
</tr>
<tr>
<td>Function 4</td>
<td>2.00</td>
<td>4.00</td>
<td>3.75</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 2 ‘Search for Local NHS Services’
- Function 3 ‘Search the NHS’
- Function 4 ‘Browse Health Information’
List of findings on the quality of interaction experience per function
(User Group 2: People Facing an Emergency)

(the symbols ↑, ↓, and ⇑ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 2: Search for Local NHS Services</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The search for local NHS services function is moderately usable to persons who are facing an emergency. Some of the strong user-orientation points of the function are its visibility and perceived usefulness, while the function’s availability is only satisfactory for novice users. Searching for local NHS services is less available to moderate and expert users, although still at acceptable levels. On the contrary, the quality of use of the function is less adapted to novice than to more experienced users. Finally, relationship maintainability is low for all users, indicating that staying in contact with users was not foreseen at the design of the function.</td>
<td></td>
</tr>
</tbody>
</table>

### Visibility

↑ This function can be reached through the main menu at the left part of each webpage. It is the 6th link. Besides, there is a link “Find your nearest doctors, dentists, opticians and pharmacies” in the page that leads to the same results.

↑ The site map is helpful

↑ Highly prioritized function

↓ It would be better if the two links for accessing the functions had the same title

↓ Due to the fact that postal code is essential for this function, users should be helped in retrieving – finding their postal code (maybe consider provide external links to proper service)

↓ Consider providing an interactive map

### Usefulness

↑ The link has a descriptive label so the users understand the effect of their action

↑ There is no need for a help section in order to complete this function

↑ Non-users will find it useful because they are able to search immediately

### Availability – Approachability

**Novice users**

↑ The function is highly prioritized

↑ It is very easy to find out how to use this function
The link to access the function is correctly labelled

The function has no time limitations

**Moderate users**

The function is on the homepage, so users will be able to return whenever they like very easy

The function has no time limitations

Users are properly informed about the purpose of this function

Users must provide a valid postal code in order to use the function. A proper example of use (e.g., how to enter a valid postal code format) must be presented

In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

Consider providing a text-only version that does not employ JavaScript

**Expert users**

It is very easy to find out how to use this function

The link to access the function is correctly labelled

The function is highly prioritized

In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

Consider providing a text-only version that does not employ JavaScript

**Novice users**

Search results are presented in an organized manner

It is very clear and easy to interact with the system, since the results are well organised and correctly labelled

The system informs the users that they should enter their postcode in order to complete the function

In case users enter an incorrect postcode, the system will inform them

The results and the completion of the function are visible to the user

Search is designed as is in most web systems
- Users must provide a valid postal code in order to use the function. A proper example of use (e.g., how to enter a valid postal code format) must be presented.

- In case of error, users must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service).

- There is no information about the expected input in the field of the search function.

- Consider providing a text-only version that does not employ JavaScript.

**Moderate users**

- The function is reliable.
- The system informs the users that they should enter their postcode in order to complete the function.
- It is very clear and easy to interact with the system.
- In case users enter an incorrect postcode, the system will inform them.
- Users are properly informed about the purpose of this function and search results are presented in an organized manner.
- The results and the completion of the function are visible to the user.
- The function is highly prioritized.

**Expert users**

- The system informs users that they should enter their postcode in order to complete the function.
- It is very clear and easy to interact with the system, the results are well organised and correctly labelled.
- In case users enter an incorrect postcode, the system will inform them.
- The results and the completion of the function are visible to the user.
- The function is highly prioritized.
- Search results are presented in an organized manner.
- There are no examples that show how to complete the process more efficiently, and the system cannot be configured in this direction.
### Relationship maintainability

**Novice users**
- Consider informing the user about changes (new entries, updates) in areas of interest (e.g., subscription to an email notification function, sms alert)

**Moderate users**
- The system does not remember previously entered data
- Consider informing users about changes (new entries, updates) in areas of interest (e.g., subscription to an email notification function, sms alert)

**Expert users**
- No better/faster ways exist to achieve the same or more advanced result
- Consider informing users about changes (new entries, updates) in areas of interest (e.g., subscription to an email notification function, sms alert)

<table>
<thead>
<tr>
<th>Function 3: <strong>Search the NHS</strong></th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users who are facing a possible emergency are very likely to see the search function, since it is present almost everywhere in the portal and its place on the homepage is prominent enough. The users are also likely to feel that the function will be of help to their case, and they will be enticed to use it. The search box is most available to moderate users, while novice and expert users may face approachability problems, for different reasons. The inspection reveals that novice users will face the least usability barriers, close behind are occasional users, while expert users are likely to be the most disappointed ones, with extra features that would make the use of the function more dynamic missing. The relationship maintainability of the function is also neutral to negative.</td>
<td></td>
</tr>
</tbody>
</table>

#### Visibility

- The search function can be reached easily, because it is at the top and central part of the webpage
- The visibility of the function is indifferent of the Browser used
- Users can search for desired information in an understandable and consistent way
- The search box is available in all pages

#### Usefulness

- First time users will find it useful because they are able to search immediately
- Textboxes and buttons are used in order to complete this function
- There is a help section for this function
| Guidance is comfortable |
| Consider providing text version of the action button “Go” |

### Availability – Approachability

**Novice users**

- The function has no time limitations
- The function is located in the central part of the homepage
- The textbox and the button have sound and descriptive labels
- Orientation is sufficient and the search box is present in all pages
- Users navigate in the search results efficiently

 başka adı oluşturmak için ** lehet.**

- Consider providing a text version of the action button “Go”
- Users may benefit from shortcuts to search (or advanced search)
- Consider providing a help page in the same browser window (users that interact with assistive technology will save valuable browsing time). This applies only for the “Need help using our search?” link

**Moderate users**

- The function is on the homepage, so users will be able to return whenever they like very easily
- Orientation is sufficient and the search box is present in all pages
- Users navigate efficiently in the search results
- It is easy very easy to remember how to find the search function
- Help about search is presented in a new window

**Expert users**

- The function can be completed fast enough and reach maximum quality of results
- Orientation is sufficient and the search box is present in all pages
- Users navigate efficiently in the search results
- Users may benefit from more advanced search in which they may select topics and filter their selection in advance
### Quality of usage experience

#### Novice users
- Search is designed as is in most web systems
- The users can easily use the interaction controls
- The process is fast and not boring
- The system output is visible to the users
- Search results are displayed in an appropriate way (e.g., fast and informative, sorted by relevance)
- Each page contains maximum 10 results. The rest can be reached through paging
- Clear and consistent interaction in all cases
- There are descriptive symbols to determine how the users can see the next 10 results
- There is no information about the expected input in the field of the search function

#### Moderate users
- The users can complete the function in few steps
- Search results are displayed in an appropriate way (e.g., fast and informative, sorted by relevance) and contain relevant information
- The function is highly prioritized, visible and easy to accomplish
- Users that utilize assistive technology could benefit from shortcuts to main content (search results)

#### Expert users
- The system use standard interaction controls and metaphors
- The information provided is very useful and very well organised
- The function is highly prioritized, visible and easy to accomplish
- Search results are displayed in an appropriate way (e.g., fast and informative, sorted by relevance) and contain relevant information. Consider providing a filtering mechanism
- There are no examples that show users how to complete the process more efficiently
<table>
<thead>
<tr>
<th>Users that utilize assistive technology could benefit from shortcuts to main content (search results)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relationship maintainability</strong></td>
</tr>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>➞ Users may benefit from most requested search cases</td>
</tr>
<tr>
<td>➞ Neutral relationship maintainability</td>
</tr>
<tr>
<td>➠ Users may benefit from an advanced search in order to filter their selection criteria (e.g., emergency circumstances)</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>➞ The system does not remember previously entered data</td>
</tr>
<tr>
<td>➠ Users may benefit from most requested search cases</td>
</tr>
<tr>
<td>➠ Users may benefit from more advanced search in which they may select topics and filter their selection in advance</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>† In case the user searches for many word, some filters may be used for the searching</td>
</tr>
<tr>
<td>† No better/faster ways exist to achieve the same or more advanced result</td>
</tr>
<tr>
<td>➠ Users may benefit from most requested search cases</td>
</tr>
<tr>
<td>➠ Users may benefit from more advanced search in which they may select topics and filter their selection in advance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function 4: <strong>Browse for Health Information</strong></th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The visibility of the function is moderately high for non-users but its availability presents a good practice example. When it comes to interacting with the function, new users are likely to benefit most, since the function is highly available and usable to them; users with more experience with the function should not face problems either, but their score is much lower. Similarly, novice users have the greater chance to come back to using the function, while, as users become more experienced, the score diminishes.</td>
<td></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
<td></td>
</tr>
<tr>
<td>† The interface makes the function visible to users</td>
<td></td>
</tr>
<tr>
<td>† The user can easily find out health information using alternative ways</td>
<td></td>
</tr>
<tr>
<td>† The visibility of the function is indifferent of the Browser used</td>
<td></td>
</tr>
</tbody>
</table>
Consider prioritizing the “Are you feeling ill now?” section

### Usefulness

- There are descriptive names and icons for the links and the buttons
- The information provided is well structured and useful
- The main menu is always consistent on the pages
- The function is clear and easy to use
- Guidance is comfortable

### Availability – Approachability

**Novice users**

- The entry point of the function is straightforward to find
- The interaction is effective enough through many links
- Orientation is sufficient
- Navigation is consistent in all pages

**Moderate users**

- It is easy for moderate users to remember how to find this function
- Orientation is sufficient
- Navigation is consistent in all pages
- Consider prioritizing the “Are you feeling ill now?” section
- Users that utilize assistive technology could benefit from shortcuts to main content
- There is no help section about this function, but it isn’t necessary

**Expert users**

- The users can bookmark the homepage of the function
- Navigation is consistent in all pages
- The function is very simple
- Consider prioritizing the “Are you feeling ill now?” section
- Users that utilize assistive technology could benefit from shortcuts to main content
## Quality of usage experience

### Novice users
- There are links and buttons with distinctive names in order to help the users to interact with the system
- The process is short and not boring
- Interaction doesn’t lead to deadlocks or unexpected situations
- The system output is always visible to the users
- The interaction sequence is consistent

### Moderate users
- The system conforms with interaction standards
- The interaction sequence is consistent
- The output is always visible to the users
- Users that utilize assistive technology could benefit from shortcuts to main content

### Expert users
- The function is very simple and can be completed efficiently enough
- The interaction sequence is consistent
- The output is always visible to the users
- Users that utilize assistive technology could benefit from shortcuts to main content

## Relationship maintainability

### Novice users
- There is always a new topics menu in right part of the webpage
- Users may benefit from most requested search cases
- Users may benefit from a “what new” section

### Moderate users
- There is always a new topics menu in right part of the webpage
- Users may benefit from a “what new” section
- Consider informing the user about changes (new entries, updates) in areas of interest (e.g., subscription to an email notification function, sms alerts)
**Expert users**

- Users may benefit from a “what new” section
- Consider informing the user about changes (new entries, updates) in area of interest (e.g., subscription to an email notification function, sms alerts)
User-orientation of the system (User Group 3)

Users with Personalised Access to Health Information
(User Group 3)

Total Score = -1

Visibility
Not applicable due to the fact that the user group in question is by default aware of the NHS Direct service.

Perceived usefulness and ease of use
Not applicable due to the fact that the user group in question is by default aware of the NHS Direct service.

Availability / Approachability
Scored: novice -1, moderate 1, expert 1

The availability and approachability of the system for the third user group has been assessed in relation to the specific services that the user group in question is interested in, notably the HealthSpace service, which offers personalised access and functions to registered users. Thus, the service’s availability moves around neutral levels, being somewhat more oriented towards experienced users than towards novices. In effect, new comers to the service are very likely to miss on this particular functionality, since at the homepage there is nothing to indicate that the NHS Direct offers the possibility for users to register in order to benefit from personalised services and monitor their health. Moreover, users are nowhere encouraged to make use of such personalised access to the system, since there is no indication of the benefits of such services to users. Finally, a design flaw that forces menus to collapse, making them hard to access when the largest available font size is selected, blocks the availability of the service functions. On the positive side, users are given the power to explore and customise the system according to their needs and preferences through the use of access keys, changing the background and text colour of the web pages and altering font size and style.
Overall quality of interaction experience\textsuperscript{18}  

\textit{Scored: novice 2, moderate 2, expert 2}

The overall quality of use of the system’s functions is equally satisfactory for all users, whether new to the service or expert. The average visibility of the functions is good, meaning that users are likely to notice the existence of certain portal services. What’s more, users are likely to form the opinion that the functions appeal to their interests, since their perceived utility is also high. Novice and expert users should have little problems approaching the functions, while moderate users may find some of the functions less available to them. The overall quality of use is uniformly good for users, which signifies that the functions have been designed with users’ needs and requirements in mind. However, much more should be done to ensure that users become interested enough in the functions so as to re-use them at a later stage.

Relationship maintainability

\textit{Scored: novice 2, moderate 2, expert 2}

Users of the NHS service and of its HealthSpace may have high demands with regards to what the system offers them, since they perform important activities on the portal. On the one hand, the HealthSpace has devoted users because they can create their own health profile and easily save useful information. Users can also benefit from the alerts the system can issue about certain appointments or medications. Besides, the newsletter attracts non-users that seek personalised information and also, the system can be interesting for moderate users as they have the opportunity to intervene and personalise it. In addition, expert users are likely to reuse the system. On the other hand, some of the functions are poorly designed, which may discourage first time and novice user from reusing the system as the function are hard to find and use for them. Lastly, even more users will be motivated to create some kind of health profile (e.g., interesting sections, appointments, alerts) so long as the system gives proper credentials that their personal data are being protected.

\textsuperscript{18} The inspection scores on the \textit{quality of interaction experience} for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Table 11. **NHS Direct - Summary of Quality of Usage Experience (User Group 3)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>NHS Direct</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group's brief description</td>
<td>Users with personalised access to health information</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function1</td>
<td>2.00</td>
<td>0.25</td>
<td>-1.80</td>
</tr>
<tr>
<td>Function2</td>
<td>2.75</td>
<td>1.42</td>
<td>2.80</td>
</tr>
<tr>
<td>Function3</td>
<td>2.00</td>
<td>1.66</td>
<td>3.66</td>
</tr>
<tr>
<td>Function4</td>
<td>2.75</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Function5</td>
<td>2.00</td>
<td>2.00</td>
<td>2.20</td>
</tr>
<tr>
<td>Function6</td>
<td>2.25</td>
<td>2.40</td>
<td>2.00</td>
</tr>
<tr>
<td>Function7</td>
<td>1.40</td>
<td>2.20</td>
<td>2.00</td>
</tr>
<tr>
<td>Function8</td>
<td>2.25</td>
<td>3.00</td>
<td>1.40</td>
</tr>
<tr>
<td>Function9</td>
<td>2.25</td>
<td>2.40</td>
<td>2.00</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**  
Function 1 ‘Register to HealthSpace’  
Function 2 ‘Save Personal Details’  
Function 3 ‘Save Health Details’  
Function 4 ‘Save Medications’  
Function 5 ‘Save Web Links’  
Function 6 ‘Save Address Book’  
Function 7 ‘Find Local NHS Services’  
Function 8 ‘Keep Notes’  
Function 9 ‘Keep Calendar’
List of findings on the quality of interaction experience per function
(User Group 3: Users with Personalised Access to Health Information)

(the symbols ⧫, ⬇️, and ⇋ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: Register to HealthSpace</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The overall score for the first function is mediocre, due to its poor visibility and availability to users. The user perceived usefulness and ease of use is neutral, but the quality of the usage experience is very high for novice users and considerably high for practiced users. Relationship maintainability is satisfactory, though not at top levels.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

- ⬇️ The function is not visible enough
- ⬇️ The user doesn’t get any information about the existence of this function
- ⬇️ The site map and help pages do not provide information about the existence of this function
- ⬇️ “HealthSpace” opens in a new window. Consider informing users accordingly

**Usefulness**

- ⬆️ There is valid guidance through the process of registration
- ⬆️ The registration steps are easy to be accomplished
- ⬇️ Terms and conditions do not mention anything about the privacy policy of this function
- ⬇️ The navigation menu does not employ the same “look and feel” in different browsers
- ⬇️ Registration benefits are unclear
- ⬇️ “HealthSpace” opens in a new window. Consider informing users accordingly
- ⬇️ Necessary fields for registration must be specified

**Availability – Approachability**

**Novice users**

- ⬇️ It is difficult for the users to find out how to register, because the 9th link “Health space” in the main menu leads them to a new window where they can register. The name of the link is not straightforward enough
- ⬇️ A different label for the link would increase effectiveness
“HealthSpace” opens in a new window. Consider informing users accordingly

Necessary fields for registration must be specified

**Moderate users**

- It is difficult for the users to find out how to register, because the 9th link “Health space” in the main menu leads them to a new window where they can register. The name of the link is not straightforward enough
- The interface does not make this function visible to the user. Consider providing proper labels
- “HealthSpace” opens in a new window. Consider informing users accordingly
- Necessary fields for registration must be specified

**Expert users**

- The interface does not make this function visible to the user. Consider providing proper labels
- Necessary fields for registration must be specified
- It is difficult for the users to find out how to register, because the 9th link “Health space” in the main menu leads them to a new window where they can register. The name of the link is not straightforward enough
- A different label for the link would increase effectiveness

**Quality of usage experience**

**Novice users**

- The user gets the appropriate information about how to register in 3 steps
- The interaction is efficient enough
- It is very easy to recover from an error
- The aesthetics of the interaction controls are nice, clear and consistent
- When the function is completed, the users gets the appropriate confirmation
- Error proofing mechanism helps user to fill in the necessary information
- Users see how many steps there are to follow
- The completion of the registration task is visible to the user
- Users must read the terms and conditions before registering
- The navigation menu does not employ the same “look and feel” in different
browsers

**Moderate users**

⇧ The registration steps are easy to be accomplished
⇧ The user gets the appropriate information about how to register in 3 steps
⇧ The interaction is efficient enough
⇧ It is very easy to recover from an error
⇧ The aesthetics of the interaction controls are nice, clear and consistent
⇧ When the function is completed, the users gets the appropriate confirmation
⇧ Users must read the terms and conditions before registering
⇧ Users see how many steps there are to follow
⇩ Navigation menu does not employ the same “look and feel” in different browsers
⇩ Terms and conditions do not mention anything about the privacy policy of this function

**Expert users**

⇧ The user gets the appropriate information about how to register in few steps, only 3 short steps
⇧ The interaction is efficient enough
⇧ It is very easy to recover from an error
⇧ The aesthetics of the interaction controls are nice, clear and consistent
⇧ When the function is completed, the users gets the appropriate confirmation
⇧ The registration steps are easy to be accomplished
⇧ Users can read the terms and conditions before registering
⇧ Users see how many steps there are to follow
⇩ Navigation menu does not employ the same “look and feel” in different browsers
⇩ Terms and conditions do not mention anything about the privacy policy of this function
Chapter 4 - RESULTS OVERVIEW AND DISCUSSION

### Relationship maintainability

**Novice users**
- An e-mail send to users in order to validate their e-mail address
- There is no descriptive link on the home page about the function

**Moderate users**
- Same as above

**Expert users**
- Same as above

### Function 2: Save Personal Details | Score: 2

Users of the NHS HealthSpace should have no problem locating and entering the function for saving their personal details. The design of the function also helps users form the impression that the function is useful to them, and the actual use does not hide any major usability pitfalls. It ought to be noted that due to the function’s nature, neither relationship maintainability nor moderate or expert user groups have been assessed, since it is natural to save one’s personal details only few times and users rarely practice with such functions for long.

- **Visibility**
  - The interface makes this function visible to the users
  - The function should be presented only when user is logged in

- **Usefulness**
  - There is valid and comprehensive guidance
  - Buttons, images and links make this function visible and easy to users
  - The function is easy to accomplish
  - Consider notifying users on successful completion
  - Consider providing descriptive information about the purpose of the function
  - Consider providing an error proofing mechanism

- **Availability – Approachability**
  - The function is always available
  - The users can reach this function either from the main menu or by the main page’s options. The information is consistent, avoiding confusing the users
  - There are two ways in which users may reach this function
The function should be presented only when user is logged in

**Availability – Approachability**

*Moderate users*
- Not applicable

*Expert users*
- Not applicable

**Quality of usage experience**

*Novice users*
- The interface makes this function visible to the users
- The function should be presented only when user is logged in
- There is guidance so the users cannot be lost in the process
- The process is not boring because it is very short
- The information is well structured and clear enough to users
- The information needed is clear to users. Provide list box of values whenever possible (e.g., countries)
- The form elements are not presented in a consistent way in frequently used browsers (e.g., Mozilla Firefox)
- Consider notifying users on successful completion
- Consider providing an error proofing mechanism

*Moderate users*
- Not applicable

*Expert users*
- Not applicable

**Relationship maintainability**

Not applicable

<table>
<thead>
<tr>
<th>Function 3: <strong>Save Health Details</strong></th>
<th>Score: 2</th>
</tr>
</thead>
</table>

Saving one’s health details is one of the prime functions for the user group under inspection; the function scored considerably well, with its strong points being visibility and perceived utility to potential users, as well as availability, which is excellent. On the other hand, the actual quality of use and its potential to create longstanding relations with users are only moderate and could use be improved.

**Visibility**

- The interface makes this function visible to the users
- The function should be presented only when user is logged in

**Usefulness**

- Buttons, images and links make this function visible to users and easy to
accomplish

⇧ There is valid and comprehensive guidance

⇩ Consider providing descriptive information about the purpose of the function

## Availability – Approachability

### Novice users

⇧ The function can be reached through the home page shortcut too

⇧ The users can reach this function either from the main menu or by the main page’s options. The information is consistent, avoiding confusing the users

⇧ There are two ways in which users may reach this function

### Moderate users

⇧ The users can reach this function either from the main menu or by the main page’s options. The information is consistent, avoiding confusing the users

⇧ There are two ways in which users may reach this function

### Expert users

⇧ The users can reach this function either from the main menu or by the main page’s options. The information is consistent avoiding confusing the users

⇧ There are two ways in which users may reach this function

## Quality of usage experience

### Novice users

⇧ The process is not boring

⇧ The results are visible to users

⇧ The information is well structured and clear enough

⇧ There is guidance so that users do not get lost in the process

⇧ The interaction doesn’t contain needless steps

⇧ The information needed is clear to users. Provide list box of values whenever possible (e.g., Height, weight, units)

⇧ Using ‘settings’, users can change the font size and background contrast

⇧ The system saves past changes

⇧ Users can sort their medications by name or by date created
Consider notifying users upon successful completion
Consider providing an error proofing mechanism
Form elements are not presented in a consistent way in frequently used browsers (e.g., Mozilla Firefox)
The ‘back’ button is missing

Moderate users
Past entries are enabled and editable
The process is not boring
The results are visible to users
The information is well structured and clear enough
There is guidance so that users do not get lost in the process
The interaction doesn’t contain needless steps
The information needed is clear to users. Provide list box of values whenever possible (e.g., Height, weight, units)
Using ‘settings’, users can change the font size and background contrast
Users can sort their medications by name or by date created
Consider notifying users on successful completion
Consider providing an error proofing mechanism
Form elements are not presented in a consistent way in frequently used browsers (e.g., Mozilla Firefox)
The ‘back’ button is missing

Expert users
The process is not boring
The results are visible to users
The information is well structured and clear enough
There is guidance so that users do not get lost in the process
The interaction doesn’t contain needless steps
The information needed is clear to users. Provide list box of values whenever possible (e.g., Height, weight, units)

Using ‘settings’, users can change the font size and background contrast

The ‘back’ button is missing

Users can sort their medications by name or by date created

Form elements are not presented in a consistent way in frequently used browsers (e.g., Mozilla Firefox)

Consider providing an error proofing mechanism

<table>
<thead>
<tr>
<th>Relationship maintainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>† There are descriptive labels to help expanding for more information</td>
</tr>
<tr>
<td>‡ Consider providing descriptive information about the purpose of some aspects related to past entries</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>† There are descriptive labels to help expanding for more information</td>
</tr>
<tr>
<td>⇧ Consider providing statistics about user’s health record</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>† There are descriptive labels to help expanding for more information</td>
</tr>
<tr>
<td>‡ Consider providing statistics about user’s health record</td>
</tr>
</tbody>
</table>

### Function 4: Save Medications

<table>
<thead>
<tr>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The function is very straightforward to notice and users are easily persuaded to look into it. The availability of the function is also considerably high, posing no problems even to first-time users. The function is also slightly more oriented towards novice users when it comes to its use, but it lags behind with respect to maintaining relationships with users.</td>
</tr>
</tbody>
</table>

#### Visibility

† The interface makes this function visible to the users

‡ The function should be presented only when users are logged in

#### Usefulness

† The design of the function is simple and straightforward
<table>
<thead>
<tr>
<th></th>
<th>There is valid and comprehensive guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Buttons, images and links make this function visible to users</td>
</tr>
<tr>
<td></td>
<td>The function is easy to accomplish</td>
</tr>
<tr>
<td></td>
<td>Consider providing an error proofing mechanism</td>
</tr>
</tbody>
</table>

### Availability – Approachability

**Novice users**

<table>
<thead>
<tr>
<th></th>
<th>The function is accessible via the home page too</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The users can reach this function either from the main menu or through the main page’s options. The information is consistent, avoiding confusing the users</td>
</tr>
<tr>
<td></td>
<td>There are two ways that users may utilize to reach this function</td>
</tr>
<tr>
<td></td>
<td>The function should be presented only when users are logged in</td>
</tr>
</tbody>
</table>

**Moderate users**

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

**Expert users**

<table>
<thead>
<tr>
<th></th>
<th>The function is accessible via the home page too</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>There are two ways that users may utilize to reach this function</td>
</tr>
<tr>
<td></td>
<td>The function should be presented only when users are logged in</td>
</tr>
</tbody>
</table>

### Quality of usage experience

**Novice users**

<table>
<thead>
<tr>
<th></th>
<th>The function’s interaction is familiar to the user because of its simple design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The process is not boring</td>
</tr>
<tr>
<td></td>
<td>The results are visible to users</td>
</tr>
</tbody>
</table>
† The information is well structured and clear enough
† There is guidance so that users do not get lost in the process
† The interaction doesn’t involve needless steps
† The interaction controls are familiar
† The information needed is clear to users. Provide list box of values whenever possible (e.g., dosage)
† Interaction controls are clear and consistent
↓ Consider revising the position of the “* Required” label
↓ Consider providing an error proofing mechanism

**Moderate users**
† The users can see past entries and change or delete them
† The information needed is clear to users. Provide list box of values whenever possible (e.g., dosage)
† Interaction controls are clear and consistent
↓ Consider revising the position of the “* Required” label
↓ Consider providing an error proofing mechanism

**Expert users**
† The users can see past entries and change or delete them
† The information needed is clear to users. Provide list box of values whenever possible (e.g., dosage)
† Interaction controls are clear and consistent
↓ Consider revising the position of the “* Required” label
↓ Consider providing an error proofing mechanism

**Relationship maintainability**

**Novice users**
⇨ Nothing is done to ensure relationship maintainability with users
⇨ Consider providing email notifications in accordance to the medication record

**Moderate users**

Same as above
**Expert users**  
*Same as above*

<table>
<thead>
<tr>
<th>Function 5: <strong>Save Web Links</strong></th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating an inventory of interesting web links via the HealthSpace of NHS is a fairly simple function that proves to have satisfactory levels of user-orientation in all its features. The function’s visibility and perceived usefulness to users who have not previously accessed it is quite high, and its availability is also high for novice and moderate users, but falls slightly for expert ones. The quality of use is most positive for novice users, while experienced ones are not far behind. The function’s purpose is such that it presupposes users returning to use it since they keep their favourite health links there, and thus relationship maintainability has not been assessed.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Visibility</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➪ The interface makes this function visible to the users</td>
</tr>
<tr>
<td>➪ The function should be presented only when users are logged in</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Usefulness</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➪ The function is easy to accomplish</td>
</tr>
<tr>
<td>➪ Buttons, images and links make this function visible to users and easy to use</td>
</tr>
<tr>
<td>➪ There is valid and comprehensive guidance</td>
</tr>
<tr>
<td>➪ The usefulness of this function is not clearly stated. Consider providing a “description” entry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Availability – Approachability</strong></th>
</tr>
</thead>
</table>

**Novice users**  
气象，用户可以达到此功能，要么从主菜单，要么通过主页面的选项。信息是一致的，避免了混淆的用户。  
气象，功能应仅在用户登录时显示。  
气象，功能不可用，除IE之外的任何浏览器。

**Moderate users**  
气象，用户可以达到此功能，要么从主菜单，要么通过主页面的选项。信息是一致的，避免了混淆的用户。  
气象，功能应仅在用户登录时显示。  
气象，功能不可用，除IE之外的任何浏览器。
**Expert users**

- There are two ways that users may utilize to reach this function
- The users can reach this function either from the main menu or through the main page’s options. The information is consistent, avoiding confusing the users
- The function should be presented only when users are logged in
- The function is not available with the use of other browser than IE

**Quality of usage experience**

**Novice users**

- The information needed is clear to users
- Interaction controls are clear, consistent and familiar
- The process is not boring
- The results are visible to users
- The information is well structured and clear enough
- There is guidance so that users do not get lost in the process
- The interaction doesn’t involve needless steps
- Consider revising the position of the “* Required” label
- The function is not available with the use of other browser than IE

**Moderate users**

- The information needed is clear to users
- Interaction controls are clear and consistent
- The users can see past entries and change or delete them
- The information is organised and can be accessed through pages
- Consider revising the position of the “* Required” label
- The function is not available with the use of other browser than IE

**Expert users**

- The information needed is clear to users
- Interaction controls are clear and consistent
The users can see past entries and change or delete them

The information is organised and can be accessed through pages

Consider revising the position of the “* Required” label

The function is not available with the use of other browser than IE

---

### Function 6: **Save address book**

| Score: 3 |

Creating an address book has scored very well in user-orientation of all its features. Users should have no problem locating the existence of this function and they should find it easy to use and interesting. The approachability of the function is also at good levels, while the quality of use may be slightly more oriented towards new users, but experienced users should also be satisfied with the quality of the interaction. Although the function is fairly simple, its potential to maintain its relationships with users scored highest because the function keeps a communication channel open with its users through the use of email notifications.

#### Visibility

- The interface makes this function visible to the users
- The function should be presented only when users are logged in

#### Usefulness

- Buttons, images and links make this function visible to users and easy to use
- There is valid and comprehensive guidance
- Consider providing a more accessible version that does not employ JavaScript

#### Availability – Approachability

**Novice users**

- The users can reach this function either from the main menu or through the main page’s options. The information is consistent, avoiding confusing the users
- There is a shortcut from the homepage for the function
- The function should be presented only when users are logged in
- Consider providing a more accessible version that does not employ JavaScript

**Moderate users**

- The users can reach this function either from the main menu or through the
main page’s options. The information is consistent, avoiding confusing the users

⇧ There is a shortcut from the homepage for the function
⇩ The function should be presented only when users are logged in
⇩ Consider providing a more accessible version that does not employ JavaScript

**Expert users**

⇧ The users can reach this function either from the main menu or through the main page’s options. The information is consistent, avoiding confusing the users
⇧ There is a shortcut from the homepage for the function
⇧ The function should be presented only when users are logged in
⇧ Consider providing a more accessible version that does not employ JavaScript

**Quality of usage experience**

**Novice users**

⇧ The process is not boring
⇧ The results are visible to users
⇧ The information is well structured and clear enough
⇧ There is guidance so that users do not get lost in the process
⇧ The interaction doesn’t involve needless steps
⇧ Interaction controls are clear, consistent and familiar
⇩ Consider revising the position of the “* Required” label

**Moderate users**

⇧ The information needed is clear to users
⇧ Interaction controls are clear and consistent
⇧ The users can see past entries and change or delete them
⇧ The entries can be accessed either alphabetically or by manual searching
⇩ Consider revising the position of the “* Required” label
⇩ Consider providing a more accessible version that does not employ JavaScript
### Expert users

- The information needed is clear to users
- Interaction controls are clear and consistent
- The users can see past entries and change or delete them
- The entries can be accessed either alphabetically or by manual searching
- Consider revising the position of the “* Required” label
- Consider providing a more accessible version that does not employ JavaScript

### Relationship maintainability

**Novice users**

- Users may receive email notifications

**Moderate users**

Same as above

**Expert users**

Same as above

---

<table>
<thead>
<tr>
<th>Function 7: <strong>Find Local NHS Services</strong></th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The function about finding local NHS services has an overall moderate usability score; the function’s visibility is moderate to low, although its user perceived usefulness has a satisfactory score. The availability of the function is considerably high when examining novice users, but it seems to be poorly oriented towards moderate and expert ones. Nevertheless, the quality of use is perceived increasingly well as users become more experienced with the use of the function. Finally, little is being done to maintain a relationship with users.</td>
<td></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
<td></td>
</tr>
<tr>
<td>- This function can be reached through the main menu in the left part of each webpage. It is the 4th link at the Library option. Besides, the function can be reached by the main page’s options, in Library group</td>
<td></td>
</tr>
<tr>
<td>- Consider providing an interactive map</td>
<td></td>
</tr>
<tr>
<td>- Due to the fact that postal code is essential for this function, users should be helped in retrieving – finding their postal code (maybe consider providing external links to proper service)</td>
<td></td>
</tr>
<tr>
<td><strong>Usefulness</strong></td>
<td></td>
</tr>
<tr>
<td>- The link has a descriptive label so the users understand the effect of their action</td>
<td></td>
</tr>
<tr>
<td>Available</td>
<td>Novice users</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td>Availability – Approachability</td>
<td>The function’s design is based on simplicity and that makes it familiar to the users and easy to use</td>
</tr>
<tr>
<td></td>
<td>The link used to access the function is correctly labelled</td>
</tr>
<tr>
<td></td>
<td>The function is highly prioritized</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Quality of usage experience

<table>
<thead>
<tr>
<th>Available</th>
<th>Novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The system informs users that they should enter their postcode in order to complete the function</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>It is very clear and easy to interact with the system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In case users enter an incorrect postcode, the system will inform them</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The results are well organised and correctly labelled</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The results and the completion of the function are visible to the user</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Search results are presented in an organized manner</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Consider providing a text-only version that does not employ JavaScript

Users must provide a valid postal code in order to use the function. Example of proper use (e.g., how to enter a valid postal code format) must be presented

In case of code error, user must receive help accordingly (alter page title, suggest valid code format, provide external links to proper service)

**Moderate users**

- The function is highly prioritized
- Users are properly informed about the purpose of this function and search results are presented in an organized manner
- The system supports standard interaction controls and metaphors
- The system informs users that they should enter their postcode in order to complete the function
- It is very clear and easy to interact with the system
- In case users enter an incorrect postcode, the system will inform them
- The results are well organised and correctly labelled
- The results and the completion of the function are visible to the user

**Expert users**

- The function is highly prioritized
- Search results are presented in an organized manner
- The system supports standard interaction controls and metaphors
- The system informs users that they should enter their postcode in order to complete the function
- It is very clear and easy to interact with the system
- In case users enter an incorrect postcode, the system will inform them
- The results are well organised and correctly labelled
- The results and the completion of the function are visible to the user

**Relationship maintainability**

**Novice users**

⇒ No particular means are employed to create links with users
Consider informing the user about changes (new entries, updates) in area of interest (e.g., subscription to an email notification function, sms alert)

**Moderate users**
- Same as above

**Expert users**
- Same as above

### Function 8: Keep Notes  
**Score: 2**

Keeping notes is both highly visible and perceived as useful by those who have not yet used the function. The availability of this function falls somewhat lower, although it is still on the positive scale, and its perceived quality of use remains high throughout levels of expertise. The only characteristic that falls short of the overall good usability image is the functions relationship maintainability, since the system does nothing to promote a longstanding relation of its users with the function in question.

**Visibility**
- The interface makes this function visible to the users
- The function should be presented only when users are logged in

**Usefulness**
- Buttons, images and links make this function visible and easy to users
- There is valid and comprehensive guidance

**Availability – Approachability**

**Novice users**
- There are two ways that users may utilize in order to reach this function
- The function should be presented only when users are logged in
- The function is not available with the use of other browser than IE

**Moderate users**
- Same as above

**Expert users**
- Same as above

**Quality of usage experience**

**Novice users**
- The process is not boring
The results are visible to users
The information is well structured and clear enough
There is guidance so that users do not get lost in the process
The interaction doesn’t involve needless steps
The interaction controls are familiar

**Moderate users**

- The information needed is clear to users
- The users can see past entries and change or delete them

**Expert users**

- The information needed is clear to users
- The users can see past entries and change or delete them

### Relationship maintainability

**Novice users**

- Nothing is done to ensure that users return to the function

**Moderate users**

- Nothing is done to ensure that users return to the function

**Expert users**

- Nothing is done to ensure that users return to the function

---

**Function 9: Keep a Calendar**

| Score: 3 |
---

The possibility to keep a calendar should be both visible and perceived as useful and easy to use by users of the HealthSpace. The function is moderately available to its users and maintains steady levels of quality of use throughout novice to expert users. In contrast to most other functions of the HealthSpace, its relationship maintainability with its users is very satisfactory.

### Visibility

- The interface makes this function visible to the users
- The function should be presented only when users are logged in

### Usefulness
<table>
<thead>
<tr>
<th></th>
<th>Buttons, images and links make this function visible and easy to use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There is valid and comprehensive guidance</td>
</tr>
<tr>
<td></td>
<td>Consider providing a more accessible version that does not employ JavaScript</td>
</tr>
</tbody>
</table>

### Availability – Approachability

#### Novice users
- The users can reach this function either from the main menu or by the main page’s options in the Calendar group or by a shortcut “Add new calendar entry”. The information is consistent, avoiding confusing the users.
- The function should be presented only when users are logged in.
- Consider providing a more accessible version that does not employ JavaScript.

#### Moderate users
- Same as above

#### Expert users
- Same as above

### Quality of usage experience

#### Novice users
- The process is not boring
- The results are visible to users
- The information is well structured and clear enough
- There is guidance so that users are not lost in the process
- The interaction design is familiar to the users, as it is characterised by simplicity and avoidance of extra non-useful/needed steps
- Descriptive interaction controls help the navigation to calendar entries
- Consider providing a more accessible version that does not employ JavaScript.

#### Moderate users
- Same as above

#### Expert users
- Same as above

### Relationship maintainability

#### Novice users
- Users may receive email notifications for calendar entry
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moderate users</strong></td>
<td><em>Same as above</em></td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
<td><em>Same as above</em></td>
</tr>
</tbody>
</table>
4.5 VHI, Ireland (eHealth)

4.5.1 System Description

Vhi Healthcare is one of Ireland’s largest players in the Irish private health insurance market, with 80% share of the subscribers (over 1.55 million members, representing 40% of the Irish population). Vhi Healthcare offers a wide range of healthcare plans to individual and corporate clients. Vhi Healthcare’s eHealth overall strategy is focused on meeting customer - user demands for health and lifestyle information, and on increasing contact with its customers. This strategy has led to the setting up of the portal service (see Figure 8). It is effectively an electronic gateway to a library of health and lifestyle articles, an a-z of medical matters, health headlines, but it is also promoting and increasing interactivity with its customers through ask-the-experts advice, a range of interactive online tools, SMS messaging and a monthly personalised e-mail service / newsletter. In addition to this, the Vhi subscribers can benefit from a 24/7 telephone line operated by health professionals (a team of nurses).

http://www.vhi.ie/

- Private health insurance company whose portal offers a library of health and lifestyle articles, a-z of medical matters, SMS messaging, newsletter, NurseLine a 24/7 telephone and Internet service
- Some services are available only to members but the forum, reading of mailing lists, online tools (e.g., calculation of ideal weight, BMI etc.) and online shop are available to anyone

The service was launched in May 2000. Initially, the online content was focused on providing health information, while the interactive online features have been introduced subsequently, and these services are constantly evolving, reflecting, to a large extent, consumer preferences. There is a lot of focus on healthy living and promotion of a healthy lifestyle, and this is especially the case with the interactive features of the service, many of which are used to reinforce the message from health promotion campaigns. Communications and online features often take the form of a fun web campaign aimed to encourage young people to change to healthier lifestyle habits.

Vhi Healthcare has put much effort in the elaboration of its portal as a demand for interaction via the web has been identified amongst its customers (members / subscribers); in fact, it has been estimated that, in 3 to 5 years time, a large proportion of its customer base will be doing most of their business online. Thus the main immediate objective for launching the portal was to increase interactivity with Vhi...
Healthcare members. In the long run, the objectives of the service are to improve the overall service offered to its customers, as well as the lifestyle of its members and, by extension, their overall health situation, which in turn would result in less claims being made, and ultimately result in sustainability of the overall health services and demands put upon it by ageing population. Additional objective are to provide members, but also a wider public, with health information that is tailored and appropriate in the national context, thus promoting the wellbeing of its members and that of the overall general population in the country, as well as to assist with, and support, the overall organisation’s strategy and some of its crucial aspects, such as sustaining the community rating, and to provide an interactive channel for communicating with its members, for extending the service, and for receiving feedback from them.

With regards to its technical standards, the site is hosted internally and is located in a dedicated server room in the organisation’s headquarters. There is a team of 6 people in the eBusiness department managing content on an ongoing basis. This team is supported by a range of personnel, including IT, Marketing and the Medical division. There are around 20 external content contributors writing articles, news and answering individual visitors’ questions on a daily and weekly basis. In terms of broader technical aspects, the eHealth™ Suite was selected for the ICT infrastructure.

### 4.5.2 Inspection team

The inspection team comprised three members, the inspection leader (Inspector 1), and another two members (Inspectors 2 and 3). Two were female and one was male. The team of inspectors had diverse background and expertise, ranging from computer science and web design to linguistics. None of the inspection members had any relation to the product or to the service provider, and this was the first time they accessed the system in question. The average familiarity of the inspection members with similar systems was little, and familiarity with the language supported by the system, in this case English, was high. Moreover, the inspection group was moderately familiar both with the inspection method at hand and with inspection methods and tools in general.

**Inspector 1 (Leader)**

Inspector 1, and leader of the group is Greek and has a BSc in French Language and Literature, and a MSc in Speech and Language Processing. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system, as well as with other systems of this kind. She is familiar with the inspection tool in question, as well as with inspection tools and methods in general.
Inspector 2
Inspector 2 is Greek and has a degree in Computer Science. The inspector has no link to the system developers or providers, has never interacted with the system prior to its assessment and has had little familiarity with similar systems in the past. Moreover, this was his first contact with the inspection method at hand, although he is moderately familiar with other evaluation tools and methods. He is fluent in English.

Inspector 3
Inspector 3 holds a BSc in Computer Science and has expertise in the domain of web development. The inspector has no link to the system developers or providers and this was the first time she encountered the system. Moreover, she has no familiarity with similar systems and little familiarity with inspection methods, including the one applied in the experiment. She has a fair command of the English language.

4.5.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users in four user groups:

1. Health information seekers: this group is about everyone, whether Vhi client or not, that accesses the system in order to be informed about a health condition through any means made possible by the system, such as the news section, articles or by searching for the relevant information.

2. Prospective Vhi clients: this group gathers persons who enter the site with the aim of being informed about the services and offers of the Vhi healthcare insurance services.

3. Prospective health product shoppers: inside the Vhi portal users have the opportunity to shop online a variety of healthcare and pharmaceutical products, and some may use the portal for this purpose.

4. Vhi clients accessing exclusive services: another part of the Vhi portal is destined to its clients, offering them advanced services and interaction tools. Thus, many of its clients may enter the portal to make use of those services.

4.5.4 Functions per User Group

User Group 1: Health Information Seekers
The functions addressed to information seekers are (in bold are the selected ones for inspection):

1. Browse for health information
2. Search the site for health related information, news articles and services
8. Call the NurseLine (24-hour hotline where nurses reply to questions)
9. Contact Vhi in case of questions (general provider contact)
3. Read health news archive

4. Register to the portal in order to receive more personalised services and increased access

5. Discussion Boards: users can participate in discussions

6. Ask the health experts about health affairs by completing an email form

7. Subscribe to the Vhi newsletter

10. Calculators: for calculating health related

11. Quizzes on health and healthy lifestyle

12. Use a VHI plan (lose weight, quit smoking, exercise)

13. SMS reminder: SMS service for reminding users of doctor appointments, medications, etc.

User Group 2: Prospective Vhi Clients

The functions addressed to potential clients of the Vhi insurance schemes are:

1. Ask policy expert

2. Browsing information on Vhi services

3. Site Search

4. Discussion Boards

5. Register

6. Buy insurance policy online

7. Download forms

8. Contact

User Group 3: Prospective Health Product Shoppers

The functions addressed to online shoppers of health goods are:

1. Product Search

2. Site Search

3. Shop on-line

4. Contact

User Group 4: Vhi Clients Accessing Exclusive Services

The functions addressed to Vhi healthcare insurance clients are:

1. Modify policy

2. Upgrade policy

3. Add/Delete dependent

4. Make a claim

5. Ask the policy expert

6. Send a e-greeting

7. Send SMS text message

8. Download forms
4.5.5 Inspection results

User-orientation of the overall system (all user groups)

The VHI system achieved highly satisfactory results almost throughout the inspection, both in terms of quality of use regarding its individual functions and in terms of its overall user-orientation. The system seems to be equally apt to manage the needs of new, more experienced and expert users to a significant extent. When looking closer into the system’s characteristics, most were able to attain good user-orientation levels, with a highlight on relationship maintainability, which was extremely high for all groups of users, indicating that clients of the Vhi portal appreciate many of its functionalities – due to reasons that include their prompt availability and ease of use, their usefulness and their overall quality of use – and also that the portal itself has made the appropriate steps to enhance and maintain the relationship with its clients. The only aspect of the portal that did not prove to be up to the standard of the other characteristics was overall availability and approachability, especially to novice and expert users. On the other hand, when examining the overall results for individual functions, availability of the functions themselves not only posed no problem, but also proved to be one of the strong points of the system’s image. Moreover, the system should leave moderate and expert users with a better impression than novice users, who may encounter problems with the visibility of some functions and may also lack reasons to return to the system.
Table 12. **Vhi Healthcare - Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vhi – Healthcare</strong></td>
<td>August 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility to non-users (Form 4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td>0.94</td>
<td>1.43</td>
<td>2.08</td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience of first-time and novice users (Form 7)</td>
<td>1.87</td>
<td>1.80</td>
<td>1.43</td>
<td>2.00</td>
</tr>
<tr>
<td>Relationship maintainability for first-time and novice users (Form 8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to moderate users (Form 6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience to moderate users (Form 7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for moderate users (Form 8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability &amp; approachability to expert users (Form 6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of usage experience to expert users (Form 7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship maintainability for expert users (Form 8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**USER GROUPS:** User Group 1 ‘Health Information Seekers’
User-orientation of the system (User Group 1)

Health Information Seekers (User Group 1)

Visibility  
*Scored: 2*

The eHealth web portal of Vhi scores high on visibility, which means that citizens are very likely to hear about Vhi or come across it when browsing on the Internet for related topics. The providers of the Vhi portal have achieved this by advertising the new portal in the mass media as a reliable reference point for health issues of the whole Irish population. Furthermore, its carefully designed interface, its advanced interactive services and the wealth of information on health and healthcare have earned it numerous awards, producing good publicity for the website. Visibility could have been even greater if it wasn’t for the limited search engine response when using broader terms as keywords.

Perceived usefulness and ease of use  
*Scored: 2*

There is a high probability that citizens that come across information about the Vhi health portal will be enticed to visit it for a closer look. The strong point of the portal is that it is oriented towards the Irish citizen, offering services and information tailored to the national context. This orientation is established in the eyes of citizens through various instances; in effect, both the web portal and the organisation as a whole have received numerous European and national awards, and Vhi is often cited by the press in a national and international scale. Moreover, the Irish MSN search portal suggests Vhi as a lifestyle portal for the Irish.
Availability / Approachability

Scored: novice 1, moderate 2, expert 0
According to the inspection, moderate users are least likely to encounter difficulties in reaching the portal, mostly due to its straightforward Internet address that is both intuitive and easy to memorize, and due to its bookmark property to display a comprehensive title and short description of the service making it almost impossible to mistake for something else. One minor setback related to bookmarking is the absence of a logo and of an explanation for the Vhi abbreviation in the title.

However, first-time and novice users may have trouble locating the web portal of Vhi. Users who enter the website for the first time may easily become frustrated due to the presence of many functions that require registration first, since the portal does not make clear which parts of it are open to all and which are destined to its clients. Novice users may also not appreciate the fact that the website can be accessed through similar but different urls. Finally, a mishap in design has literally made invisible the login panel to blind users who use special browsers that scan the website.

On the other hand, expert users will have no particular problem locating and accessing the eHealth service in question.

Overall quality of interaction experience\(^\text{19}\)

Scored: novice 1, moderate 2, expert 2
On the whole, Vhi’s usage experience, in other words the degree of satisfaction from making use of the portal’s various functionalities, scores considerably high, with users getting better at making the most of the system with time. Thus, the score for expert users is the highest, denoting that extensive usage of the system will train users in extracting the full benefits of the system instead of disappointing them as they look into it in depth. The score is only slightly lower for moderate users, reflecting that the same system properties apply to them; in turn, the score for novice users may be lower nevertheless it is by far not disappointing. Average visibility of the portal’s functions is borderline, while on the other hand users are very likely to appreciate the functions’ usefulness and usability. Availability and approachability is very good and only gets better with experience. The same holds for relationship maintainability, although at slightly lower levels; however, users’ perception of quality of the system deteriorates as users become more familiar with the system, which could mean that some functions may be adequate for novice users, but are disappointing to anyone who goes beyond basic operations.

---

\(^{19}\) The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability

Scored: novice 2, moderate 3, expert 4

The web portal of Vhi bears out extremely well on the inspection for relationship maintainability; in effect, the score rises with user experience, displaying that the portal will not fail even the most expert users, whose standards and expectations are the highest. The portal’s pillar of success in this domain is the advanced features it offers for “keeping in touch” with its clients: adjustable online profile, personalised newsletter, user-selected email alerts on topics of interest and notifications upon message posts on the forum show users that the portal is active, enticing them to visit it again. What’s more, the high quality and abundance of information on health and lifestyle, which is kept regularly up to date, including latest news on health and a library on health issues, provides a treasure of knowledge that users would like to uphold. Added to this, the portal offers multiple interaction channels with its clients, which make it versatile to use at any time any place by any means. On the downside, some issues that may confuse novice users are some instances of inconsistencies in the design of the portal and the absence of some essential navigation tools, such as the ‘back’ button.
Table 13. Vhi Healthcare - Summary of Quality of Usage Experience (User Group 1)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Vhi - Healthcare</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Health information seekers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Visibility to non-users</th>
<th>Perceived usefulness and ease of use to non-users</th>
<th>Availability &amp; approachability to first-time and novice users</th>
<th>Quality of usage experience of first-time and novice users</th>
<th>Relationship maintainability for first-time and novice users</th>
<th>Availability &amp; approachability to moderate users</th>
<th>Quality of usage experience to moderate users</th>
<th>Relationship maintainability for moderate users</th>
<th>Availability &amp; approachability to expert users</th>
<th>Quality of usage experience to expert users</th>
<th>Relationship maintainability for expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td>2.00</td>
<td>3.00</td>
<td>0.50</td>
<td>2.00</td>
<td>1.00</td>
<td>0.00</td>
<td>2.55</td>
<td>3.75</td>
<td>2.66</td>
<td>1.50</td>
<td>2.60</td>
</tr>
<tr>
<td>Function 2</td>
<td>1.75</td>
<td>0.85</td>
<td>3.50</td>
<td>-0.64</td>
<td>-2.50</td>
<td>3.66</td>
<td>-1.40</td>
<td>-1.00</td>
<td>3.00</td>
<td>-2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Function 4</td>
<td>2.00</td>
<td>0.61</td>
<td>2.66</td>
<td>2.33</td>
<td>N/A</td>
<td>3.00</td>
<td>2.00</td>
<td>N/A</td>
<td>3.00</td>
<td>-4.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Function 5</td>
<td>1.25</td>
<td>3.00</td>
<td>1.33</td>
<td>-0.85</td>
<td>1.50</td>
<td>3.00</td>
<td>0.50</td>
<td>0.00</td>
<td>3.00</td>
<td>0.50</td>
<td>0.00</td>
</tr>
<tr>
<td>Function 11</td>
<td>-4.00</td>
<td>2.75</td>
<td>2.00</td>
<td>2.77</td>
<td>0.50</td>
<td>2.66</td>
<td>4.00</td>
<td>0.00</td>
<td>3.00</td>
<td>-1.33</td>
<td>0.66</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

FUNCTIONS: Function 1 ‘Browse for Health Information’ Function 2 ‘Search’ Function 4 ‘Registration’ Function 5 ‘Discussion Boards’ Function 11 ‘Quizzes’

VHI, IRELAND (eHealth) FORTH-ICS TR-373, February 2006
List of findings on the quality of interaction experience per function
(User Group 1: Health Information Seekers)

(the symbols ⬆, ⬇, and ⇑ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: Browse for Health Information</th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1, browsing for health related information on the Vhi portal, scored considerably well, displaying good practice in its perceived usefulness to first time users and its relationship maintainability for expert and especially for moderate users of the system. Negative values were absent in this case, although there is room for improvement in the area of availability and approachability for new and occasional users.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

⬆ Low vision and blind users should have no problem locating the function, since font size is relative and not strict, and all images on the site are accompanied by alternative text

⬆ The portal operates on all browsers

⬆ The sitemap helps users locate easily the information they are looking for

⬆ The search function is omnipresent and is valuable to users who wish to search the site for information

⬆ The structure of the portal is clear and consistent, facilitating users’ navigation

⬆ The link to the health and lifestyle information part of the portal is present twice on the main page, plus, it is ordered in four subgroups covering specific health information and also alphabetically

⬆ Users can download information and other relevant items from the “Downloads” section of the portal

⬇ Inconsistent menu layout in the health shop section, with only a small link in the bottom right to return to the main menu, which may easily go unnoticed by novice users

⬇ The link to the health and lifestyle information can only be found once, at the top menu, when out of the homepage

**Usefulness**

⬆ The clear and consistent structure helps minimise problems in navigation

⬆ The presence of a sitemap and search function should motivate non-users who
wish to find health information to try the system

### Availability – approachability

**Novice users**

† The website’s structure is clear and lets the user know immediately what information s/he can find there. Users are tempted to follow the links that appeal to their case

◊ The portal doesn’t support mnemonic keys or quick links

**Moderate users**

⇒ No problem for moderate users

**Expert users**

† Despite the fact that the portal does not support the creation of shortcuts, the search function could substitute them, since expert users tend to know exactly what they are looking for

† Users are given the possibility to bookmark any page they wish

### Quality of usage experience

**Novice users**

† There are no needless steps in the process of finding a piece of information

◊ Certain links are placed too close, which makes them hard to distinguish

**Moderate users**

† The website’s structure is clear and consistent, users are able to enter data intuitively

† Most health articles have a printer friendly version

† The date of publication of the articles is mentioned

† A list of shortcuts for the thematic areas of the portal is available at the main page

† Users who face an emergency situation can find the number of a health hotline, available twenty-four hours a day

◊ Vhi hosts nation-specific as well as international health information, in cooperation with a renowned American peer organisation. Although the distinction is made at the side of each article, a better representation, such as a logo on a visible position, could be used

**Expert users**

† Expert users should appreciate the fact that when reading an article, there is a right-hand banner suggesting other related content
The Internet-based references at the end of each article should be hyperlinked.

**Relationship maintainability**

**Novice users**
- Easy to use website, intuitive navigation
- Abundance of information, covering all major and more specific subjects
- A health directory with entries related to the article being viewed each time is placed at the bottom of the page. This should be placed in a more prominent position

**Moderate users**
- The Vhi portal gives users the opportunity to create an on-line profile that holds user characteristics and interests, and helps present users with the information that interests them
- User feedback is taken into consideration and modifications in the structure/content of the website are made accordingly
- Users may receive a personalised monthly newsletter

**Expert users**
- Expert users can use the sitemap or search function to locate what they want, which makes navigation fast and efficient
- Expert users will appreciate the personalised newsletter
- Expert users will probably sign up to the portal

<table>
<thead>
<tr>
<th>Function 2: Search</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The search function has both positive and negative traits, which result in a low score, although not a negative one. Availability of the function to all types of users is very high, while quality of usage experience is not so good, along with relationship maintainability for novice users, where major issues were reported. Most other user-orientation factors were close to neutral.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**
- The search function is easily accessible, as it is always located in the right upper part of every page of the website
- The function has no label or logo; just the text “site search” inside the input text field

**Usefulness**
- The Vhi Healthcare portal hosts a plethora of information. Users searching for
information will surely benefit from the search function

- When moving to the ‘products’ pane, the text ‘site search’ switches to ‘product search’ notifying users
- The text inside the search box is erased with a click of the mouse and re-appears if search is annulated
- The function is activated both by pressing the ‘enter’ key and by pressing the ‘go’ button on the web interface
- No guidance or directions pointing to the function are offered

### Availability – approachability

#### Novice users

- The search function is accessible at any time at the top right corner of the website

#### Moderate users

- The entry point of the function is located at the same place in every page, thus no problem should arise when trying to locate it for a second time

#### Expert users

- The “search within results” function can assist expert users narrow down the results they get and find the information they are looking for more easily
- Users can bookmark the results page of their search

### Quality of usage experience

#### Novice users

- When users perform a search, it is clearly indicated that the search domain is the entire website. Moreover, they can choose to narrow down the search domain to a specific section of the website
- The search results are presented with keywords highlighted and are sorted by order of relevance, with the corresponding percentage of relevance
- In case of error, the system clearly notifies the user and suggests solutions
- Few errors on the website, such as two broken links in the results page and a bug on the menu bar (clicking on the blank space at the end of the menu bar transfers users to the homepage)
- Before being directed to the results page users cannot select in which area of the site they wish to perform the search. The system searches the input text in the entire site. Moreover, even if users select a specific search area, the system still searches the entire site (there is a programming error)
When users select the “go” link without entering new text, the system performs a search for the “Site Search” term.

When there are numerous results that cannot be displayed in one page, it is difficult to click on the arrow that shows the next page of results, because it is too small.

There is no “back to the results” button, thus after viewing a result there is no way to go back to the results page – apart from the browser’s back button.

**Moderate users**

- Each search result comes with a short summary, which users can hide if they wish so.
- Apart from the aforementioned disadvantages for novice users, moderate users may find it annoying that although the search function supports simple searching and searching within results, an advanced search function is not supported.
- Also, the ‘help’ option is not at all visible.

**Expert users**

- Expert users are likely to be disturbed by the fact that an advanced search function is not supported and by the fact that there is no facility for viewing the results with different sorting.

**Relationship maintainability**

**Novice users**

- Novice users are likely to re-use the function due to its high level of utility and its omnipresence at the site.
- Users who experience problems with the search function will have much trouble finding help for it. The help is not at all visible to users, since it is only available after searching with no results, where a link called ‘check your syntax’ appears, directing users to a different site. No return button to the original Vhi site exists.
- The ‘help’ and advanced search options should appear on the main search page of the Vhi portal, instead of being hidden deeper into its structure.

**Moderate users**

- The system could provide users with hints for more results. For example, relevant topics in a ‘You might also consider taking a look at…’ section or a list of topics searched by users who looked up the same keywords.
- Otherwise no problem.
Expert users

⇧ A ‘Search the results’ function is supported. The relevant link is easily noticeable within the first elements on the results page of the search function

⇧ When users bookmark a search result, the search parameters are part of the saved address

⇧ The ‘advanced search’ option is not visible at all

Function 4: **Registration** | Score: 2

Function 4 is about registering to the portal, in order to enjoy the benefits of advanced portal services and functionalities. The register function by default should occur only once, thus, the section of the inspection that deals with relationship maintainability has been omitted here as non-applicable. With regards to other aspects, all were almost equally satisfactory; in fact, the function constitutes a major case of good practice for expert users. The only part that needs special attention is making the function more easy to use for novice users, who may be confused by some of the steps needed to complete the registration procedure.

**Visibility**

⇧ The ‘Register’ link is situated under the member login prompt. This is consistent with common practice followed on the Web

⇧ When users attempt to access functions that require registration, the system prompts them and offers them the ability to register there and then

⇧ The user is asked to register whenever it is necessary in order to proceed

⇧ There is a ‘Register’ and a ‘Why Register’ link in every page of the portal, inside the login area, at the top right of the page

♩ On the downside, the ‘Register’ link is crammed in a small section along with other two links that are separated only by a white space character, making it hard to distinguish one from another

**Usefulness**

⇧ Users are invited to discover the benefits of registering at the ‘Why register’ link, next to the ‘Register’ one

⇧ There is a help text panel next to the registration form describing the process and outcomes to the users, which floats to stay in focus while users scroll through the registration form. Moreover, when clicking on different fields of the registration form, the help text changes accordingly

⇧ The site has a privacy statement, available at the registration page

♩ There are browser compatibility issues; for example, the floating text panel only works properly with Internet explorer, while, on the other hand, user’s
can’t change the font size in Internet Explorer, which causes accessibility barriers to visually impaired persons

downarrow The ‘Submit’ button at the end of the registration form should have a more appropriate label (e.g., Register information or Register)

downarrow The system doesn’t clearly state which functions require registration and which are open to all

### Availability – approachability

**Novice users**

uparrow The login panel is easily located on the top right corner of every page of the website

uparrow The registration procedure is very easy to remember if one has previously gone through it

downarrow The login panel displays a certain level of inconsistency throughout the various sections of the website

**Moderate users**

uparrow When clicking on different fields of the registration form, the help text, situated next to the form, changes offering information on what is required by users and why

**Expert users**

uparrow The ‘Register’ link is available from everywhere in the website and (almost) always at the same position

### Quality of usage experience

**Novice users**

uparrow When clicking on different fields of the registration form, the help text, situated next to the form, changes offering information on what is required by users and why

uparrow The registration process is quick and simple. Novice users are not expected to face any difficulties completing it (or quitting)

uparrow The registration form is divided into sections accordingly to the nature of input required (i.e., login details, personal details, etc.), each with its own title and bounding box

uparrow Upon registration, the user is reminded of his / her username and given the choice to visit his / her personalised home page or continue browsing the site. Novice users are sure to benefit from such guidance

uparrow The registration is immediate and clearly notified
Upon submitting the form when a field has not been filled-in, the error is displayed below the field in red colour

The help text is not properly displayed unless the site is viewed with Internet Explorer; Part of the text is overlapped by the top-right menu

**Moderate users**

- The registration form is very simple and the whole process doesn’t take much time, since no charging information or information verification is required

**Expert users**

- Same as above

**Relationship maintainability**

*Not applicable as the registration function is a one-time only process*

<table>
<thead>
<tr>
<th>Function 5: Discussion boards</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The function in question involves the discussion boards that the Vhi portal offers to its registered users. The total score for this function is somewhat low, because many of its usability characteristics balance between negative and positive values. Availability and approachability of the discussion boards are their strongest points according to the inspection.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

- The Discussion Boards function is accessible through respective links in the homepage and members section. Moreover, it can be reached from the search function and the sitemap
- The function’s visibility is enhanced by the descriptive logo
- The position of the link to the discussion boards differs from page to page

**Usefulness**

- The discussion boards are divided into thematic areas, which in turn are shortly described and give users an idea as to what they will find in each of them
- In the discussion boards main page, there is an extended How To Use section available
- First time users are given the rules for entering the forum and are encouraged to send their comments and suggestions

**Availability – approachability**

<table>
<thead>
<tr>
<th>Novice users</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Discussion Boards function is accessible through respective links in the homepage and members section. Moreover, it can be reached from the search function and the sitemap</td>
</tr>
<tr>
<td>In “Health &amp; Lifestyle” page an extra entry point of the function exists at the bottom of the page, in the “Health &amp; Lifestyle Directory” section. The problem is that in this section the Discussion Board appears to have only 4 thematic areas. There are no links for the “Migraine” and “Diabetes” thematic areas</td>
</tr>
<tr>
<td>Moderate users</td>
</tr>
<tr>
<td>† Same as for novice users</td>
</tr>
<tr>
<td>Expert users</td>
</tr>
<tr>
<td>† Users can bookmark the Discussion Boards page or a specific thematic area of the forum</td>
</tr>
</tbody>
</table>

| Quality of usage experience |
| Novice users |
| † Security of the function is ensured by the statement that the site subscribes to the HON code of conduct |
| † In the discussion boards main page, there is an extended How To Use section available |
| † In the main page of each thematic area, the user has the option to view only the first topic of a thread or all the topics of a thread by selecting the “Overview-Full View” link from the top right of the page |
| † A “Search Forum” function is provided by the system with few search options |
| † When inside one of the thematic discussion boards, users can still link to the other thematic discussion boards |
| † Once near the bottom of a thread of messages, users can click on the ‘Top of the thread’ link to go to the top |
| † There is no information about the number of total posts for each thematic area of the discussion board |
| † When inside one of the discussion forums users can navigate through a drop-down menu at the top of the page; however, this is not so visible to users and it is also inconsistent with other page navigation systems of the portal |
| † From the drop down menu, beside thematic area’s pages, the user has the option to view ‘today’s’ posts, ‘last visit’ posts etc. When one of these options is selected the page1, page2 etc options disappear |
| † In the “post new topic” and “post reply” pages, the “back” links appear on the top-left side of the page and not on the bottom-left as they should be |
| † In some topics, next to the date of insertion there is a number indicating how
many persons replied to that message. There should be a label instead, such as ‘Number of replies’ or alternative text to provide this description.

- If the “Search Forum” function produces no results, there is no way for the user to return to the main page of the forum.
- On the main discussion board page there is a logo with no accompanying text that, if clicked upon, directs users to the developers of the forum, which opens in the same window.
- Posts cannot be ordered by date, author, etc.
- The back button appears in an inconsistent manner: sometimes ‘main forum’ and sometimes ‘back’.

**Moderate users**

- Discussion boards of the Vhi Healthcare’s portal resemble discussion forums. Any user with some experience on forums should have no problem using the function effectively and efficiently.
- System doesn’t support the “New Discussion” or “New forum” function, which is something common in discussion forums.

**Expert users**

- Same as for moderate users.

**Relationship maintainability**

**Novice users**

- There is a “Notify me on Response” option for the author of the topic. Each time a reply is posted the system sends an email notification to the author.
- Otherwise no problem should occur.

**Moderate users**

- No problem should occur.

**Expert users**

- No problem should occur.

**Function 11: Quizzes**

| Score: 1 |

The Vhi portal offers a variety of quizzes to its users that are both instructive and helpful for one’s health. This function presents a moderate overall score, which is synthesised by high and low extremes. During the inspection, the function proved extremely hard to locate, but the actual use scored as excellent for more categories of users. Apart from this, the quizzes section doesn’t seem to be very apt at getting users to revisit it, mainly because there are no measures to advertise it or to entice users to enter into it.
# Visibility

- Visibility of the function is undermined by the fact that it is only available at a second level of the portal’s structure, and because it is placed at different places every time.

## Usefulness

- Quizzes are a source of information and of entertainment at the same time. Users are most likely to take one or more quizzes when they locate them.
- There is an introductive text at the beginning of each quiz, letting users know what the quiz is about.
- Possible answers are presented with the use of radio buttons (i.e., easy to use).
- Quizzes have attractive titles.

## Availability – approachability

### Novice users

- The Calculators & Quizzes section, like any other section, has a distinctive title that lets the user know where s/he currently is.
- Quizzes are divided into categories, making it easier for users to reach the desired kind of quiz. Besides this, extended categorized lists of calculators and quizzes are provided on the same page.
- The first search result of the term “Quizzes”, when using the site search function, redirects user to the “Calculators & Quizzes” main page.
- It is not so straightforward to access the “Calculators and Quizzes” section; they are located under the ‘Health and Lifestyle’ section.

### Moderate users

- Moderate users should have no problem remembering that the “Calculators and Quizzes” section is accessible through their personalised page.

### Expert users

- Expert users should have no problem remembering that the “Calculators and Quizzes” section is accessible through their personalised page.
- Expert users can also bookmark the “Calculators and Quizzes” page.

## Quality of usage experience

### Novice users

- The process of taking a quiz is pretty much intuitive and simple.
- Users’ interaction with the quizzes is limited to simple point and click actions, thus users with minimal experience of the web should have no problem...
operating them effectively

† The ‘submit’ button doesn’t have the usual ‘submit’ label but a more friendly and amusing one: “How’d I do?”

† The quiz results include false answers by users with an explanation of the fault. This promotes “edutainment”

‡ In case a user hasn’t answered a given question, the quiz results page doesn’t provide the correct answer; only a “not answered” text below the question

**Moderate users**

† Quizzes make use of standard interaction controls and moderate users should have no problem making use of them

**Expert users**

⇨ No problem for expert users

‡ A missing feature is users’ opinion of the quizzes; users should be given the possibility to rate a quiz according to whether they have found it helpful, if it met their expectations, etc.

### Relationship maintainability

**Novice users**

† When users are given the results of the quiz, they are also presented with related topics which may interest them

‡ There should be a “Skip to content” quick link (especially in pages such as quizzes). When users are there, they want to take a particular quiz, not skim through a dozen of irrelevant (to him / her at that particular moment) links. This is particularly useful to disabled users who use assistive technology to access the Web (e.g., a user, browsing the Vhi Healthcare portal with a keyboard by pressing tab, would have to tap the tab key at least 10 to 15 times to actually get to the quiz)

‡ In the quiz results page there should be links to related articles and a link to the quizzes main page

**Moderate users**

⇨ No particular problem for moderate users

**Expert users**

⇨ No problem for expert users

‡ A feature missing is that of the users’ opinion of the quizzes; users should be given the possibility to rate a quiz according to whether they have found it helpful, if it met their expectations, etc.
4.6 Telewelfare, Poland (eHealth)

4.6.1 System Description

Telewelfare is one of the most sophisticated eHealth services in Poland (see Figure 9). It was developed during the years 1999-2001 by the Technical University in Gdansk, the International Centre for Speech and Hearing, and Ophthalmology Clinics in Warsaw, and first became operational in 2000. The online services consist of four interactive IT applications where users can check their eyesight, hearing and speech. More specifically, users can access online the multimedia system: "I can hear..." a multimedia system for a remote screening testing of hearing; "Tinnitus" a system for diagnosis and information for those suffering from tinnitus and hyperacusis; "I Can speak" a Universal System for Testing and Rehabilitation of Speech; and "I Can see" a Universal System for diagnosing Visual Impairments. After the test, the system analyses each subject’s result. Based on the number of errors made by the subject, the system automatically answers whether the person has normal or possibly abnormal hearing. Individuals who have been diagnosed with a possible hearing impairment will be directed to specialised Consulting Centres for further in-depth diagnosis, treatment and rehabilitation. Additionally, upon completion of the test, users can send the results via email to the “Institute of Physiology and Pathology of Hearing” in Warsaw.

http://www.telewelfare.com/

⇒ Diagnosis of problems of sight, hearing and speech
⇒ Those who are diagnosed with a problem are referenced to specialised centres, or people can send their results via email to the “Institute of Physiology and Pathology of Hearing” in Warsaw
⇒ The English version offers the tests but no online consultation

Besides testing oneself, the user can visit the pilot television (with educational films), obtain basic information about the authors and portal, and find links to other medical websites (online consultation being one of the available services). The portal was the first such service in Poland and was awarded in contests by newspapers and other media. It was also nominated for the eEurope Awards for eHealth 2004.

The service’s main aim is to conduct epidemiological screening, especially among children. The developers of the system wish to establish the screening centres in each school, especially as more and more primary schools and gymnasiums have access to modern ICT. The data obtained from screenings can be of value to the officers who
are responsible for the allocating funds to the Polish health system. The processed information from the tests can form the base for the development of preventative measures aimed at sense dysfunctions and, additionally, of early and cheaper treatment. Telewelfare.com utilises ICT tools that are easy to use and accessible by anyone with access to a PC system. Besides, it should be noted that ICTs are increasingly disseminated, especially at schools. In fact, various programmes and government projects support ICT development, especially for primary schools and junior high schools. The Telewelfare.com service is placed on the Internet, and is presented in a way that enables users to access it through a regular PC at home, without expensive additional equipment.

### 4.6.2 Inspection team

The inspection team comprised three members, the inspection leader (Inspector 1), and other two members (Inspectors 2 and 3). Two were female and one was male. The team of inspectors had diverse background and expertise, ranging from computer science and web development to linguistics. None of the inspection members had any relation to the product or to the service provider, and this was the first time they accessed the system in question. Moreover, the inspection members were not at all familiar with systems similar to Telewelfare. The inspection members were familiar with the language supported by the system (the English and not the Polish version of the system is implied). Moreover, the inspection group was moderately familiar both with the inspection method at hand and with inspection methods and tools in general.

**Inspector 1** (Leader)

Inspector 1 and leader of the group is Greek and has a BSc in French Language and Literature, and a MSc in Speech and Language Processing. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system, but not with other systems of this kind. She is greatly familiar with the inspection tool in question, and moderately familiar with inspection tools and methods in general.

**Inspector 2**

Inspector 2 is Greek and has a degree in Computer Science. The inspector has no link to the system developers or providers and has never interacted with the system prior to its assessment. More to this, he has been slightly familiar with similar systems in the past. He is fluent in the English language and he is an expert in inspection methods and tools, although only moderately familiar with the inspection method at hand.

**Inspector 3**

Inspector 3’s background knowledge is in computer science, with particular expertise in web development. The inspector has no connection to the system developers or providers and is not in the least familiar with the system in question or other similar systems. She was slightly familiar with the inspection method she was called to implement and had little experience with inspection methods and tools in the past. The inspector has good command of the English language.
4.6.3 Target User Groups

On a par with the information from the system provider, the inspection team has categorised potential users in four user groups:

1. Persons with a potential hearing impairment: they can test whether their hearing is normal through a series of auditory signals that they are called to interpret. At the end of the test they are instructed by the service whether they should visit a hearing specialist or not.

2. Persons who potentially suffer from tinnitus and hyperacusis: tests for tinnitus and hyperacusis include a rehabilitation process whereby sufferers can download special sound files that will alleviate their tinnitus problem. Information about the causes and symptoms of their condition is also available in this part of the website.

3. Persons with a potential speech impairment: anyone with suspected speech impairment can test the severity of their problem and, if needed, be directed to a specialised clinic (Polish version only).

4. Persons with a potential visual impairment: a wide range of visual impairments can be diagnosed through different vision tests, all available through the online service of Telewelfare.

4.6.4 Functions per User Group

User Group 1: Persons With Hearing Impairment

The functions addressed to Persons with Potential Hearing Impairments are (in bold are the selected ones for inspection):

1. I can hear: The multimedia system of testing your hearing
2. Tinnitus: Diagnosis and information
3. I can speak: Universal System for Testing and Rehabilitation of Speech
4. I can see: Universal System for Diagnosing Visual Impairments

Anyone who suspects having a hearing condition may also wish to take advantage of the other functions that the system offers, however, the main reason for visiting the service would be for testing one’s hearing. Thus, for each particular user group only the primarily relevant function has been assessed, resulting in an assessment of all functions within the realms of all user groups.
User Group 2: Persons Suffering From Tinnitus and Hyperacusis

The functions addressed to Persons Potentially Suffering From Tinnitus and Hyperacusis are (in **bold** are the selected ones for inspection):

1. **Tinnitus: Diagnosis and information for those suffering from tinnitus and hyperacusis**  
2. I can hear: The multimedia system of testing your hearing  
3. I can speak: Universal System for Testing and Rehabilitation of Speech  
4. I can see: Universal System for Diagnosing Visual Impairments

Anyone who suspects having a hearing condition may also wish to take advantage of the other functions that the system offers, however, the main reason for visiting the service would be for being tested for tinnitus and hyperacusis. Thus, for each particular user group only the primarily relevant function has been assessed, resulting in an assessment of all functions within the realms of all user groups.

User Group 3: Persons With Speech Impairment

The functions addressed to the Persons With Potential Speech Impairment are (in **bold** are the selected ones for inspection):

1. **I can speak: Universal System for Testing and Rehabilitation of Speech**  
2. I can hear: The multimedia system of testing your hearing  
3. Tinnitus: Diagnosis and information for those suffering from tinnitus and hyperacusis  
4. I can see: Universal System for Diagnosing Visual Impairments

Persons with a potential speech impairment may also wish to take advantage of the other functions that the system offers, however, the main reason for visiting the service would be for taking the speech test. Thus, for each particular user group only the primarily relevant function has been assessed, resulting in an assessment of all functions within the realms of all user groups.

User Group 4: Persons With Visual Impairment

The functions addressed to the Persons With Potential Visual Impairment are (in **bold** are the selected ones for inspection):

1. **I can see: Universal System for Diagnosing Visual Impairments**  
2. Tinnitus: Diagnosis and information for those suffering from tinnitus and hyperacusis  
3. I can hear: The multimedia system of testing your hearing  
4. I can speak: Universal System for Testing and Rehabilitation of Speech
Persons who wish to have their eyesight tested may also wish to take advantage of the other functions that the system offers, however, the main reason for visiting the service would be to detect potential eye impairments. Thus, for each particular user group only the primarily relevant function has been assessed, resulting in an assessment of all functions within the realms of all user groups.
4.6.5 **Inspection results**

**User-orientation of the overall system** (all user groups)

The Telewelfare system for testing and rehabilitation of the perceptual disorders summatively presents a neutral responsiveness towards user needs and requirements. According to the overall results for each user type of the inspection, all values hover over zero, with novice at the top in the degree of user-orientation of the system towards them, and moderate users being the least favoured ones; expert users are in the middle, with a score of zero. In the measurements of user-orientation of the Telewelfare eService, novice users particularly benefited from the high amounts of perceived usefulness and availability, and approachability, which constitute good practice examples. However, availability falls sharply when it comes to more practised users, since with experience come more demands from the system. Equally, all other aspects of user-orientation exhibit no extreme outcomes and thus remain neutral.

Since the all inclusive conclusions about the Telewelfare system depict a neutral approach towards the needs of its users, it is not surprising to find that the overall quality of the usage experience, which stems from the average scores of the use of the system’s functions across user groups, has about the same results. To note is a minor reversal of roles between novice and more expert users, with the system’s functions this time proving less adapted to new users than to more experienced ones. The reason for this is that average availability of the functions is negative. Other than this, quality of usage experience and relationship maintainability with the functions is equal and adequate across user groups regardless of the previous experience of their members with the system functions. Eventually, the final score for the quality of Telewelfare is positive, despite not being a flashing example of user oriented service.
Table 14. *Telewelfare* - Overall User-orientation (all user groups)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Telewelfare</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users (Form 4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>User Group 1</td>
<td>1.09</td>
<td>3.11</td>
</tr>
<tr>
<td>User Group 2</td>
<td>1.00</td>
<td>3.10</td>
</tr>
<tr>
<td>User Group 3</td>
<td>0.90</td>
<td>3.10</td>
</tr>
<tr>
<td>User Group 4</td>
<td>0.90</td>
<td>3.11</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

**USER GROUPS:**

User Group 1 ‘Persons with Potential Hearing Impairment’
User Group 2 ‘Persons Potentially Suffering from Tinnitus and Hyperacusis’
User Group 3 ‘Persons with Potential Speech Impairment’
User Group 4 ‘Persons with Potential Visual Impairment’
User-orientation of the system (User Group 1)

Persons with Hearing Impairments (User Group 1)

Visibility

Scored: 1

The service’s visibility is moderate to low, despite being on the positive scale. Visibility enhancers include the numerous awards and distinctions the service has won in national and European contests, the representation of Poland in various technology exhibitions and the distinctions in contests organised by the national Press. On the downside, citizens who search the Internet for issues concerning disorders of the senses will not be directed to the Telewelfare service, unless they type its exact name. Moreover, one would imagine that the Telewelfare service would enjoy a high degree of promotion from governmental bodies, however, the website of the Polish Ministry of Health makes no reference whatsoever to the eService. Finally, there is no mention by the service provider of any organised effort to promote Telewelfare through the media such as the radio, TV shows etc.
Perceived usefulness and ease of use  

Scored: 3

The service presents a high degree of perceived usefulness and ease of use to potential users; the high score on this field depicts the added value of the various awards and distinctions the service has earned throughout its operation, which increase the service’s status in the minds of its potential users and are a crucial factor to persuading them to make use of it. Apart from this, the fact that the service’s developers are experts in the area of detection and rehabilitation of sense disorders, plus that the service was initiated and supported by the Polish Ministry of Health, increases the service’s credibility and perceived utility. Moreover, the service responds to the needs of a large number of the population and notably the youth; in effect, statistics have revealed that one third of Polish children suffer from some kind of communication disorder, which is linked to the senses. For this reason, a pilot programme to test pupils in schools around Poland has already taken place and hundreds of children have been tested. These pilot tests in children are an excellent means to publicise the service, while at the same time showing its significance for the population. Ultimately, the service providers advertise it as an Internet-based simple to use portal that is accessible to anyone and does not need special or expensive equipment to use.

On the other hand, the major but sole defect in the visibility of the service is that it is not referenced in the official website of the Polish Ministry of Health, despite the fact that it was the result of planning and support by this Ministry. This discredits the system and greatly diminishes its visibility since the website of the Ministry of Health is a major reference point for such a type of public service.
Availability / Approachability

Scored: novice 3, moderate -1, expert 0

The service seems to be considerably more approachable to novice users than to moderate or expert ones. The reason for this is that it is more oriented towards new users, who will find no trouble typing the web address, will appreciate the clear and consistent structure of the website and will find it easy to approach so long as they have access to a PC and Internet connection. Besides, users have the opportunity to obtain online consultations from another portal, linked to the Telewelfare one (only applicable for the Polish edition). Another major advantage of the service is that it was designed for people with disabilities, and thus it is accessible for all.

On the negative side, one point that would require rethinking is the size of the images, which is relatively big, and should require much time to download in low rate Internet connections.

Moderate users may experience difficulties in returning to the system since the web address is difficult to memorise and if they bookmark the service they may later forget what it was about since there is no accompanying logo, title or descriptive text.

Expert users, on the other hand, should have no problem accessing the service despite the fact that no steps have been taken to actually facilitate their entry to it.

Overall quality of interaction experience

Scored: novice 0, moderate 1, expert 1

The overall quality of usage experience for the first user group, persons with a potential hearing impairment, depends on the one function that concerns them and proves above average, although not high enough to constitute a good practice example. In effect, novice users will be most disapproving of their experience with the function and this is mainly due to the fact that they may find themselves not being able to make any use of the service because of certain equipment demands. Other than this, all remaining parts of their experience with using the function do not display any extreme values, which means that they remain in acceptable levels. Furthermore, moderate and expert users display somewhat better results, notably with respect to the availability of the function, which in their case poses no problem, and in the section of relationship maintainability, which is also elevated. The reason for this is that novice users might encounter obstacles in the set up phase of the function and probably also during the actual test, however, if they manage to work their way through the entire process then time will only make them better at using it.

20 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.

Telewelfare, POLAND (eHealth)  FORTH-ICS
TR-373, February 2006
Relationship maintainability

*Scored: novice -1, moderate -3, expert -3*

Despite the fact that Telewelfare is a source of valuable information of high quality to end-users, which would motivate users to reuse the system, all of the Telewelfare functions that have been evaluated have proven less reliable and usable than expected. In addition to this, the system does not solicit the user feedback. Due to the aforementioned reasons, relationship maintainability reaches negative, though not extremely disappointing levels.
Table 15. **Telewelfare - Summary of Quality of Usage Experience (User Group 1)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Telewelfare</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group's brief description</td>
<td>Persons with hearing impairment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Visibility to non-users</th>
<th>Perceived usefulness and ease of use to non-users</th>
<th>Availability &amp; approachability to first-time and novice users</th>
<th>Quality of usage experience of first-time and novice users</th>
<th>Relationship maintainability for first-time and novice users</th>
<th>Availability &amp; approachability to moderate users</th>
<th>Quality of usage experience to moderate users</th>
<th>Relationship maintainability for moderate users</th>
<th>Availability &amp; approachability to expert users</th>
<th>Quality of usage experience to expert users</th>
<th>Relationship maintainability for expert users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td>0.10</td>
<td>0.90</td>
<td>-1.75</td>
<td>0.48</td>
<td>0.33</td>
<td>0.00</td>
<td>1.23</td>
<td>2.00</td>
<td>0.00</td>
<td>1.23</td>
<td>2.00</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>1</td>
<td>-2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**FUNCTIONS:** Function 1 ‘I Can Hear: The Multimedia System for Testing Your Hearing’

**Telewelfare, POLAND (eHealth)**

**FORTH-ICS**

**TR-373, February 2006**
List of findings on the quality of interaction experience per function
(User Group 1: Persons with hearing impairment)

(the symbols ≧, ≦, and ⇔ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: I Can Hear: The Multimedia System for Testing Your Hearing</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1 is about using the multimedia system for testing one’s hearing through a series of tests that involve listening to sound files. The sound files can be downloaded and stored locally or accessed through the Internet if there is enough bandwidth. Before taking the test, users need to make some adjustments to the sound of their PC. Due to the above, among others, the function in question scored considerably bad in availability and approachability to new users. Nevertheless, some good practice is noted in the user relationship maintainability section.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

⇧ Once in the system, the function is visible to users by means of a menu option and a separate list of available services, which consist of an icon, a title and a short description

⇨ The function’s icon is large enough for short-sighted persons to notice, however, it has high downloading time due to its size

⇩ The header logo doesn’t need to be as large as it is. It takes up a lot of space and forces the button that activates the function out of the visible to the user area (if the site is viewed in 800x600 resolution)

⇩ The portal’s organisation is against common standards. The services, which are the most important part of the portal, are presented among the last items on the web-page

⇩ Although there are three ways to access the function through the homepage, once users navigate to another part of the website there is no way to access the function unless they go back to the homepage
## Usefulness

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>† On the portal’s homepage, besides the links to the individual services / functions, the awards the portal has won are listed. This should entice users to use the functions.</td>
</tr>
<tr>
<td>† The guidance offered (“Click the required logo to go to the system's website”) is explanatory enough to help users, plus there is a short and precise description of the function.</td>
</tr>
<tr>
<td>† There is also a demo version of the function in which the steps of the process are described.</td>
</tr>
<tr>
<td>† The function is accompanied by a big icon; usually big icons catch the users’ attention and entice them follow it.</td>
</tr>
<tr>
<td>✅ The graphics used on Telewelfare.com portal fail to exhibit the prestige they should for a portal that “is the result of the cooperation between partners who are experts in their areas”</td>
</tr>
<tr>
<td>✅ The demo version link is not very visible and when selected it isn’t obvious to users in which version (Demo or Standard) they are</td>
</tr>
<tr>
<td>✅ Users are given no clues as to the utility of the function and as to what follows</td>
</tr>
</tbody>
</table>

## Availability – approachability

<table>
<thead>
<tr>
<th>Novice users</th>
</tr>
</thead>
<tbody>
<tr>
<td>† Once on the homepage of the system, there is no problem even for novice users to reach the entry point of the function.</td>
</tr>
<tr>
<td>✅ There is a major compatibility limitation with the operating system and the browser used (the system only runs with Microsoft Windows operating system and Microsoft Internet Explorer).</td>
</tr>
<tr>
<td>✅ Users need to have some technical equipment, including stereo card, calibrator and headphones.</td>
</tr>
<tr>
<td>✅ When inside the demo version there is no way to return to the standard one. Similarly, once inside individual functions, users cannot return to the homepage of the system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderate users</th>
</tr>
</thead>
<tbody>
<tr>
<td>➞ Moderate users should have no problem, provided the appropriate equipment and system requirements are available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>† Expert users should have no problem reaching the function in question.</td>
</tr>
</tbody>
</table>
But they may be disturbed by the fact that they cannot bookmark the function in question.

**Quality of usage experience**

*Novice users*

- The system "I CAN HEAR..." provides two modes of accessing sound files: direct access mode via the Internet and access mode through a local installation.
- Using the system "I CAN HEAR..." is very simple. The way the system works is quite like that of surfing in the Internet. Besides, users are guided through the system like viewing a slideshow, therefore they always know what to do next.
- The aesthetics of the system are consistent, minimalist and elegant.
- ‘Help’ and ‘Contact’ functions are available.
- The ‘end’ button is always available at the sidebar menu; thus, users can exit the function whenever they wish to.
- The ‘I CAN HEAR’ system has different types of tests for different age groups. It contains a Speech-Picture-Based test for younger children of up to 10 years of age and a Speech-Picture-Based test for older children and the youth.
- The System contains information on hearing impairments, audiological diagnose, treatment and rehabilitation procedures of people with hearing disorders. The material is organised in the form of questions and answers.
- In the ‘introduction’ of the function, small, clear paragraphs are displayed in sequence.
- There are buttons for going back or forward.
- In order to properly use the system users must not be in a noisy environment.
- Much technical knowledge is required to prepare the system for the tests; also, in the instructions some technical jargon is used that is not explained anywhere.
- Users are prompted to begin with the function with no information on what is about to follow.
- On the function’s main page there is a link to help but it is placed near the bottom of the page and with very small fonts.
- The ‘Installation’ button may frighten novice users who might think that it involves installing a programme on their PC.
Once in the system, novice users may be confused about how to exit it, since it works in a full screen mode. The ‘escape’ button of the keypad doesn’t work in this case, nor does the right clicking of the mouse. The ‘end’ button at the bottom of the left-hand menu can be misleading. A more standard ‘exit’ could be used instead.

In the instructions on how to set up the system some Polish language is mixed to English.

The privacy policy is in a somewhat ‘hidden’ part of the service instead of being available all times.

Users cannot proceed to filling in the questionnaire without having downloaded the sound files, with no apparent reason for this.

The ordering of the left-hand menu has no apparent logic.

At the function’s main page there is an ‘end’ button that does absolutely nothing.

There is a set of logos in the main page placed almost randomly.

**Moderate users**

Same as for novice users

**Expert users**

Same as above

<table>
<thead>
<tr>
<th>Relationship maintainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>🔄 After the tests are completed, all individuals who have been diagnosed with a possible hearing impairment will be automatically assigned their personal PIN code (only in Polish version). The number will be approved after the results have been sent to the Institute of Physiology and Pathology of Hearing and will be used as a basis for financing further diagnosing, treatment and rehabilitation.</td>
</tr>
<tr>
<td>🔄 Besides, relationship maintainability does not only depend on the service quality of the online system, but also of the supporting offline structures</td>
</tr>
<tr>
<td>🔄 Novice users might not be able to go through with the service, at least not without help, because of the complicated steps needed to set up the system. Thus, they have a big chance of quitting and never coming back</td>
</tr>
</tbody>
</table>

**Moderate users**

›› Moderate users who have managed to work their way through the set-up phase will probably re-use the system if needed
Expert users

Expert users who have managed to work their way through the set-up phase will probably re-use the system if needed
User-orientation of the system (User Group 2)

Persons Potentially Suffering From Tinnitus and Hyperacusis
(User Group 2)

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Scored: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Same as for user group 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived usefulness and ease of use</th>
<th>Scored: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Same as for user group 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability / Approachability</th>
<th>Scored: novice 3, moderate -1, expert 0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Same as for user group 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall quality of interaction experience21</th>
<th>Scored: novice 0, moderate -1, expert -1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons who may suffer from tinnitus or hyperacusis and have accessed the second function display decreasing satisfaction with the usage experience related to how often they have used it in the past. Thus, visibility and perceived usefulness of the function are within acceptable user-orientation levels, while the same cannot be claimed for availability and approachability to first-time users, which is disappointing, mainly due to some system requirements that render the system virtually unavailable. Nevertheless, the actual use of the function is relatively up to standard for all types of users – whether new, occasional or expert – and for this the function is not off-putting to its users.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relationship maintainability</th>
<th>Scored: novice 0, moderate -1, expert -1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most of the reasons why the function presents somewhat poor relationship maintainability reside within the system itself; thus, they are the same as for Function 1 (see 4.3.5.1.1.5 Relationship maintainability).</td>
<td></td>
</tr>
</tbody>
</table>

---

21 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Table 16. Telewelfare - Summary of Quality of Usage Experience (User Group 2)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Telewelfare</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group's brief description</td>
<td>Persons who suffer from tinnitus and hyperacusis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users</td>
<td>0.42</td>
<td>0.90</td>
<td>0.00</td>
</tr>
<tr>
<td>Perceived usefulness and ease of use to non-users</td>
<td>-1.60</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>1.65</td>
<td>2.33</td>
<td>0.00</td>
</tr>
<tr>
<td>Quality of usage experience of first-time and novice users</td>
<td>2.33</td>
<td>0.00</td>
<td>1.84</td>
</tr>
<tr>
<td>Relationship maintainability for first-time and novice users</td>
<td>2.33</td>
<td>0.00</td>
<td>1.65</td>
</tr>
<tr>
<td>Availability &amp; approachability to moderate users</td>
<td>0.50</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Quality of usage experience to moderate users</td>
<td>2.33</td>
<td>0.00</td>
<td>1.65</td>
</tr>
<tr>
<td>Relationship maintainability for moderate users</td>
<td>0.00</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Availability &amp; approachability to expert users</td>
<td>2.33</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Quality of usage experience to expert users</td>
<td>2.33</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Relationship maintainability for expert users</td>
<td>2.33</td>
<td>1.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

FUNCTIONS: Function 1 ‘Tinnitus: Diagnosis and information for those suffering from tinnitus and hyperacusis’
List of findings on the quality of interaction experience per function  
(User Group 2: Persons who suffer from tinnitus and hyperacusis)  

*(the symbols ‡, ‡, and † indicate a positive, negative, and neutral inspection finding respectively)*

<table>
<thead>
<tr>
<th>Function 1: Tinnitus: Diagnosis and information for those suffering from tinnitus and hyperacusis</th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The second group of users would visit the Telewelfare portal to be examined on a possible hearing malfunction and begin an online rehabilitation session for hyperacusis. The overall results for this function are positive, mainly due to elevated scores on quality of usage experience and relationship maintainability.</td>
<td></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
<td></td>
</tr>
<tr>
<td>‡ Once in the system, the function is visible to users by means of a menu option and a separate list of available services, which consist of an icon, a title and a short description</td>
<td></td>
</tr>
<tr>
<td>‡ The function’s icon is large enough for short-sighted persons to notice</td>
<td></td>
</tr>
<tr>
<td>‡ The portal’s organisation is against common standards. The services, which are the most important part of the portal, are presented among the last items on the web-page</td>
<td></td>
</tr>
<tr>
<td>‡ The header logo doesn’t need to be as large as it is. It takes up a lot of space and forces the button that activates the function out of the visible to the user area (if the site is viewed in 800x600 resolution)</td>
<td></td>
</tr>
<tr>
<td>‡ The function’s icon is relatively to standards very large and will “cost” the user in terms of downloading time</td>
<td></td>
</tr>
</tbody>
</table>
## Usefulness

<table>
<thead>
<tr>
<th>Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✰</td>
<td>On the portal’s homepage, besides the links to the individual services / functions, the awards the portal has won are listed. This should entice users to use the function</td>
</tr>
<tr>
<td>✰</td>
<td>The guidance offered (“Click the required logo to go to the system’s website”) is explanatory enough to help users</td>
</tr>
<tr>
<td>✰</td>
<td>There is a demo version of the function where the steps of the process are described</td>
</tr>
<tr>
<td>✰</td>
<td>Big icons usually catch the user’s attentions easily. Most likely they will be enticed to follow one of the functions’ links just out of curiosity</td>
</tr>
<tr>
<td>✰</td>
<td>Short but precise description of the function</td>
</tr>
<tr>
<td>✰</td>
<td>The graphics used on Telewelfare.com portal fail to exhibit the prestige they should for a portal that “is the result of the cooperation between partners who are experts in their areas”</td>
</tr>
<tr>
<td>✰</td>
<td>The demo version link is not very visible and when selected it isn’t very obvious for the users in which version (Demo or Standard) they are</td>
</tr>
<tr>
<td>✰</td>
<td>Users are given no clues to the utility of the function and to what follows</td>
</tr>
</tbody>
</table>

## Availability – approachability

### Novice users

<table>
<thead>
<tr>
<th>Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✰</td>
<td>Once in the system, there is no problem even for novice users to reach the entry point of the function</td>
</tr>
<tr>
<td>✰</td>
<td>The system has compatibility issues with web browsers other than Internet Explorer and with operating systems other than Microsoft Windows</td>
</tr>
<tr>
<td>✰</td>
<td>Missing ‘back’ button in crucial places of the site, such as in the demo version or within functions</td>
</tr>
<tr>
<td>✰</td>
<td>The main navigation menu is available only on the homepage. Thus if users have navigated to another part of the website they will have trouble relocating the function they wish to find</td>
</tr>
</tbody>
</table>

### Moderate users

<table>
<thead>
<tr>
<th>Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⇝</td>
<td>Moderate users should have no problem reaching the function in question</td>
</tr>
</tbody>
</table>

### Expert users

<table>
<thead>
<tr>
<th>Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✰</td>
<td>Expert users should have no problem reaching the function</td>
</tr>
<tr>
<td>✰</td>
<td>But they can’t bookmark the page of the function, which is a disadvantage</td>
</tr>
</tbody>
</table>
Quality of usage experience

**Novice users**

† The system "Tinnitus" provides two modes of accessing sound files: direct access mode via the Internet and access mode through a local installation

† Using the system "Tinnitus" is very simple. The way the system works is quite like that of surfing on the Internet. In addition, the process of taking the actual test is easy and any feedback is very comprehensible

† The “end” button is always available at the side bar menu. Thus, the user can exit the function whenever he / she chooses to

† “Help” and “Contact” functions are available

† The side bar menu is always present giving the user total freedom of movements

† Wherever a function has more steps that are still unexplored by the user, a “Continue” button appears to indicate this

† The user is “guided” through the system like viewing a slideshow. Therefore, the user always knows what to do next

† The aesthetics of the system are consistent, minimalist and elegant

† "Tinnitus" is also a resource of information about noise in the ear, methods of diagnosing, treating and rehabilitating sufferers. The material is organised in the form of questions and answers

† The system also allows to listen to proposed background sounds used for tinnitus treatment

† There is additional explanatory text when hovering above the links with the mouse

⇩ While taking the test, some error messages appeared in Polish

⇩ When in full screen mode, which is obligatory for the test, there is no indication of the downloading time for web pages or downloading material. Also, novice users might become confused about how to exit the full screen mode, since the keyboard escape button does not work

⇩ At the function’s main page there is an ‘end’ button, which does absolutely nothing

⇩ There is some privacy policy but it is hidden inside the structure of the website and it is not visible at all times
**Moderate users**

- The process of taking the actual test is easy and any feedback is very comprehensible
- The ‘end’ button is always available at the sidebar menu; thus, users can exit the function whenever they choose to
- ‘Tinnitus’ is also a place where users can find information about conditions such as noise in the ear, methods of diagnosing, treating and rehabilitating sufferers. The material is neatly organised in the form of questions and answers. The system also lets users listen to proposed sounds for tinnitus treatment
- There is additional explanatory text when hovering above links with the mouse
- Whenever a function has more steps that are still unexplored by the user, a ‘Continue’ button appears to indicate this
- There is a set of logos on the main page placed almost randomly

**Expert users**

*Same as for moderate users*

### Relationship maintainability

**Novice users**

- Users have the option to contact the Tinnitus Clinic experts or the system operators via email or use the teleconference mode
- Users who have been diagnosed with a possible hearing impairment will be given a PIN code to access their results and can contact the Institute of Physiology and Pathology of hearing with their results (Polish version)

**Moderate users**

*Same as above*

**Expert users**

*Same as for novice users*
User-orientation of the system (User Group 3)

Persons with potential speech impairment (User Group 3)

Visibility

Scored: 1
Same as for user group 1

Perceived usefulness and ease of use

Scored: 3
Same as for user group 1

Availability / Approachability

Scored: novice 3, moderate -1, expert 0
Same as for user group 1

Overall quality of interaction experience

Scored: novice 0, moderate 0, expert 0
The third function’s quality of usage experience is almost level across user types and usage characteristics. This sort of image is usually created by an equal amount of advantages and disadvantages for each user-orientation characteristic of the function, resulting in average scores. However, mediocre score are equally revealing of the quality of the function, since they suggest that although the function’s usability characteristics have managed to stay in balance, more effort is needed to mend mistakes and boost the quality of the function with regards to user needs.

Relationship maintainability

Scored: novice 1, moderate 0, expert 1
This function presents the same relationship maintainability problems as the previous ones; however, it scores slightly better because of few extra points that may increase user satisfaction and thus user fidelity to the system. The simplicity of the tests, mainly in comparison to the previously mentioned ones regarding hearing, as well as the high level of control the user has on them act in support of the whole system and create a favourable impression in the minds of the users. Besides, the function in question is not just about testing one’s speech, but also about retrieving information on related to speech matters. Moreover, it is evident from the score that the more users become familiarised with the function, the more they appreciate its characteristics and so they increasingly tend to re-use it.

---

The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Table 17. **Telewelfare - Summary of Quality of Usage Experience (User Group 3)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Telewelfare</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Persons with speech impairment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived usefulness of use to non-users</td>
<td>0,12</td>
<td>0,90</td>
<td>-0,33</td>
</tr>
<tr>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>0,31</td>
<td>0,25</td>
<td>0,00</td>
</tr>
<tr>
<td>Quality of usage experience of first-time and novice users</td>
<td>0,25</td>
<td>0,33</td>
<td>0,25</td>
</tr>
<tr>
<td>Relationship maintainability for first-time and novice users</td>
<td>0,00</td>
<td>0,50</td>
<td>0,00</td>
</tr>
<tr>
<td>Availability &amp; approachability to moderate users</td>
<td>0,33</td>
<td>0,00</td>
<td>0,25</td>
</tr>
<tr>
<td>Quality of usage experience to moderate users</td>
<td>0,25</td>
<td>0,00</td>
<td>0,25</td>
</tr>
<tr>
<td>Relationship maintainability for moderate users</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
</tr>
<tr>
<td>Availability &amp; approachability to expert users</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**FUNCTIONS:** Function 1 ‘I can speak: Universal System for Testing and Rehabilitation of Speech’
List of findings on the quality of interaction experience per function
(User Group 3: Persons with speech impairment)

(the symbols ⬆️, ⬇️, and ⇊ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: I can speak: Universal System for Testing and Rehabilitation of Speech</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anyone who suspects having a speech disorder can be tested online and free of charge on the Telewelfare portal. The function presents an equal amount of positive and negative points, giving it a neutral final result.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

⬆️ Once in the system, the function is visible to users by means of a menu option and a separate list of available services, which consist of an icon, a title and a short description

⬆️ The function’s icon is big enough for short sighted persons to notice

⬇️ The header logo doesn’t need to be as large as it is. It takes up a lot of space and forces the button that activates the function out of the visible to the user area (if the site is viewed in 800x600 resolution)

⬇️ The portal’s organisation is against common standards. The services, which are the most important part of the portal, are presented among the last items on the web-page

⬇️ The function’s icon is relatively to standards very large and and has high downloading time

⬇️ Once users navigate to another part of the website, there is no way to access the function in question unless they go back to the homepage
### Usefulness

- On the portal’s homepage, besides the links to the individual services / functions, the awards the portal has won are listed. This should entice users to use the functions.

- The guidance offered (“Click the required logo to go to the system’s website”) is explanatory enough to help users.

- There is a demo version of the function in which the steps of the process are described.

- Big icons usually catch the user’s attentions easily. Most likely they will be enticed to follow one of the functions’ links just out of curiosity.

- Short but precise description of the function.

- The graphics used on Telewelfare.com portal fail to exhibit the prestige they should for a portal that “is the result of the cooperation between partners who are experts in their areas.”

- The demo version link is not very visible and when selected it isn’t very obvious for the users in which version (Demo or Standard) they are.

- Users are given no clues as to the utility of the function and what follows.

### Availability – approachability

**Novice users**

- Once in the system, there is no problem, even for novice users, to reach the entry point of the function.

- The system has compatibility issues with web browsers other than Internet Explorer and with operating systems other than Microsoft Windows.

- Missing ‘back’ button in crucial places of the site, such as in the demo version or within functions.

- The main navigation menu is available only on the homepage. Thus if users have navigated to another part of the website, they will have trouble relocating the function they wish to find.

**Moderate users**

- Moderate users should have no problem reaching the function in question.

**Expert users**

- Users can’t bookmark the page of the function.

- Otherwise no problem.
Quality of usage experience

Novice users

⇧ ‘Help’ and ‘Contact’ functions are available
⇧ Users are guided through the system like viewing a slideshow or like surfing on the Internet, so they are familiar with these methods
⇧ The ‘end’ button is always available at the side bar menu. Thus, users can exit the function whenever they want
⇧ Extra tools and information on the subject of speech are available
⇧ The aesthetics of the system are consistent, minimalist and elegant
⇩ While taking the test, there is no way to go back to the previous step and correct previous input. The user has to start again from the beginning
⇩ In order to get the audio material for a language other than polish, the user has to contact system administrators via e-mail (but the email address doesn’t exist in installation page)
⇩ The system "I can speak" needs certain files to be downloaded and installed in order to function properly
⇩ When users choose the ‘Contact’ option, a pop up message “Do you want to enter teleconference mode?” appears. There should be a list for the user with the contact options (email, teleconference) in order to make more visible the “contact by email” option. Furthermore, more information on teleconference should be provided

Moderate users

Same as above

Expert users

Same as for novice users

Relationship maintainability

Novice users

⇧ The sidebar menu is always present, giving users total freedom of move
⇧ Wherever a function has more steps that are still unexplored by the user, a “Continue” button appears to indicate it
⇩ After finishing the test, some kind of diagnosis should be provided regarding the degree of impairment

Moderate users

Same as above
Expert users

Same as for novice users
User-orientation of the system (User Group 4)

Persons with visual impairment (User Group 4)  
Total Score = 1

Visibility  
Scored: 1  
Same as for user group 1

Perceived usefulness and ease of use  
Scored: 3  
Same as for user group 1

Availability / Approachability  
Scored: novice 3, moderate -1, expert 0  
Same as for user group 1

Overall quality of interaction experience

Scored: novice 0, moderate 0, expert 1

The third function’s quality of usage experience is almost level across user types and usage characteristics. This sort of image is usually created by an equal amount of advantages and disadvantages for each usability characteristic of the function, resulting in average usability scores. However, mediocre scores are equally revealing of the quality of the function, since they suggest that although the function’s user-orientation characteristics have managed to stay in balance, more effort is needed to mend mistakes and boost the quality of the function with regards to user needs.

---

23 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability

Scored: novice 0, moderate -1, expert -1

Relationship maintainability for the function concerning testing of one’s vision ranges from borderline acceptance levels for novice users to poor maintainability for more experienced users. Apart from the strong and weak aspects that functions share between them, few intrinsic to this one drop the average below zero for moderate and expert users. More specifically, in order to take the test, users need to have a calibrator for their monitor and in case this is not available, the results of the test will not be accurate; thus anyone who lacks this kind of equipment is unlikely to use the function again. Another limitation is posed to users who have slow Internet connections or have images turned off their browsers from the excessively large images used in the website. Furthermore, it was a general comment that the structure of the portal doesn’t convey to the user the prestige it should given that the parties involved in the development of the portal are experts in their areas, and this is not made any better by some shortcomings in the design of the Telewelfare website. In effect, this could discredit the portal’s usefulness and discourage expert users from reusing the system. On the positive side, the system presents sample information about eye care, how vision problems originate and what methods are used by ophthalmologists to diagnose and rehabilitate disorders, which may provide a motivation for some users re-visiting the function.
### Table 18. Telewelfare - Summary of Quality of Usage Experience (User Group 4)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telewelfare</td>
<td>August 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group’s brief description</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td>Persons with visual impairment</td>
<td>0,55</td>
<td>1,09</td>
<td>-1,93</td>
</tr>
</tbody>
</table>

#### FUNCTIONS:
- Function 1 ‘I can see: Universal System for Diagnosing Visual Impairments’
**Overview and Discussion**

**List of findings on the quality of interaction experience per function**

*(User Group 4: Persons with visual impairment)*

(The symbols ⬆️, ⬇️, and ⇔ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: I can see: Universal System for Diagnosing Visual Impairments</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons with a suspected visual impairment can test the acuity of their eyesight through a set of entertaining tasks. The function seems to be more oriented to the needs of expert users, for whom it got the highest score, while it displays some availability problems to new and occasional users, because of its somewhat advanced system requirements and preparation phase.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

- ➡️ Once in the system, the function is visible to users by means of a menu option and a separate list of available services, which consist of an icon, a title and a short description
- ➡️ The function’s icon is big enough for short sighted persons to notice
- ⬇️ The header logo doesn’t need to be as large as it is. It takes up a lot of space and forces the button that activates the function out of the visible to the user area (if the site is viewed in 800x600 resolution)
- ⬇️ The portal’s organisation is against common standards. The services, which are the most important part of the portal, are presented among the last items on the web-page
- ⬇️ The function’s icon is relatively to standards very large and will have high downloading time
- ⬇️ Once users navigate to another part of the website, there is no way to access the function in question unless they go back to the homepage
### Usefulness

| Up | On the portal’s homepage, besides the links to the individual services / functions, the awards the portal has won are listed. This should entice users to use the functions |
| Up | The guidance offered (“Click the required logo to go to the system’s website”) is explanatory enough to help users |
| Up | There is a demo version of the function in which the steps of the process are described |
| Up | Big icons usually catch the user’s attentions easily. Most likely they will be enticed to follow one of the functions’ links just out of curiosity |
| Down | The graphics used on Telewelfare.com portal fail to exhibit the prestige they should for a portal that “is the result of the cooperation between partners who are experts in their areas” |
| Down | The demo version link is not very visible and when selected it isn’t very obvious for the users in which version (Demo or Standard) they are |
| Down | The title ‘Universal system for diagnosing visual impairments’ is somewhat vague |

### Availability – approachability

**Novice users**

| Up | Once in the system, there is no problem even for novice users to reach the entry point of the function |
| Down | The system has compatibility issues with web browsers other than Internet Explorer and with operating systems other than Microsoft Windows |
| Down | Missing ‘back’ button in crucial places of the site, such as in the demo version or within functions |
| Down | The main navigation menu is available only on the homepage. Thus, if users have navigated to another part of the website, they will have trouble relocating the function they wish to find |
| Down | Users should be informed about the medium duration of the test |
| Down | Need of special equipment, such as a calibrator and a minimum screen resolution of 800x600 |

**Moderate users**

*Same as above*
Expert users

† Expert users should have no problem reaching the function in question

⇓ But they might wish to bookmark the function, something which is not provided by the system

Novice users

† Using the ‘I can see’ system is very simple, because it works like surfing on the Internet or viewing a slideshow

† There is no need to download or install anything in order to take the test

† The procedure of taking the test is entertaining and feedback is comprehensive

† Besides, the ‘end’ button is always available and users can exit the function whenever they wish

† The function also includes information about eye care, how vision problems originate and what methods are used by ophthalmologists to diagnose and rehabilitate vision disorders

† ‘Help’ and ‘Contact’ functions are available

† The aesthetics of the function are consistent, minimalist and elegant

† There is automatic detection of monitor settings

⇓ Upon overall task completion, the user is faced with a text written in polish and a button with a polish label. This should pose serious problems to users and leave them bewildered as to what to do next

⇓ While taking the test there is no way to go back to the previous step in order to correct previous input. The user has to start the test from the beginning

⇓ The preparation section might seem complex to the novice user

⇓ When users choose the ‘Contact’ option, a pop up message “Do you want to enter teleconference mode?” appears. There should be a list for the user with the contact options (email, teleconference) in order to make more visible the “contact by email” option. Furthermore, more information on teleconference should be provided

⇓ Some Polish language appears in critical parts of the English version: in the help section there are screenshots intended to help users through the process in Polish and in another part the button for performing calibration is also in Polish
- There is no back button on the help main page
- The ‘Getting started’ section is mixed with the ‘Preparation’ one
- No explanation of some terms such as “two colour glasses”

**Moderate users**
*Same as for novice users*

**Expert users**
*Same as for novice users*

### Relationship maintainability

**Novice users**
- The side bar menu is always present giving the user total freedom of movements
- Wherever a function has more steps that are still unexplored by the user, a “Continue” button appears to indicate this
- More information on teleconference should be provided
- Eliminate Polish language from the English version
- The English version offers no possibility to send the results to ophthalmology experts

**Moderate users**
- No problem

**Expert users**
- No problem
4.7 Lasanté, Belgium (eHealth)

4.7.1 System Description

Lasanté is the most visited health information web portal in French speaking Belgium (see Figure 10). It is a non-profit association of different members of the medical profession, founded in 2002. This site combines a directory, an up-to-date medical encyclopaedia, links to health actors in Belgium, latest news of the sectors, health advice, prevention, useful tools, information and communication, including a forum. However, it does not intend to substitute a diagnostic or medical treatment; it provides medical and scientific news and articles in Belgium and worldwide, and an extensive list of most frequent pathologies for adults and for children. For each, it gives a description of the symptoms, the progression of the illness, the treatment and, finally, it makes general recommendations on how to best live with illness. The objectives of Lasanté are to provide health-related information that is oriented to Belgian citizens, give the latest news on health, create a database for the directory of health sites, and keep developing the portal according to the ideas and suggestions of its users.

Figure 10. Lasanté, BELGIUM (eHealth)

The system may have begun as an individual’s initiative, but today its structure has become more advanced. The working force or Lasanté consists of six committee members, among them the creator of the site, and ten staff members are involved in the maintenance of the portal, all of which are healthcare professionals, apart from the Webmaster and founder of the site, and two other administrative employees.

The association is financed by its sponsors, who pay a small fee of subscription, and by some subventions from the regional government of health education initiatives. It relies mainly on voluntary work. Lasanté has also established long-term partnerships with a set of renowned organisations, portals and a publishing house, whose fields of activity are medical as well as health and lifestyle information and advice.
4.7.2 Inspection team

Three inspection members were responsible for the evaluation of the Lasanté portal, two of which were male and one female. The team members reported expertise in computer science, and accessible web design and linguistics. They reported no relation to the system under inspection or to its providers, and no familiarity with using the system, although all members have accessed similar eHealth systems in the past. The team also expressed medium familiarity with the language supported by the system (Belgium French) and high familiarity with the English language, which was used for the inspection procedures. The inspection members were also moderately familiar with the given inspection method, but they have been involved in evaluation processes in the past.

Inspector 1 (Leader)
Inspector 1 and leader of the group is a native Greek female with linguistic background and specialisation in speech and language processing. The inspector had no relation to the product or to the product’s provider and consequently she was not the least familiar with the system, prior to its inspection. Nevertheless she is extremely familiar with similar eHealth systems as well as with the language supported by the system (French). As the leader of the group, she was excellently familiar with the present inspection instrument and had a moderate knowledge of similar inspection and evaluation methods and tools. Finally, she was fluent in English, which was the language used for the inspection procedure.

Inspector 2
The second inspector is Greek and has a background in computer science and design for all. He had no relation to the product or the product’s provider and this was the first time he accessed the system in question; on the other hand he was excellently familiar with similar systems. He was moderately familiar with the French language, which is supported by the system, and slightly familiar with the inspection method at hand, although he was considerably knowledgeable of inspection methods and tools in general. Lastly, his knowledge of the English language was more than adequate.

Inspector 3
Inspector 3 is Greek and has a background in computer science. He had no link to the system or to its providers and this was the first time he accessed the system, although he has been a user of similar systems in the past. He adequately possessed the language used by the system as well as the language used for the inspection. He was highly familiar both with the inspection method in question and with similar tools.
4.7.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users in two user groups:

1. **Information Seekers:** this group of users gathers a large portion of citizens who normally access the site to browse for health related information, conduct a search on a matter of interest, possibly contact peers to discuss a health condition and utilise all the means to stay up-to-date in the handling of their health.

2. **Healthcare Stakeholders:** the Lasanté portal also addresses professionals from the healthcare sector, giving them the opportunity to promote their organisation through the site if they become members by sponsoring its activities.

4.7.4 Functions per User Group

User Group 1: **Information Seekers**
Functions that are addressed to Information Seekers are (in **bold** are the selected ones for inspection):

1. **Browse for health information**
2. **Search the site for health related information**
3. **Access the discussion forum and participate in discussions**
4. Pharmacy search: search for a pharmacy on duty near you
5. **Browse the News bulletins**
6. Contact the web portal in case of questions
7. **Subscribe to the Newsletter**
8. Recommend Lasanté to a friend

User Group 2: **Healthcare Stakeholders**
Functions that are addressed to healthcare stakeholders are:

1. Contact
2. Add a website
3. Become a member
4. Discussion forum

This user group has not been assessed.
4.7.5 Inspection results

User-orientation of the overall system (all user groups)

The Lasante.be health portal displays a positive overall picture of usability that concerns individual user-orientation characteristics as well. Moderate users seem to be served best by the system and its functions, while novice and expert users fall shortly behind. The portal is adequately visible to its target group and it presents a good design example concerning the perceived usefulness prior to actually using the system. The service presents neutral availability levels for new and expert users, while on the other hand those who benefit the most are moderate users that are able to overcome minor usability and approachability issues due to their experience with the system and who are not as demanding as an expert user would be. The overall quality of use of the portal’s functions is acceptable, but there is room for improvement by correcting some usability flaws in the use of the functions; on the positive side, all functions appear to be substantially visible and highly available to users. Finally, the ground to develop a relationship with the portal and become a faithful user is favourable, especially for moderate users, and the proof for this is that the portal keeps developing according to the comments and suggestions its audience makes to the providers.
Table 19. Lasante.be - Overall User-orientation (all user groups)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lasante</td>
<td>August 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Visibility to non-users (Form 4)</th>
<th>Perceived usefulness and ease of use for non-users (Form 5)</th>
<th>Availability &amp; approachability to first-time and novice users (Form 6)</th>
<th>Quality of usage experience of first-time and novice users (Form 7)</th>
<th>Relationship maintainability for first-time and novice users (Form 8)</th>
<th>Availability &amp; approachability to moderate users (Form 6)</th>
<th>Quality of usage experience to moderate users (Form 7)</th>
<th>Relationship maintainability for moderate users (Form 8)</th>
<th>Availability &amp; approachability to expert users (Form 6)</th>
<th>Quality of usage experience to expert users (Form 7)</th>
<th>Relationship maintainability for expert users (Form 8)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group 1</td>
<td>1.4</td>
<td>2.72</td>
<td>0.68</td>
<td>1.10</td>
<td>1.17</td>
<td>2.83</td>
<td>0.47</td>
<td>2.00</td>
<td>0.00</td>
<td>1.15</td>
<td>0.66</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**USER GROUPS:** User Group 1 ‘Information Seekers’
User-orientation of the system (User Group 1)

Information Seekers (User Group 1)

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Scored: 1</th>
</tr>
</thead>
</table>

The overall visibility of the Lasante.be health portal is satisfactory, and this is largely due to its excellent performance with some of the most popular search engines. Moreover, according to the service provider, Lasante.be is one of the most popular eHealth websites in Belgium. It has received praising comments from newspapers on numerous occasions and was mentioned in the 500 best websites in Belgium by Best-on-web in April 2004. What’s more, Lasante.be is referenced to by many other websites related to health, directories and search engines. Nevertheless, a few steps to increase its visibility would be to place links to its website on relevant government sites, such as the Ministry of Health. Moreover, Lasante.be should make use of means other than the Internet and Press to publicise its existence, such as the radio or TV.
Perceived usefulness and ease of use

Scored: 3

The Lasante.be portal has greatly achieved the goal to promote the feeling that it is helpful and usable to its users. Part of the credit for its positive reputation should go to the numerous newspaper articles and reviews on Lasante.be and to its distinctions in national and international contests, which increase the portal’s credibility in the minds of citizens. Moreover, the portal is referenced in the webpages of similar health-related websites, directories, and search engines, thus Internet users have increased possibility of finding a link to the portal and they may consider to use it if it is suggested by a peer website they are already familiar with. Another critical factor for its success has been the fact that in 2000, when there was no health-related website in Belgium and Belgian citizens had to refer to other francophone sites outside the country; Lasante.be filled a vital gap in the market and gained a good reputation doing it. Besides, the site’s staff (in its majority) comes from a health-related workspace and the portal has managed to gain the trust of both citizens (plain users) and of the – more demanding – health professionals (experts). This success presents non-users with a serious motivation to make use of the system. Finally, it should be noted that the site’s present form is shaped from users’ feedback. Consequently, it would be safe to assume that the Lasante.be portal lives up to the average user’s expectations and therefore would convince non-users to gain personal experience of it. On the downside, the Lasante.be portal is not referenced from relevant government sites, such as the Ministry of Health. This may discourage non-users from gaining personal experience, as lack of reference from government sites may discredit Lasante.be. Also, the site does not provide any online tools (such as calculation of body mass index) or “miracle recipes” to lose weight, but always suggests referring to a doctor. As professional as this approach may be, it may also discourage non-users from gaining hands-on experience of the system. Providing features is always more enticing than simply providing information.
Availability / Approachability

Scored: novice 0, moderate 3, expert 0

The Lasante.be portal has a considerable level of availability for all users since its url address is straightforward and easy to type, and leads to an equally structured and simple to use website. No financial risks entail users of the portal since so long as users have access to PC connected to the Internet they can access the Lasante.be services cost-free. Furthermore, frequent users of the system can add it to their favourites and be sure that they can always relocate it through the nametag and a short description that accompanies it. On the downside, the information on the website is only available in French, which diminishes the number of potential visitors, and also most of the information on the site requires a good literacy level, which may pose a barrier to certain groups of users. Moreover, the website does not offer any alternative means of communicating with users, such as a telephone service, thus it is only available to Internet users. Furthermore, a minor bug in the automated link prompting users to add the url to their favourites should be fixed since the link is inactive. More on this, a logo could be present when bookmarking the website to one’s favourites.
Overall quality of interaction experience\textsuperscript{24}

Scored: novice 1, moderate 0, expert 1

Users of the Lasante.be portal should not be disappointed from the usage experience after exploring its functions. The system functions appear somewhat more oriented towards novice and expert users than to occasional ones. More in depth, due to the system’s straightforward and consistent design, there is an increased degree of visibility for all of its functions, thus users should promptly discover the place to perform a desired task within the portal. Once they locate a function, it is also likely that they will consider it useful to their case, although there is space for improving the perceived utility of the system’s functions. The availability and approachability of the functions should also pose no problem to users, even if it is one of the first times they are accessing the system. When the question comes to the actual use of the functions, novice users might find some aspects difficult to overcome, which is why the overall score of quality of use is neutral for them. On the other hand, both moderate and expert users should find the functions usable, although again the system could be further developed to ensure better usability levels. Furthermore, the system does little to ensure than its users will reuse its functions, since the overall picture is neutral. All in all, the system has an adequate quality of use of its functions despite the fact that it is on the low part of the scale.

\textsuperscript{24} The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
**Relationship maintainability**

*Scored: novice 1, moderate 2, expert 1*

Most users are likely to continue using the portal due to a number of characteristics that increase its potential to maintain the relationships with its users. First of all, the portal’s structure is straightforward, without long introductions or complicated menus, which will be especially appreciated by novice users. Another point that increases fidelity is that all articles and opinions that appear on the website are strictly collected from specialised medical personnel; added to this, the quality of the available information is certified by the HON code, a worldwide leader in accreditation and certification of reliability of medical information on the net. Besides, users’ commitment to the portal is evident from the fact that expert users are already reusing the system, since 1/3 of the daily visits Lasante.be receives are from health professionals that frequently use the system and have experience using other similar systems. Nevertheless, the site receives mediocre overall scores due to some design pitfalls that could be corrected. Firstly, it is not accessible for people with disabilities, a fact that excludes a large portion of the population that could benefit from using the portal. Moreover, the ‘search’ and ‘forum’ functions are poorly designed and although they are extremely useful to the portal’s target users they might fail to meet their demands for more functionality. Finally, some of the most common complaints by users have been that they would like to receive newsletters more often and that the site’s content is not up-to-date.
Table 20. *Lasante.be* - Summary of Quality of Usage Experience (User Group 1)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lasanté</td>
<td>August 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group's brief description</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
</tr>
<tr>
<td></td>
<td>3.30</td>
<td>1.50</td>
<td>2.33</td>
</tr>
<tr>
<td>Function 1</td>
<td>1.54</td>
<td>0.66</td>
<td>2.00</td>
</tr>
<tr>
<td>Function 2</td>
<td>1.60</td>
<td>1.66</td>
<td>1.50</td>
</tr>
<tr>
<td>Function 3</td>
<td>2.44</td>
<td>-0.66</td>
<td>0.75</td>
</tr>
<tr>
<td>Function 7</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**  
- Function 1 ‘Browse Health Information’  
- Function 2 ‘Search’  
- Function 3 ‘Discussion Forum’  
- Function 7 ‘Subscribe to the Newsletter’
## List of findings on the quality of interaction experience per function

(User Group 1: Information Seekers)

(the symbols ⬆, ⬇, and ⇑ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: <strong>Browse for Health Information</strong></th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1, which is of prime importance to the user group in question, scores positively in almost all user-orientation characteristics. Its visibility is extremely satisfactory, and perceived usefulness for non-users is also considerably high. The function does not present major availability problems, while quality of usage is adequate for most users. Relationship maintainability is also positive, although steps should be made to enforce it.</td>
<td></td>
</tr>
</tbody>
</table>

### Visibility

- The function appears on the left side of the home page. The visual representation of the function is quite clear, because in the left side the main categories of information to be browsed are available. Items on the navigation menu are divided into separate categories according to topic. Thus, it’s easier for users to locate the information they are looking for.
- Apart from the left-hand menu, the newest themes of ‘nouveautés’ (news) and ‘dossiers santé’ (health files) are presented on the main page.
- Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size.
- The visibility of the function is indifferent of the Browser used.

### Usefulness

- Users will be motivated to use this function because it provides access to a great number of useful information, according to the main goal of the user group.
- Items on the navigation menu are divided into separate categories according to topic (ease of use). This should entice non-users to gain personal experience of the system.
- Each separate section of information has a distinct and descriptive title. Non-users are expected to find this helpful.
- No guidance is available.

### Availability – approachability

**Novice users**

- The function is accessible through the main menu, which in turn is always
located in the same, easily visible location

- The ‘agenda’ link was temporarily unavailable during inspection by one inspector

Moderate users

⇒ The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point

Expert users

⇧ The user can bookmark the homepage of the function

⇧ Expert users should have no problem reaching the function in question

---

Quality of usage experience

Novice users

⇧ Novice users will not encounter problems using the functions. The steps required are quite straightforward. Users have to select category and subcategory of information in order to view the available info. The site’s structure is rather simple and consistent. The steps that any user is required to make are intuitive, guided by question / answer or menu dialogues

⇧ The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner or at the end of the webpage and thus returning to the homepage

⇧ The aesthetics of the system are consistent, minimalist and elegant

⇧ A “contact” function is available (though, the user has to take one more needless step once in the “contact” function – hit a link “Cliquez ici pour nous contacter”)

⇧ In long pages there is a ‘top’ link

⇧ At the end of each page there is a ‘home’ link taking users to the homepage

⇩ A “help” function is not available

⇩ The structure of the main menu appears arbitrary. The menu subtitles do not separate different groups of links, so the given structure seems confusing to users

⇩ The ‘top’ link was not working in one of the pages

Moderate users

⇧ Moderate users can easily make use of the function. The function steps are quite straightforward and consistent
### Expert users

† Expert users will not encounter any problems using this function, because the steps required to perform the function are consistent and commonly used for browsing web content

### Novice users

† This function is quite straightforward, so novice users should not have problems exploring it in depth

↓ However, once users select a subject, there is no automatic suggestion of other related articles

↓ The website has no logo when bookmarked, and if users bookmark a page, then the title of the page appears in the bookmark, but not the name of the portal

### Moderate users

↓ For occasional users the existence of profiles for browsing would be appreciated

† Otherwise no problem

### Expert users

↓ Expert users can easily exploit the function in depth, because the actions that must be made are quite straightforward

### Function 2: Search

<table>
<thead>
<tr>
<th>Score: 1</th>
</tr>
</thead>
</table>

The visibility and perceived usefulness of the ‘search’ function are considerable and should not pose major problems to first time users. The function is highly available throughout navigation to the site, which means that all users regardless of experience with the function should be able to locate and make use of it. On the other hand, the actual use of the function revealed some usability flaws that seem to affect all users, no matter how experienced they are with the function. Relationship maintainability also needs more attention as it ranges from neutral for novice users to considerably inadequate for expert ones.

### Visibility

† The search function appears in two distinct locations in the home page. Once users leave the homepage, the function is still available in one of the two locations that it was present in the homepage

† Blind and low vision users can benefit from adjustable font size and from the alternative text in the ‘recherche’ button, making the function visible to users who navigate through a text browser or those who disable images in their browsers
Chapter 4 - RESULTS OVERVIEW AND DISCUSSION

The visibility of the function is indifferent of the browser used

A better visual representation for the function is required, since font size is too small and the function is not easy to locate

There is a text box in the middle of the homepage that could be mistaken for the search function, but which does absolutely nothing

**Usefulness**

The preliminary information provided after clicking on the “recherche” button helps the user to quickly understand the purpose of this function

The image button that must be pressed in order to perform a search doesn’t provide enough visual clues about the outcome of the action that it performs

**Availability – approachability**

**Novice users**

The function is highly approachable, since it is virtually one click away

While navigating around the website, the function is always present

Although there are two entry points for the function, its visual representation is not good, thus novice users may encounter problems locating it

**Moderate users**

The function is highly approachable, since it is virtually one click away

While navigating around the website, the function is always present

**Expert users**

The function is highly approachable, since it is virtually one click away

While navigating around the website, the function is always present

Users can bookmark the homepage of the function

**Quality of usage experience**

**Novice users**

First time users can effectively and efficiently use the function due to its simple design

Fonts can be altered

The results of a search are numbered, the total number of results is indicated, and for each result users are informed about its percentage of relevance, its size and the date of insertion
| In case of no results, users are notified and prompted to check their entry for spelling mistakes |
| The fact that the results of the search function appear in a new page may cause problems to blind users, users using text browsers, or users who disable images through their browsers. Also, the fact that the results appear in a new page can be annoying and confusing to novice users |
| The textbox for entering the search keywords is too small and does not change in size |
| The button to launch a search is an ‘x’, which is non-standard |
| The search is performed by a different provider, and thus the results appear in a new window, under a different logo and url |
| When users click on the results, the navigation shortcuts for the given page fail to work |
| No help is available |
| Users performing a search must have the ability to filter the results or make a new search without having to close the results page. Users should also have the ability to sort the results according to their preferences |

**Moderate users**

| Moderate users can easily make use of the function, because the only steps needed is to locate the function and fill the search parameters |
| Fonts can be altered |
| The results of a search are numbered, the total number of results is given, and for each result users are informed about its percentage of relevance, its size and the date of insertion |
| In case of no results, users are notified and prompted to check their entry for spelling mistakes |
| Moderate users can benefit from the search syntax |
| The existence of a mechanism for filtering and sorting the results of searches would provide the means for moderate users to use more efficiently the function |
| Moderate users may wish to make a new search without having to close the results window |
| The textbox for entering the search keywords is too small and does not change in size |
When users click on the results, the navigation shortcuts for the given page fail to work.

No help is available.

No advanced search is available.

**Expert users**

- Expert users can easily make use of the function, because the only steps needed is to locate the function and fill the search parameters.
- Fonts can be altered.
- The results of a search are numbered, the total number of results is given, and for each result users are informed about its percentage of relevance, its size and the date of insertion.
- In case of no results, users are notified and prompted to check their entry for spelling mistakes.
- Expert users can benefit from the search syntax.
- The existence of a mechanism for filtering and sorting the results of searches would provide the means for expert users to use more efficiently the function.
- Expert users may wish to make a new search without having to close the results window.
- The textbox for entering the search keywords is too small and does not change in size.
- When users click on the results, the navigation shortcuts for the given page fail to work.
- No help is available.
- No advanced search is available.

**Relationship maintainability**

**Novice users**

⇒ The function is easy and simple to use, which should make users reuse it.

**Moderate users**

⇒ The system should allow saving profiles for quicker searches (upon Registration).
### Function 3: Discussion Forum | Score: 1

The discussion forum is a rather simple function, that is clearly visible, useful and readily available to all users. The inspection of the function revealed both good practice examples and problems, however, the final scores were positive, showing that the function is eventually usable. Relationship maintainability was increasingly problematic as users became more practiced with the function.

#### Visibility

- The Discussion forum link appears under the services section with the name “forum”. This name is clear on its own, however, a better visual representation and the full name of the service would be a good improvement to the function visibility.

- Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size.

- The visibility of the function is indifferent of the Browser used.

#### Usefulness

- The forum allows people to share their health related problems and experiences with others.

- The “welcome” screen of the function in question is a short informative introduction (e.g., what the user can and cannot do, etc.)

#### Availability – approachability

**Novice users**

- The function is always visible to the user by means of the main navigation menu (under services sub-heading)

- Novice users may encounter difficulties locating the function.

**Moderate users**

- No problem

**Expert users**

- The function is always available

- Users can bookmark the homepage of the function.
Quality of usage experience

Novice users

⇧ The date of posting the messages is displayed
⇧ A disclaimer and code of conduct is viewed by users before entering the forum
⇧ There is help in the window for creating a new message
⇧ There is a search facility for new messages
⇧ There is an index of the subjects mentioned in the messages
⇧ The function has consistent aesthetics
⇧ The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner and thus returning to the homepage
⇩ There is a minor problem regarding the result of the function. The results appear in a new page, which can be annoying and confusing to novice users
⇩ The ‘compose message’ function is rather difficult to use for novice users, because it is quite complicated
⇩ The fact that the forum initial page appears in a new page cause problems to blind users, users using text browsers, or users who disable images through their browsers
⇩ There are also problems with the functions concerning the new message insertion or the search function that appear in pop up windows, causing problems to blind users, users using text browsers, or users who disable images through their browsers
⇩ The same problem exists with the view message function that also appears in a popup window
⇩ Next to the message titles some signs appear, whose meaning is nowhere explained
⇩ The forum background is in light blue and the text in dark blue, which may create problems for users with low vision who may wish increased contrast of colours
⇩ Navigation across messages is difficult since there is no display of the total number of messages or pages, and the ‘next’ and ‘previous’ buttons are only for the following or previous page and not for taking users to the beginning or end of all messages
⇩ The button to create a new message appears at the bottom of the page and is very small
Users cannot intervene in their messages once they have posted them

The help is very complicated for novice users who might not know the concept of BBCode

The forum is not actually part of the Lasante.be website; rather, it is hosted by another site, thus the address bar writes something different

The ‘search messages’ link is close to the ‘search forums’ link, which takes users outside the Lasante.be forum

No ‘help’ or ‘contact’ function within the initial forum page

**Moderate users**

- Moderate users should have no problem reaching the function in question
- The date of insertion of the messages is displayed
- There is help in the window for creating a new message
- A disclaimer and code of conduct is viewed by users before entering the forum
- There is a search facility for messages
- There is an index of the subjects mentioned in the messages
- Consistent aesthetics

- The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner and thus returning to the homepage

- Moderate users may have difficulties managing the popup windows that appear for almost every function of the discussion forum

- Moderate uses may encounter problems using the post message functionality

- Next to the message titles some signs appear, whose meaning is nowhere explained

- There is no way to organise the message display according to date of insertion

- Navigation across messages is difficult, since there is no display of the total number of messages or pages, and the ‘next’ and ‘previous’ buttons are only for the following or previous page and not for taking users to the beginning or end of all messages

- The button to create a new message appears at the bottom of the page and is very small
Users cannot intervene in their messages once they have posted them

No ‘help’ or ‘contact’ function within the initial forum page

**Expert users**

- There are no redundant steps in the interaction required to make use of the function in question
- There is no facility for viewing the results with various sorting or for filtering them
- Navigation across messages is difficult, since there is no display of the total number of messages or pages, and the ‘next’ and ‘previous’ buttons are only for the following or previous page and not for taking users to the beginning or end of all messages

**Novice users**

- While using the forum functionality users encounter new windows that contain the results of their action. This can make more difficult for end users to achieve their goals
- Users in order to search for a message must locate the search function, fill in the search fields in a new window and view the results of another new window
- The function can be bookmarked but in the title and description only Lasante appears, with no logo

**Moderate users**

- The system should allow saving profiles for quicker searches (upon Registration)
- The new messages are marked as new, thus helping occasional users to easily locate the existence of new messages

**Expert users**

- Expert users will not have problems exploring the system in depth, although any usability improvement would be appreciated

<table>
<thead>
<tr>
<th>Function 7: <strong>Subscribe to the Newsletter</strong></th>
<th>Score: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Although subscribing to the newsletter is considerably visible, users may not see the benefits from receiving it. Nevertheless, the function displays high levels of availability that increase as users become experts with the function. The quality of use is also very high, posing relatively few usability barriers, even to novice users. The relationship maintainability of the function is fairly satisfactory so long as users continue to wish receiving newsletters.</td>
<td></td>
</tr>
</tbody>
</table>

Lasanté, BELGIUM (eHealth)  
FORTH-ICS  
TR-373, February 2006
**Visibility**

- The function is visible to the user by means of the main navigation menu (under the services sub-heading) and also in a link near the bottom of the page on the homepage. Elsewhere in the portal the function is accessible through the left-hand menu that is always present.

- The visibility of the function is indifferent of the browser used.

- Visibility for low vision users is quite good, as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size.

- The newsletter function appears under the services section with the name “newsletter”. A better visual representation would be a good improvement to the functions visibility.

**Usefulness**

- The preliminary information provided after clicking on the “newsletter” provides the required information to understand the purpose of the function and therefore motivate users to use it.

- No specific mention of the usefulness of the function.

- No guidance is available.

**Availability – approachability**

**Novice users**

- The function is accessible through the main menu, which in turn is always in the same visible location.

- Novice users may encounter difficulties locating the function, since there are some misleading links inside the function page prompting users to become members, which have nothing to do with the newsletter.

**Moderate users**

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.

- There are some misleading links inside the function’s main page prompting users to become members, which have nothing to do with the newsletter.

**Expert users**

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.
### Quality of usage experience

**Novice users**

† The site’s structure is rather simple and consistent. The steps that any user is required to make are intuitive, guided by question / answer or menu dialogues. The information provided for the new member function and the form to enter personal information can be easily understood and used.

† The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner (or the HOME link at the bottom of the page) and thus returning to the homepage.

† The aesthetics of the system are consistent, minimalist and elegant.

† A “contact” function is available (though, the user has to take one more needless step once in the “contact” function – hit a link “Cliquez ici pour nous contacter”).

† Little personal details are needed to subscribe to the newsletter.

† Users can choose the formatting in which they wish to receive the newsletter.

† The ‘send’ link is clear and straightforward.

† In case of spelling error, users can click on the button to clear the form and start again.

† Users have the possibility to unsubscribe.

† In case users forget to complete one of the necessary fields, the system notifies them.

⇓ A ‘help’ function is not available.

⇓ Users with low familiarity to the Internet or new technologies may not know which format to choose for receiving their newsletter, as no explanation is provided.

⇓ No policy for handling emails is reported.

⇓ No mention of how often users will receive the newsletter.

⇓ Users cannot complete the function successfully, unless they handle their mails through a mail client, because the application for the newsletter is not sent automatically.

⇓ No confirmation is sent after users send the email, thus they have no idea if their request has been processed or if their data already exists in the Lasante.be.
database

Small stylistic mistake: in the subscription page the name of the user is requested, while in the unsubscribe page the surname is requested

**Moderate users**

- The site’s structure is rather simple and consistent. The steps that any user is required to make are intuitive, guided by question / answer or menu dialogues. The information provided for the new member function and the form to enter personal information can be easily understood and used
- The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner (or the HOME link at the bottom of the page) and thus returning to the homepage
- A “contact” function is available (though, the user has to take one more needless step once in the “contact” function – hit a link “Cliquez ici pour nous contacter”)
- Users can choose the formatting in which they wish to receive the newsletter
- Users have the possibility to unsubscribe
- The system supports standard interaction controls and metaphors
- No policy for handling emails is reported
- A ‘help’ function is not available

**Expert users**

- The site’s structure is rather simple and consistent. The steps that any user is required to make are intuitive, guided by question / answer or menu dialogues. The information provided for the new member function and the form to enter personal information can be easily understood and used
- The user can abandon the task whenever he / she wishes to, hitting the site’s logo at the top left corner (or the HOME link at the bottom of the page) and thus returning to the homepage
- A “contact” function is available (though, the user has to take one more needless step once in the “contact” function – hit a link “Cliquez ici pour nous contacter”)
- Users can choose the formatting in which they wish to receive the newsletter
- Users have the possibility to unsubscribe
## Relationship maintainability

### Novice users

⇧ Users should keep receiving newsletters until they no longer wish so. In that case, when they go to unsubscribe they are asked for the reasons, plus they are reminded that if it is a problem of format, they can choose a different one to receive the newsletter

⇨ This function is quite straightforward so novice users should not have problems exploring it in depth

### Moderate users

⇨ Same as above

### Expert users

⇨ Same as above
4.8 Formavia, France (eLearning)

4.8.1 System Description

FORMAVIA, the Regional Network for Open and Distance Learning, was created in June 1997, thanks to a joint-initiative of the Regional Council and the State Prefecture of Rhône-Alpes. FORMAVIA is not only a Web portal but a global plan for an active promotion of open and distance learning, which comprises the creation of a technological platform – a plan to improve eLearning skills of training organisations and communication activities dedicated to the regional eLearning community (see Figure 11).

![Formavia Website](http://www.formavia.fr/)

- Network for open and distance training.
- Joins together eLearning organisations that can post their offer at the site and deliver online training through its platform or through their own
- The site is in French
- To access the eLearning courses one has to pay

Figure 11. Formavia, FRANCE (eLearning)

The development of the network allows facilitated access to sites dedicated to training, thanks to the progressive online availability of the field: the network interconnects training institutions and sites offering access to Open Distance Training that use common technical and pedagogical tools (information portals, training platforms, etc) in order to implement Open Distance Training. Some partners can be both training institutes and Internet access points to Open Distance Training.

The plan for improvement of eLearning skills of training organisations has the following objectives:

- Instruct training providers on the new practices of open and distance training, so that they attain a professional level.
- Support the strategic orientation of enterprises.
- Facilitate the transition from traditional training to open and distance training.
- Provide the project team who is responsible for open and distance training with practical implementation tools.
- Incorporate the demand for quality in the development of open and distance training.
- Expand the process of personalisation of training.
• Promote exchanges with the other network members so as to create mutual practices.

This plan is based upon 3 themes and it consists of 14 modules:
• Analysis and implementation of the demand for open and distance training.
• Conception and production of open and distance training.
• Diffusion and evaluation of open and distance training.

Its main objectives are to improve awareness and provide specific training modules on ICT, to facilitate access to training via the use of eLearning and open training and especially to develop the eLearning and open training offer.

4.8.2 Inspection team

The inspection team comprised of three members, the inspection leader (Inspector 1), and another two members (Inspectors 2 and 3). Two were female and one was male. The team of inspectors had diverse background and expertise, ranging from computer science and web design to linguistics. None of the inspection members had any relation to the product or to the service provider, and this was the first time they accessed the system in question. The inspection members were highly familiar with similar systems, as well as with the language supported by the system, in this case English. Moreover, the inspection group was moderately familiar both with the inspection method at hand and with inspection methods and tools in general.

Inspector 1 (Leader)
Inspector 1 (and leader of the group) is Greek and has a BSc in French Language and Literature, and a MSc in Speech and Language Processing. The inspector has no link to the system developers or providers and navigated round the system for the first time during the assessment phase. On the other hand, she is very familiar with the language in use by the system as well as with other systems of this kind. She is greatly familiar with the inspection tool in question, as she has used it in previous pilot assessments, and moderately familiar with inspection tools and methods in general.

Inspector 2
Inspector 2 is Greek and has a degree in Computer Science. The inspector had no link to the system developers or providers and has never interacted with the system prior to its assessment. He is very familiar with similar systems and similar inspection methods but slightly familiar with the inspection method at hand. He moderately comprehends written French, which is the language of the system under inspection, and fluently comprehends English.
Inspector 3 holds a BSc in Computer Science. The inspector has no link to the system developers or providers and this was the first time she has encountered the system. Moreover, she has little familiarity with similar systems. She is moderately aware of inspection tools and methods but she had never used the given method before. She has a moderate command of the English and French languages.

4.8.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users in three user groups:

1. Individual learners: This is the primary target group for Formavia
2. Organisations: that either wish to use the eLearning platform to deliver their training schemes or become a member of the Formavia network of training institute, and
3. Training providers: who wish to update their knowledge according to the latest advances in the delivery of training.

4.8.4 Functions per User Group

User Group 1: Individual Learners
Functions that are addressed to citizens wishing to participate in eLearning programmes are (in bold are the selected ones for inspection):

1. Utilize the eLearning platform
2. Send and receive messages
3. Search for documents/vocational training courses
4. Access and modify Wiki pages
5. Access the forum
6. Pose a question through email
7. Register
8. Modify profile
9. Engage in an online meeting
10. Apply for a vocational training course

User Group 2: Organisations
Functions that are addressed to organisations that are elated to training and eLearning are:

1. Utilise the eLearning platform
2. Become a member of FORMAVIA
User Group 3: **Training Providers**

Functions that are addressed to the existing training providers are:

1. Learn about the “professionalisation plan”
4.8.5 Inspection results

User-orientation of the overall system (all user groups)

The Formavia learning environment and network of training providers displays acceptable levels of user-orientation, becoming more effective as user experience with the system progresses. This conclusion is based on the inspection of one out of the three user groups that have been identified for the system, which is also the only one that involves individual citizens. Thus, individual learners who have used the Formavia portal and eLearning platform in the past are more likely to find the system suited to their needs than beginners with the system. Moreover, the Formavia portal is not optimally oriented to attracting new users, due to its limited visibility and borderline perceived usefulness. With regards to user types, new users to the system will appreciate the prompt availability of its functions, but may form a negative view after using the system, which may also affect their desire to re-use it. On the other hand, those who carry on with the service and gradually become more familiar with it will find ways to bypass its disadvantages and exploit its functionalities; this results in increased scores for quality of usage experience and relationship maintainability as learners turn from occasional to full-time users.

On a close-up of the inspection results from the actual usage of the system functions few variations from the overall image of the system can be found. Again, the range of the results from the testing of the different functions of the system is narrow, and involves fractions of zero, which in this case is the code for borderline user-orientation acceptance levels. Within this limited range, some positive highlights are perceived usefulness and ease of use to non-users, and availability for expert users, and a negative one for relationship maintainability for novice users.
### Table 21. Formavia - Overall User-orientation (all user groups)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formavia</td>
<td>August 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group 1 'Individual Learners'</th>
<th>Visibility to non-users (Form 4)</th>
<th>Perceived usefulness and ease of use for non-users (Form 5)</th>
<th>Availability &amp; approachability to first-time and novice users (Form 6)</th>
<th>Quality of usage experience of first-time and novice users (Form 7)</th>
<th>Relationship maintainability for first-time and novice users (Form 8)</th>
<th>Availability &amp; approachability to moderate users (Form 6)</th>
<th>Quality of usage experience of moderate users (Form 7)</th>
<th>Relationship maintainability for moderate users (Form 8)</th>
<th>Availability &amp; approachability to expert users (Form 6)</th>
<th>Quality of usage experience of expert users (Form 7)</th>
<th>Relationship maintainability for expert users (Form 8)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group 1</td>
<td>-0.83</td>
<td>0.20</td>
<td>2.25</td>
<td>-0.15</td>
<td>-1.16</td>
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<td>Total</td>
<td>-1</td>
<td>0</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**USER GROUPS:** User Group 1 ‘Individual Learners’
User-orientation of the system (User Group 1)

Information Seekers (User Group 1)

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Scored: -1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formavia’s visibility is on the negative scale, although not low enough to cause major visibility problems. However, the portal suffers both from low ranking when it comes to search engines, especially when searching with related keywords that do not contain the term Formavia in them, and from scarce reference in the collaborative websites, such as the provider website and the network partners’ websites. On the other hand, various websites that are related to the Rhône-Alpes region make some reference of Formavia.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived usefulness and ease of use</th>
<th>Scored: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>It could be said that to the potential Formavia user’s perspective utility of the platform is close to neutral, which means that users will probably not be able to form a clear opinion about whether this platform applies to their needs or not. A beneficial factor is that the platform joins together some of the major training organisations in the Rhône-Alpes region, increasing the status of the network itself and thus also the degree of perceived utility from the part of the users. On the other hand, it seems that much of the information that circulates on the Internet about Formavia is about the technical aspects of the network and not of the eLearning experience that the network provides. What’s more, upon a search of the French Internet, no promotional activities could be found.</td>
<td></td>
</tr>
</tbody>
</table>
Availability / Approachability

Scored: novice 2, moderate 1, expert 0

The service of Formavia is highly approachable and available to first-time or novice users, who only need to have access to a PC and Internet connection to be able to use the service to its full extent. Also, with its easy to type and memorise url address, novice users should have no trouble locating and using the service. The only minor problem could arise for users with slow Internet connections, who will need to wait somewhat longer for the pages to load in their browser.

Moderate users will appreciate the same features as novice ones, plus the fact that the same website is available under two domains, which makes it easier to locate using search engines. However, the bookmarking of the website should be enhanced as it currently only displays the service name, with no explanatory text, making it easy to forget after a while.

Finally, the systems’ availability and approachability to expert users is neutral, which means that practiced users will probably be able to surpass problems faced by novice or moderate users and use the system despite the fact that no help towards this aim is provided either.
Overall quality of interaction experience

Scored: novice 0, moderate 0, expert 0

Once users actually begin to explore the system in depth and make use of its functions, they are likely to form a neutral picture of the Formavia learning environment regarding the quality of their experience with the system. A closer inspection would reveal that this overall mediocre portrait was not the result of extreme and contradicting values, but rather that it spreads generally across function characteristics. What could be characterised as the strong aspects of the overall usage experience with the system is ‘perceived usefulness and ease of use’ to those who have not yet accessed Formavia, and ‘availability and approachability’ to expert users. On the other hand, visibility of the system to non-users and relationship maintainability for novices are deemed less than satisfactory. Nevertheless, it should be noted that all these fluctuations actually move close to zero values, and this is one reason why the scores for different types of users show minor variations.

A note of attention regarding Function 7 – registering to the portal – is that since the registration procedure should normally take place only once, there was no need to measure relationship maintainability for this function or any of its other features for moderate and expert users, due to the nature of the function. Thus, only visibility, usefulness, availability and quality of usage experience for the first-time user have been examined.

Relationship maintainability

Scored: novice -1, moderate 1, expert 1

The scores for relationship maintainability reveal that novice users may easily be deterred from reusing the system due to some flaws. However, those who insist will learn with practice how to overcome problems and benefit from the high points of the system. A common reason for all user groups to reuse Formavia is the elevated quality of information and services it offers, with emphasis on the Wiki and forums, which may be especially enticing for moderate and expert users. However, smaller or bigger issues such as lack of adequate help and support when using the system, few confusing inconsistencies in the layout and system “crashes” without any guidance on how to get by them cause nuisance to novice users who see the system as unreliable and unfriendly to them.

25 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
### Table 22. Formavia - Summary of Quality of Usage Experience (User Group 1)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Formavia</th>
<th>Period of assessment</th>
<th>August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group’s brief description</td>
<td>Individual learners</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visibility to non-users</td>
<td>Perceived usefulness and ease of use to non-users</td>
<td>Availability &amp; approachability to first-time and novice users</td>
<td>Quality of usage experience of first-time and novice users</td>
<td>Relationship maintainability for first-time and novice users</td>
<td>Availability &amp; approachability to moderate users</td>
<td>Quality of usage experience to moderate users</td>
</tr>
<tr>
<td>Function3</td>
<td>-0.31</td>
<td>-0.20</td>
<td>-0.40</td>
<td>1.31</td>
<td>-1.20</td>
<td>-1.50</td>
<td>0.60</td>
</tr>
<tr>
<td>Function4</td>
<td>-1.00</td>
<td>0.83</td>
<td>2.00</td>
<td>0.17</td>
<td>-2.00</td>
<td>2.00</td>
<td>0.33</td>
</tr>
<tr>
<td>Function5</td>
<td>-0.50</td>
<td>0.66</td>
<td>1.75</td>
<td>0.69</td>
<td>-1.00</td>
<td>1.00</td>
<td>0.86</td>
</tr>
<tr>
<td>Function6</td>
<td>-1.28</td>
<td>0.00</td>
<td>-0.40</td>
<td>0.06</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
<tr>
<td>Function7</td>
<td>-1.22</td>
<td>1.50</td>
<td>-1.00</td>
<td>-0.71</td>
<td>-0.50</td>
<td>-0.66</td>
<td>-1.22</td>
</tr>
<tr>
<td>Total</td>
<td>-1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 3 ‘Search’
- Function 4 ‘Access and Modify Wiki Pages’
- Function 5 ‘Access the Forum’
- Function 6 ‘Register’
- Function 8 ‘Modify Profile’

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**Formavia, FRANCE (eLearning)**

**FORTH-ICS**

**TR-373, February 2006**
List of findings on the quality of interaction experience per function
(User Group 1: Job Seekers)

(the symbols ⬆, ⬇, and ⇔ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 3: Search</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users may wish to search for training institutions that offer courses on the subject that interest them, or they may wish to explore the material of the learning portal. It is noteworthy that, although quality of the functions should be positive for novice users, as they become more familiar with it they tend to form a declining opinion.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

⬆ The search function appears in the top right side of the screen and it is quite visible

⬆ The visibility of the function is indifferent of the Browser used

⬆ The “Search (cherche)” button uses text to represent the search action, and as a result it becomes perceivable to blind users, users using text browsers, or users who disable images through their browsers

⬆ The “Search” operation is categorized

⬇ Visibility for low vision users is not good, as the font sizes in the pages are strict, thus not allowing the user to increase or decrease effectively the font size

⬇ There is another search button, to the right of the main menu, which has no description of its operation and could confuse the user. Also it may well go unnoticed because of its plain design.

⬇ There is some inconsistency in the way the search function is presented: 2 different names are used for the function one is “Valider” (validate) and the other is “Chercher” (search)

⬇ If users select the path from the main menu “Formation -> Plate-forme e-learning (LMS)”, then they have no possibility to search, as there is no such an operation or button

⬇ The function’s position is acceptable, but it would also be good to have it on the main menu

**Usefulness**

⬆ The search function is a key function to the portal and is thus highly useful; apart from that, it is also straightforward to use

⬆ Users will see that there is a link to advanced search
There is no guidance offered, for any of the buttons. There is only some explanation of the “Valider” button’s categories.

It’s easy to understand that these 2 buttons do the searching. However, users might get confused due to the button “Chercher”, which seems without specific purpose.

Information about the potential results of a search does not exist, thus users are not motivated to use the function.

### Availability – approachability

**Novice users**

† First time users should find it quite easy to locate and reach the entry point of the function; there are 2 entry points on the homepage.

† If users select the path “Formation -> Plate-forme e-learning (LMS)”, the search function becomes unavailable.

† Some users may find the different keywords used to signal the search (chercher, recherche, valider) confusing.

**Moderate users**

‡ The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.

† Moderate users may be vexed by the fact that the search function disappears when they click on the e-learning platform.

**Expert users**

† The user can bookmark the homepage of the function.

### Quality of usage experience

**Novice users**

† Excellent way of presenting the results; there is a summary for each one, the types of results are reported at the top of the search page, the search keywords are highlighted, colour coding is additionally used to separate results and if the search gives no results, this is clearly signalled to users.

† The results also use line separators which make them visible for colour-blind users.

† The results page provides users with the ability to perform a new search; this a good design example.

† Each result contains the actions that can be performed. This is a good design example.
| The results appear in pages. This can decrease the information that appears in one screen, making the results more readable |
| If users know what they are looking for, they may interact relatively easily. However, the results need to provide more information about the meaning of some terms |
| The category “Consulter le catalogue dans une version imprimable” (consult the catalogue in printable version) doesn’t work right, as it takes users to the welcome page |
| There is also an alphabetic search, but there is no indication of what is behind it |
| Once users perform a search, there is a search (recherche) link that hides the advanced search details, but there is no information as for its function |
| The results of the category “Recherche par spécialités” of the search button could be better organised and “clear”. A good way is to present all the links of specialities and by clicking, it could give the details about the kind of speciality |

**Moderate users**

| Moderate users will probably appreciate the advanced search |
| Moderate users can easily make use of the function, because the only steps needed is to locate the function and fill the search parameters |
| Moderate users have the option to access the results’ details by clicking on the title as well as on the ‘details’ link on the bottom left of each result |
| The existence of a mechanism for filtering and sorting the results of searches would provide the means for moderate users to use more efficiently the function |
| It would be good, since there are two drop-down menus, to shorten the options of the second one according to what the user has selected in the first one |

**Expert users**

| Expert users will probably appreciate the advanced search |
| Expert users can easily make use of the function, because the only steps needed is to locate the function and fill the search parameters |
| Expert users have the option to access the result’s details by clicking on the title as well as on the 'details’ link on the bottom left of each result |
| There is no facility for viewing results with sorting and filtering facilities |
Chapter 4 - RESULTS OVERVIEW AND DISCUSSION

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### Relationship maintainability

#### Novice users

↑ The function is straightforward and easy to find

↓ There are unexplored aspects, that could confuse the user, and the user can only understand by testing things, as there is no help

↓ It would be good to have a history, a bookmark and a delete function about the courses users are interested in

↓ Users should have the ability to sort the results prior to or after performing the search

#### Moderate users

↑ The function is straightforward and easy to find

↓ There are unexplored aspects, that could confuse the user, and the user can only understand by testing things, as there is no help

↓ The system should allow saving profiles for quicker searches (upon Registration)

#### Expert users

↑ The function is straightforward and easy to find

↑ Expert user can easily explore this function in depth, because the steps needed in order to perform a search are quite common with other search functions. Furthermore, the search results page offers many facilities that expert users use when accessing search results

↓ The system should allow saving profiles for quicker searches (upon Registration)

↓ There are unexplored aspects that could confuse the user, and the user can only understand by testing things, as there is no help

↓ It would be good to have a history, a bookmark and a delete function about the courses users are interested in

↓ Users should have the ability to sort the results prior to or after performing the search

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**Function 4: Wiki pages**

| Score: 1 |

The wiki is a relatively new means of self-expression, communication and collaboration on the Internet; Formavia has a Wiki function, which is complementary to the forums and its main purpose is to communicate events to other members. The function scores extremely well in its availability – not surprising since there is a

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Formavia, FRANCE (eLearning)

FORTH-ICS

TR-373, February 2006
shortcut to it in the homepage of the portal – and in its relationship maintainability, because users will appreciate the power it gives them to modify the content of the webpages on their own. The wiki function has a high degree of quality of use for moderate and expert users, but scores negatively for novice users, who might become confused by all the information they have to read before making use of the function.

### Visibility

↑ The Wiki link appears on the top menu under the campus category, on the middle right side of the screen and near the end of the page

↓ Visibility for low vision users is not good as the font sizes in the pages are strict, thus not allowing the user to increase or decrease effectively the font size

↓ The menu bar appearing in the top side of the screen will only work with JavaScript enabled. This can cause problems with users using older browsers or screen readers or generally having JavaScript disabled

↓ Users cannot have a direct access to the function, if they select the path “Formation->LMS”

### Usefulness

↑ There is good guidance about the utility of this function through the ‘what is a wiki’ link

↑ The wiki contents are visible from the wiki main page revealing what users may find “inside” the function

↑ Users can see the wiki information at the end, including how many pages there are and which are most frequently updated, thus enticing them to look further into them

↓ The preliminary information provided after clicking on the “Wiki” doesn’t help users to quickly understand the purpose of this function

### Availability – approachability

**Novice users**

↑ Novice users will not have problems locating the function, because it is well placed and labelled

**Moderate users**

↑ The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point

**Expert users**

↑ Expert users will not have any problems reaching the function
The user can bookmark the homepage of the function

**Quality of usage experience**

**Novice users**

- The user can bookmark the homepage of the function
- On the wiki main page help is offered
- The index function is well designed and allows users to alphabetically filter the available wiki pages
- On the top of the page users can see the path they have followed, including where they are at present, so they don’t get lost during navigation
- The ‘create new topic’ function appears in the upper and bottom side of topics. This is a good design example
- The search wiki page function is quite straightforward for novice users that are familiar with basic searching facilities, and it gives users the possibility to choose different search options
- A part of the function is dedicated to the experimentation with the wiki
- The function contains a comprehensive history with modifications; on every page there is the date of last modification, as well as an option to see its previous state
- First time users will encounter problems using the function, especially if they do not know the concept of wikis, and they will need to read a lot of instructions on how to create their own page
- There is no policy or code of conduct
- The function names used do not offer enough information for novice users
- Many functions of the wiki development page when selected appear in pop-up windows that are not accessible for blind users
- While evaluating the system, an unknown error occurred that caused everything to malfunction. The only indication the system gave was “Impossible d’afficher la page” for every page, which means ‘impossible to display the page’
- On the wiki page there are 2 searches, one for the wiki with the ‘go’ button and one for the whole site with the ‘cherche’ button but unless used one cannot know which is which

**Moderate users**

- Moderate users will not encounter any problems using the function if they are familiar with basic wiki creation functions
Moderate users can benefit from the shortcut of double-clicking a page to modify it

Although users with little experience in wikis may encounter the same problems as novice users

**Expert users**

- Expert users can take full advantage of the facilities offered by wikis, especially if they have knowledge in this area
- The wiki functionality is well designed to serve the needs of expert users compared with other implementations available on the net

### Relationship maintainability

**Novice users**

- Novice users in order to explore in width this function must read much information and spend time experimenting with the functions facilities

**Moderate users**

- The pages created by users are stored by the system and in that way users are motivated to access again the function in order to improve their pages or create new pages
- The completion of a new wiki page can excite users that probably will use this function again

**Expert users**

- Expert users will not have problems exploring the system in depth especially if they have related background knowledge

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**Function 5: Forum**

The discussion forums of Formavia have a medium degree of visibility and this is related to some accessibility problems that need to be solved. Usefulness is on the positive side, while availability scores high for all user types. Quality of usage experience has revealed many good design examples for the given function. However, the final score was not as high due to the limited intervention possibilities offered to users. Mainly for the same reason relationship maintainability was poor, since users who cannot intervene in the material they have posted themselves may feel they have no control over the function.

### Visibility

- The Discussion forum link appears on the top menu under the campus category and on the middle right side of the screen
- Visibility for low vision users is not good, as the font sizes in the pages are strict, thus not allowing the user to increase or decrease the font size
The menu bar appearing in the top side of the screen work only with JavaScript enabled. This can cause problems with users using older browsers or screen readers or generally having JavaScript disabled.

If users select the path “Formation->LMS”, they lose direct access to this function. They need to go back to the main menu by pressing their browser’s back button or the ‘retour’ link on each page.

**Usefulness**

- The discussion topics are available to all to look at whether they are registered or not.
- The preliminary information provided after clicking on the “forum” help users to quickly understand the purpose of this function.
- In both instances where there is a link to the forum area it is introduced as a “collaborative space”, introducing users to the functionality of this link.
- There is a small help in the explanation of the icons, but there is not any kind of guidance for the operation.
- Although the interface is simple, it could be more compact, so that users don’t feel lost in so much information.

**Availability – approachability**

**Novice users**

- Novice users will not have problems locating the function, because it is well placed and labelled.
- One general topic is available to all, the rest are open to registered users only.

**Moderate users**

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.
- One general topic is available to all, the rest are open to registered users only.

**Expert users**

- The function can be easily accessed by moderate users. This group will not encounter any problems remembering the actions needed to reach the function entry point.
- Users can bookmark the homepage of the function.
- One general topic is available to all, the rest are open to registered users only.
Quality of usage experience

Novice users

⇧ First time users will not have problems using the function, because the structure of the forum is quite straightforward. There are forum topics and messages in three levels, that is quite straightforward and exist in most forum implementations.

⇧ The form that must be completed by the user has simple and well-explained fields. Also, the system presents the suitable fields for completion according to whether the user is logged in or not. Also, the system informs users about the fields that have to be completed in case they forget to complete any of them.

⇧ Each forum except from its title contains information about the enclosed topics and messages. Similarly, each topic contains information about the messages posted. This is a good design example.

⇧ Topics that contain new messages are marked differently. This is a good design example.

⇧ The ‘create new topic’ and reply to existing topic functions appears in the upper and bottom side of messages. This is a good design example.

⇧ The reply form is incorporated in the messages page thus making the interaction easier.

⇧ The steps for the operation of this function are simple and common to similar functions.

⇧ The results are the expected ones and their presentations are of good quality.

⇧ When inside the forum, there is no distinct ‘back’ button available, which may confuse novice users.

⇧ There is a short notice about security of data and handling of information inside the forums.

⇧ Users can post a photo along with their message.

⇩ No help facility is provided.

⇩ No possibility to directly contact any of the persons that post in the forum.

⇩ Users cannot delete data they have inserted on their own, they need to contact the system administrators.

⇩ No possibility to post attachments with messages or to insert emoticons.

Moderate users

⇧ Moderate users will not encounter any problems using the function, because it
is well designed and similar to other forum implementations. Moreover, all the advantages that apply to novice users apply here as well

⇧ The path is on the top left side of the page, and users can click their way to upper levels

⇩ The pitfalls of the function are shared among novice and moderate users, with the added negative point that there are no means to format the message

**Expert users**

⇧ Expert users share the same positive points of the function with novice and moderate users

⇩ Similarly for the negative parts of the function

### Relationship maintainability

**Novice users**

⇧ The forum function is well designed and all action links well placed. Novice users will not have any problems exploring the function in depth

⇩ All users should have the possibility to erase and change any of their messages in the forum. If not, this may create discomfort with the function and users may choose not to use it again

⇩ Users cannot see all their contributions in the forum together, which also acts contrarily to the forging of a relationship with the function in question

**Moderate users**

⇧ Same as above

**Expert users**

⇧ Same as above

<table>
<thead>
<tr>
<th>Function 7: <strong>Registration</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The registration procedure for individual users of the Formavia portal is a function that normally takes place only once and for this it is assumed that all users will not go beyond being new to the function. Moreover, due to the nature of the function, there is no need to examine relationship maintainability either. With regards to the score, the visibility of the registration link is below acceptable levels due to some misleading information on the webpage. Both usefulness and the overall quality of the usage experience are neutral, because in the first case the system makes no effort to entice users to register, while in the second, although there are many strong and weak points, neither side dominates.</td>
<td></td>
</tr>
</tbody>
</table>
### Visibility

† The function is quite visible (it appears in the top right side of the page)

† Users are prompted to register every time they try to access a restricted area of the website

‡ There are 3 links that seem to lead to the same function, but only one is of relevance to the actual users: [1. Identifiez-vous pour accéder à votre espace personnel, (identify yourself to access your personal space) 2. Dossiers de demande d’adhésion FORMAVIA (application forms for Formavia), 3. Information->Rejoindre Formavia (Information>Join Formavia)]. This is highly confusing to users and some differentiation should be made between links

‡ Visibility for low vision users is not good, as the font sizes in the pages are strict, thus not allowing the user to increase or decrease effectively the font size

### Usefulness

† The preliminary information provided after clicking on the “Register” link help user to quickly understand the purpose of this function

† Once users have found the option of registration, they can easily register

‡ Little preliminary information is offered on what users will gain by registering; users may only guess the utility of the function by clicking on parts of the website to figure out what parts they will be able to access upon registration

‡ In the registration form there are problematic buttons [Valider, Recommencer, Quitter]. They flicker while users try to interact with them

### Availability – approachability

**Novice users**

† First time users should find it quite easy to locate and reach the entry point of the function

† The steps needed to complete the register function are quite straightforward, so novice users should not have problems exploring the function in depth

‡ There is a problem in deciding which one of the ‘register’ links is the right one

‡ The system does not provide any explanation about the differences of these options. There isn’t any global help from the system either

‡ First time or novice users may not have e-mail information, so they can not register
### Chapter 4 - Results Overview and Discussion

**Moderate users**

*Not applicable as this is a one time process*

**Expert users**

*Not applicable as this is a one time process*

<table>
<thead>
<tr>
<th><strong>Quality of usage experience</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>✆ When users click on the function the information provided to them can help understand the actions that must be made to complete the registration</td>
</tr>
<tr>
<td>✆ The registration form is quite straightforward and easy to understand by potential users</td>
</tr>
<tr>
<td>✆ There is a password reminder option</td>
</tr>
<tr>
<td>✆ There is technical support email and phone number</td>
</tr>
<tr>
<td>✆ Users get informed appropriately when the registration is finished, and the system automatically logs them in</td>
</tr>
<tr>
<td>✆ After completing the first parts of the form, the system automatically suggests a username and password</td>
</tr>
<tr>
<td>✆ The registration form appears in a popup window, thus causing problems to blind users using screen readers or popup blockers</td>
</tr>
<tr>
<td>✆ Some parts of the form malfunction if viewed with Mozilla Thunderbird</td>
</tr>
<tr>
<td>✆ If users select the path “Formation-&gt;LMS” and they haven’t logged in they will be prompted to do so. However, if they click on their browser’s button to return to the homepage, they will appear as unregistered, unless they refresh the webpage</td>
</tr>
<tr>
<td>✆ Once registered, users cannot un-register themselves from the system</td>
</tr>
<tr>
<td>✆ The automatic assignment of a username and password gives the same keyword for both</td>
</tr>
<tr>
<td>✆ The help provided mostly has to do with how to enable cookies and not with how to complete the form</td>
</tr>
</tbody>
</table>

**Moderate users**

*Not applicable as this is a one time process*

**Expert users**

*Not applicable as this is a one time process*
**Relationship maintainability**

_Not applicable as this is a one time process_

<table>
<thead>
<tr>
<th>Function 8: <strong>Modify profile</strong></th>
<th>Score: 0</th>
</tr>
</thead>
</table>

Upon registration users are asked to create their own profile, which they can alter at all times. Within the profile page they can also subscribe or unsubscribe to the Fromavia newsletter. The elements of this function are mostly negative, and users are likely to be disappointed by some of its features, in spite of the fact that before actually using the function they tend to believe that the function is of relevance to them. Nevertheless, the negative points of the usage experience and the relationship maintainability are balanced by the positive aspects of the function, resulting in an overall neutral score.

**Visibility**

⇧ Once users have logged in, the “modify” option appears below their name

⇧ The function is well placed appearing in the right side of the page

⇩ If users select the path “Formation -> LMS”, the option to modify profile appears in a different place and with a different name

⇩ Novice users may have trouble locating the functions, because the link “personal space” used to identify the function is quite misleading. A better verbalisation would be ‘Votre profil’ or ‘Votre fiche utilisateur’

⇩ Visibility for low vision users is not good, as the font sizes in the pages are strict, thus not allowing the user to increase or decrease effectively the font size

⇩ The link is not embedded in any of the menus

**Usefulness**

⇧ The form is well organized into categories of personal information, thus motivating novice users to use the function

⇧ The preliminary information provided after clicking on the “personal space” link help users to quickly understand the purpose of this function

⇧ The fields that have to be completed are reasonable and useful

⇩ No notice that through this function users can also subscribe to the newsletter

⇩ There is no reference to the utility of the function

**Availability – approachability**

Novice users
The link of this function is in a reasonable place: below the user’s name

There is no direct access to this option when users select the path “Formation-LMs”

First time users may encounter difficulties to locate and reach the entry point of the function

**Moderate users**

Moderate users will not have problems locating the function, because it is located under the navigation bar

Problems may occur with the labelling of the function that is not straightforward

Also, in LMS the function is placed in a different place and under a different title

**Expert users**

Expert users will not have problems locating the function, because it is located under the navigation bar

Problems may occur with the labelling of the function that is not straightforward

---

**Quality of usage experience**

**Novice users**

The alter profile form is well organized and the input fields well labelled, thus enabling users to use the function efficiently

When users click on the function the information provided to them can help them understand the actions that must be made to change their profile

Fonts can be altered, which is indispensable for users with low vision

The system displays a notification both for success and failure

Confusion with the password: the system prompts users to change password even when they have no intention of doing so

Font alteration does not affect the ‘valider’ (validate) button, which is additional has low contrast

The system automatically selects the ‘subscribe to newsletter’ option every time users open their profile, thus making them subscribe even when they don’t wish so

There is a problem with the photo insertion for the profile. Additionally, the
text on button for adding a picture is always ‘changer’ (change) even of there is no photo. This is a minor stylistic mistake, but, ideally, the button should be precise and have the label ‘ajouter’ (add)

- The notification text when a user forgets to fill a required field of the form is not easy to locate because of the positioning (the upper side of the form) and the font colour (black)

**Moderate users**

- Moderate users will not have problems using this function because it is quite similar to most methods used to alter user profile

- The problems moderate users might face do not differ much from those of novice users

**Expert users**

- Expert users are familiar with editing profile methods so there shouldn’t be any problems

- Expert users should face the same problems and frustrations with the function as any less practiced ones

**Relationship maintainability**

**Novice users**

- The steps needed to compete the alter profile function are quite straightforward, so novice users should not have problems exploring the function in depth

- Novice users may find altering their data easy but in the end they may become very confused by the system suggesting that they have changed their password when they have not done so

**Moderate users**

- Same as above

**Expert users**

- The function steps are quite few and straightforward, thus enabling expert users to explore the function in depth

- Expert users may find it frustrating to have to re-enter their password every time they open the profile page
4.9 Open University, UK (eLearning)

4.9.1 System Description

The Open University (OU) is the United Kingdom's only university dedicated to distance learning (see Figure 12). The OU admitted its first students in 1971. It is the UK's largest University, with over 200,000 students and customers. There are around 150,000 undergraduate and more than 30,000 postgraduate students. 10,000 of these students have disabilities.

http://www.open.ac.uk/

- UK’s open university needs no introduction
- It’s site offers information on prospective students and their family
- Only registered users have access to the online courses

Figure 12. Open University, UK (eLearning)

The Open University provides education based on the principles and methodology of Supported Open Learning. Open University courses are delivered as an integrated combination of media and methods, each chosen for its unique contribution to the learning experience. It is essential to provide the appropriate balance of media – text, audio, video, interactive simulations, database resources, IT tools and communication environments. Nearly all students are studying part-time, representing 22% of all part-time higher education students in the UK. About 70 per cent of undergraduate students are in full-time employment. More than 50,000 students are sponsored by their employers for their studies and 11,000 people are currently studying for OU Higher Degrees. A third of UK undergraduate students have entry qualifications lower than those normally demanded by other UK Universities. Despite this, around 70% of OU students successfully complete their courses each year. Most OU courses are available throughout Europe. Some of them are available in many other parts of the world, usually by means of partnership agreements with other institutions. About 26,000 learners are studying OU courses outside the UK. Two thirds of the students are aged between 25 and 44, however to commence a course one must be at least 18 years of age when the course starts but there is no upper age limit. The University is ranked amongst the top UK Universities for the quality of its teaching.
4.9.2 Inspection team

Three members participated in the inspection team, two males and one female. They were all experts in user interface design, accessibility issues, and usability evaluations. All members have accessed the system for the first time, and they had no relation to its providers. The overall level of familiarity with similar eLearning services was moderate, while the overall familiarity with the inspection method as well as with other similar-purpose tools was high. None of the inspectors had any problem understanding written English.

Inspector 1 (Leader) Inspector 1 (and leader of the group) is Greek and an expert in user interface design, accessibility issues, and usability evaluations. He has no relation to the system he has assessed or to its providers; in effect the first time he entered the Open University website was for the purposes of the present usability inspection. Moreover, he is only slightly familiar with similar systems but he has an excellent command of the present inspection methods as well as of similar purpose tools. Finally, his comprehension of written English is excellent.

Inspector 2 Inspector 2 has expertise in user interface design, web design and usability evaluations. She has no connection to the Open University or to its providers and has accessed the system for the first time for the purposes of this inspection. Nevertheless, she has accessed similar eLearning systems in the past and she is very familiar with both the current inspection method and with similar evaluation tools. Finally, she has an excellent command of the English language, which is used by the system and by the evaluation method at hand.

Inspector 3 The third inspector is Greek and has expertise in user interface design and web design. He has no relation to the system or to its providers and this was the first time he accessed the Open University website. However, he is moderately familiar with similar eLearning services as well as with evaluation methods and tools, including this one. Lastly, he is highly familiar with the English language, which is used in the website and for this evaluation.

4.9.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users in two user groups:

1. Potential Students: the Open University’s website is the receptor of numerous users who are interested in participating in one of the University’s degrees, and are looking for information on the University and the courses it offers.
2. Registered Students: the full potential of the Open University’s website is revealed to its registered students who use the eLearning platform to download material for the courses, deliver essays, participate in online conferences, access the University’s online library and in general make use of all the interactive eLearning tools the website has to offer to its students, in order to complete their courses.

4.9.4 Functions per User Group

User Group 1: Potential Students
Functions that are addressed to citizens wishing to participate in the University’s distance learning programmes are (in bold are the selected ones for inspection):

1. Register
2. Be informed about the studies in UK OU
3. Search courses and qualifications
4. Search (general and advanced)
5. Search prospectus
6. Contact

User Group 2: Registered Students
Functions that are addressed to current students of the Open University are:

1. Use ICT-based learning materials and services
2. Use computer conferencing services
3. Benefit from the online study support and administrative services for students
4.9.5 Inspection results

User-orientation of the overall system (all user groups)

The overall user-orientation of the Open University’s website is very satisfactory and among the highest of the group of services that have been evaluated. The system also scores uniformly high throughout user types (novice, moderate and expert), which shows that experience or lack of it is not a problem when using the system. A very strong point of the Open University is its perceived utility, which is not surprising since the University has been very active in advertising itself. Its visibility to non-users is relatively high also. However, for a website that scores so high in all other user-orientation domains, the possibility for non-users to locate it should be increased. The system also scores very well in availability and overall quality of use, without distinguishing between new and practiced users. Lastly, the potential to forge long-lasting relations with its users is moderate both in terms of functions and in terms of the overall system, which is perhaps the most important point that should require more attention in the future, in order for the service to increase its user-orientation and thus its clientele.
Table 23. **Open University - Overall User-orientation (all user groups)**

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Open University</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>First-time and novice users</th>
<th>Moderate users</th>
<th>Expert users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility to non-users (Form 4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>User Group 1</td>
<td>1.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**USER GROUPS:** User Group 1 ‘Potential Students’
User-orientation of the system (User Group 1)

Potential Students (User Group 1)

Total Score = 3

Visibility  
Scored: 2  
The UK Open University invests much in publicity in order to increase its visibility with its target audience. In effect, television is probably the most widely used medium to advertise the Open University as well as the concept of distance learning, with various BBC materials on the Open University and on the concept of further learning, by occasionally profiling past and current students as role models. The Open University also builds upon its reputation for quality programmes as used by television and radio for general broadcasting, and places advertisements in the national media. Nevertheless, the website scores relatively low, compared to the effort it puts on its publicity, because search engine visibility was moderate with keywords that did not contain its exact name. Moreover, a step towards improving visibility for persons with visual problems would be to render all printed material about the university in Braille.

Perceived usefulness and ease of use  
Scored: 4  
The University proves to be a good usability example in the field of developing a positive reputation regarding its utility and its usability. More specifically, the British Quality Assurance Agency has ranked the Open University amongst the top UK Universities for the quality of its teaching. What’s more, of the 23 subjects assessed by the Agency, 17 have been placed in the 'Excellent' category. Furthermore, persons who are not able to attain third level qualifications due to their lifestyle or special needs would be happy to know that such a level of excellence in education is offered to them online, at the comfort of their home or office. More to the point, the Open University fends for the special needs of disabled users; it provides special support for disabled students, while materials in alternative formats are available for students with disabilities. Services include specific support for people who are blind or partially sighted, deaf or hard of hearing, speech impaired or have restricted mobility and manual skills, dyslexia or other specific learning difficulties, mental health difficulties and other medical conditions.
Availability / Approachability

Scored: novice 3, moderate 3, expert 3

The service is equally available to users whether they are accessing it for the first time or whether they are regular users. The website’s approachability by its users is increased from the url, which is easy to type and remember, and by the fact that the website has been designed so as to be accessible by persons with low Internet connections. Furthermore, the courses use a variety of media to help students learn. Courses may use any of the following different media that can be used from home (or wherever students choose to study): printed course materials; set books; audio cassettes; video cassettes; TV programmes; cd-rom/software; web site; home experiment kit. As a result of the various learning options, students are required to have access to a radio, tape-recorder, television and video recorder as standard. For some courses the University provides its own computers, but most students are expected to also have access to a computer and Internet connection. However, the computer operating system or browser used is not a problem for the website since it is compatible with the most popular systems. The Open University also strives to break down the barriers of disability and language; firstly, it offers special support to its disabled students, such as providing materials in alternative formats or offering tools to users to tailor the website to their needs; and secondly, although the core course material is provided in English, local centres can use whatever language most suited to their students when providing help and support. Courses are available throughout Europe and, usually by means of partnership agreements with other institutions, in many other parts of the world. About 26,000 learners are studying OU courses outside the UK.

Overall quality of interaction experience

Scored: novice 3, moderate 2, expert 2

The system’s functions are more oriented towards new users, although the results for moderate and expert users are not disappointing either. More specifically, the functions are easy to locate and access, while, at the same time, their design helps users form a positive opinion about them even before actual use. Moreover, the usage experience is extremely positive, with the functions addressing novice users somewhat more. The only weak point of the functions overall is their degree of relationship maintainability since they seem to provide little means to users to keep using the system. However, even in this case the system fends for novice users a bit better, which is actually more important, since those who are new to a system are usually those who face the biggest problems and need more attention.

26 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability

Scored: novice 2, moderate 2, expert 2

The Open University website is well designed, with a clear structure, informative and easy to grasp content, short menu buttons and other usability features that entice users to reuse it. Moreover, users may wish to access the website in order to find the email or telephone of the contact service of the university for student matters or in order to contact with a member of the university. Furthermore, users can find on the website general information about the history of the university, how it was set up and what new activities it participates in; besides, the information on the website is never outdated. On the other hand, the Open University’s eLearning website is very likely to be accessed from a shared or public computer, but no information about the privacy of the data users send out to the University could be found. What’s more, the website is restrictive for disabled users since it does not provide access through non-standard interaction, although it ought to be noted that most disabled users of new technologies have their own assistive technology.
Table 24. Open University - Summary of Quality of Usage Experience (User Group 1)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Period of assessment</th>
<th>December 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open University</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User Group’s brief description</th>
<th>Potential Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**First-time and novice users**

<table>
<thead>
<tr>
<th>Function</th>
<th>Visibility to non-users</th>
<th>Perceived usefulness and ease of use to non-users</th>
<th>Availability &amp; approachability to first-time and novice users</th>
<th>Quality of usage experience of first-time and novice users</th>
<th>Relationship maintainability for first-time and novice users</th>
<th>Availability &amp; approachability to moderate users</th>
<th>Quality of usage experience to moderate users</th>
<th>Relationship maintainability for moderate users</th>
<th>Availability &amp; approachability to expert users</th>
<th>Quality of usage experience to expert users</th>
<th>Relationship maintainability for expert users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function2</td>
<td>3.60</td>
<td>3.80</td>
<td>3.80</td>
<td>3.80</td>
<td>0.00</td>
<td>4.00</td>
<td>4.00</td>
<td>-3.00</td>
<td>2.00</td>
<td>1.00</td>
<td>-3.00</td>
<td>2</td>
</tr>
<tr>
<td>Function3</td>
<td>2.28</td>
<td>1.66</td>
<td>3.16</td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>2.50</td>
<td>-3.00</td>
<td>0.50</td>
<td>0.00</td>
<td>3.00</td>
<td>2</td>
</tr>
<tr>
<td>Function4</td>
<td>4.00</td>
<td>4.00</td>
<td>3.00</td>
<td>3.66</td>
<td>3.00</td>
<td>4.00</td>
<td>-0.66</td>
<td>4.00</td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>-1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 2 ‘Be informed about the studies in UK OU’
- Function 3 ‘Search courses and qualifications’
- Function 4 ‘Search (general and advanced)’

---

Open University, UK (eLearning)  
FORTH-ICS  
TR-373, February 2006
List of findings on the quality of interaction experience per function  
(User Group 1: Potential Students)

(the symbols ◊, ◮, and ◉ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 2: Be informed about the studies in UK OU</th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential students at the Open university who access its website in order to find information about the courses should have no problem getting around the website and accessing its information. Moreover, they are likely to find the information very useful. An interesting point about this function is that although novice and moderate users should be given an excellent impression of the quality of the function, those who have accessed the function many times in the past may not be so enthusiastic, since they already know what to expect, and nothing more is given to them. The function also provides little or no incentive for users to regularly enter the function.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

- The function is visible on the homepage and it is also the first option on the top of the page
- Using various browsers or operating systems does not change the visibility of the function

**Usefulness**

- The information provided by this function is complete, valid and should be very useful for anyone interested in distance learning
- There is an analytic help section providing information about the utility of the function
- It is easy to find the links to forms that need to be downloaded

**Availability – approachability**

**Novice users**

- It is very easy to remember how to use this function if one has previously accessed it
- The link to access function is correctly labelled
- The user receives correct confirmation when reaching the right function

**Moderate users**

- The entry point of the function is straightforward to find
- For moderate users it is very easy to remember how to use this function
### Expert users

- The users can bookmark the homepage of the function
- The function is very simple for expert users

### Quality of usage experience

#### Novice users

- Users can see the effect of their actions
- The interaction sequence is similar for all the functions of the system
- The aesthetics of the interaction controls are clear and consistent
- Errors do not occur during the interaction
- Users are appropriately informed about the input expected / required from them
- The process is not boring
- It is easy to abandon the function

#### Moderate users

- The function is reliable
- The system supports standard interaction controls and metaphors

#### Expert users

- There is no way to complete the task more efficiently because it is extremely simple

### Relationship maintainability

#### Novice users

- The users can collect information through e-mail to administrators
- The users do not get informed about changes of the site status. Maybe usage of profiles would help

#### Moderate users

- The users would probably like to know when the information provided was updated for the last time. Also any changes in the site could be tracked with the usage of profiles

#### Expert users

- The users would probably like to know when the information provided was
updated for the last time. Usage of profiles would be beneficial

<table>
<thead>
<tr>
<th>Function 3: <strong>Search courses and qualifications</strong></th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The search function for courses and qualifications scores satisfactorily, due to the increased visibility and perceived utility of the function. Moreover, it is highly available to novice and moderate users, while the same groups would be rather satisfied from the usage experience. However, the score is lowered by the fact that expert users have neutral scores because their demands and expectations, which are naturally higher due to their seniority with using the function, are not met. Relationship maintainability also presents some fluctuations between novice and expert users, for whom it is very high, and moderate users who would like to have some extra not so elaborate options.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

- The visibility of the function is indifferent of the Browser used
- Using various operating systems does not change the visibility of the function
- There is no site map to explain the structure of the site

**Usefulness**

- The information provided after selecting the options to complete this function is very analytical and useful
- The description of the search categories is simple and comprehensive
- The help section does not contain information about the utility of the function neither on how to use it

**Availability – approachability**

**Novice users**

- For the navigation, tabs that are simple and correctly labelled are being used, increasing effectiveness
- The user receives correct confirmation when reaching the right function
- It is easy to remember how to use this function if you have previously accessed it

**Moderate users**

- For moderate users it is very easy to remember how to use this function

**Expert users**

- The users can bookmark the homepage of the function
- Expert users should be able to shortcut to specific steps of the process
Quality of usage experience

**Novice users**

⇧ It is clear to users how to interact with the system
⇧ The aesthetics of the interaction controls are clear and consistent
⇧ The interaction sequence is consistent with those in other functions
⇧ Errors do not occur during the interaction
⇧ The users are appropriately informed about the input expected / required from them
⇧ The process is not boring
⇧ It is easy to abandon the function
⇧ The users can see the effect of their actions
⇩ The interaction is not efficient enough because the user need to follow a needless step in order to have access to main menu

**Moderate users**

⇧ The system use standard interaction controls and metaphors, and therefore should be OK for moderate users
⇧ The information provided is very useful and well organised

**Expert users**

⇨ All users follow the same steps every time in using the function in question

Relationship maintainability

**Novice users**

⇧ There is no way to miss important information

**Moderate users**

⇩ The system does not remember specific preferences of the user. Usage of profiles would be beneficial

**Expert users**

⇧ Expert users can use the advanced options to search

<table>
<thead>
<tr>
<th>Function 4: Search (general and advanced)</th>
<th>Score: 3</th>
</tr>
</thead>
</table>
| The general search function is considerably user oriented, particularly in the fields of visibility and perceived usefulness, where it presents a good practice example. The availability of the function also falls no lower, while the quality of use is particularly
oriented towards novice and expert users, while moderate users might miss some extra functionality. The function also presents a good practice example on its relationship maintainability, which is able to attract even the most expert users.

<table>
<thead>
<tr>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>⬆ The function is visible enough, as it is always located in the main menu on top of the pages</td>
</tr>
<tr>
<td>⬆ Using various operating systems or Browsers does not change the visibility of the function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>⬆ There is an analytical help section</td>
</tr>
<tr>
<td>⬆ It is very easy to use the search function</td>
</tr>
<tr>
<td>⬆ The information provided after selecting the options to complete this function is very analytical and useful</td>
</tr>
<tr>
<td>⬆ The description of the search categories is simple and comprehensive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability – approachability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>⬆ First time users should find it quite easy to locate and reach the entry point of the function</td>
</tr>
<tr>
<td>⬆ The user receives correct confirmation when reaching the right function</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>⬆ For moderate users it is very easy to remember how to use this function</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>⬆ The users can bookmark the homepage of the function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of usage experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>⬆ There are boxes for distinguishing results</td>
</tr>
<tr>
<td>⬆ When there are numerous results that cannot be displayed in one page, it is easy to go to the next page since there is a “Next” link and an arrow</td>
</tr>
<tr>
<td>⬆ The interaction sequence is consistent with those in other functions</td>
</tr>
<tr>
<td>⬆ Errors do not occur during the interaction</td>
</tr>
<tr>
<td>⬆ The users are appropriately informed about the input expected / required from them</td>
</tr>
<tr>
<td><strong>Results Overview and Discussion</strong></td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>⊕ The process is not boring</td>
</tr>
<tr>
<td>⊕ It is easy to abandon the function</td>
</tr>
<tr>
<td>⊕ The users can see the effect of their actions</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>⊕ The function is reliable</td>
</tr>
<tr>
<td>⊣ There is no numbering in the results lists, which would help occasional users to quickly calculate new entries since last viewed. There is only the total number of the results</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>⊕ Users can sort the results by relevance and date, and select the number of results appearing each time</td>
</tr>
<tr>
<td><strong>Relationship maintainability</strong></td>
</tr>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>⊕ The user can be informed when the information provided was updated for the last time</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>⊣ The user can be informed when the information provided was updated for the last time</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>⊗ The users can sort the result by relevance and date</td>
</tr>
<tr>
<td>⊗ The users can select the number of result appearing each time</td>
</tr>
</tbody>
</table>
4.10 Miun, Sweden (eLearning)

4.10.1 System Description

Miun is a Swedish university that offers distance education online courses in cooperation with the Swedish Net University (see Figure 13). The online courses are the result of the merger of two colleges situated in different cities and the emerging need to develop distance-independent techniques in order to have the same course supply at both campuses. Miun offers 159 e-based distance education programmes of a mixed type, thus students can either choose a mix of online and traditional components, or they can obtain their entire course degree online. Moreover, the vast majority of traditional courses offered at Miun contain one or more eLearning components. Participation in the e-courses is among the highest in the country, with 50% of students engaging in some form of distance education. Miun strives to make it as easy as possible for all to participate in its e-courses, providing all the necessary equipment, in cooperation with municipalities, at local learning centres.

http://www.miun.se/

- Swedish university that offers distance education online courses
- Courses can be mixed (online/offline) or they can be delivered entirely online
- There is an English version that provides information to prospective foreign students
- We can evaluate the site from the part of the secondary (foreign) user

Figure 13. Miun, SWEDEN (eLearning)

Central concepts in Miun are that learning policy needs to be independent of distances, and that learning has to be flexible – time and place should be irrelevant. This means that technology such as ICTs will be used more and more. The aim is to make all courses flexible (that is to say to, that all courses the University offers, in principle can be converted into e-courses) – i.e., independent of time and place. Today about 60% of all courses are e-courses and nearly all courses have some kind of e-based learning involved. Another objective is to reach groups of students that normally or traditionally do not participate in university studies. Distance courses normally attract persons living in remote areas, people with working class background, people that have families, and people that combine studies and work; these groups are not traditional students.
4.10.2 Inspection team

The inspection team was made up of three members, two of them male and one female. The inspection leader’s expertise was in user interface design, accessibility issues and usability evaluations. The remaining two members were both experts in user interface design, web design and usability evaluations. None of the inspectors had any relation to the Miun online university, and none had accessed the system prior to its evaluation. Nevertheless, the inspectors were moderately familiar with similar systems and they were proficient in the language used by the system (here the English version is implied), as well as by the inspection instrument. Finally, all inspectors were considerably familiar with both the current inspection method and with evaluation methods and tools in general.

Inspector 1 (Leader)
The leader of the group is Greek and is an expert in user interface design, accessibility of Information and Communication Technologies, and usability evaluations. He had no link to the system or system provider and was vaguely familiar with the system under evaluation or with similar systems. On the other hand, he was extremely familiar with the inspection method he was called to implement as well as with similar evaluation methods and tools. His command of the English language was very good.

Inspector 2
Inspector 2 has a background of user interface design, web design and usability evaluations. She had never accessed the Miun website prior to its assessment and had no link to its provider. However, she was moderately familiar with similar systems. In addition, she has used this inspection tool in the past and also had high familiarity with similar inspection methods. Her command of the English language, which is used in the inspection tool and in the website, is very good.

Inspector 3
Inspector 3 is Greek and his expertise is also in user interface design, web design and usability evaluations. He had no link to the system or to its providers, although he was moderately familiar with similar eLearning systems. Furthermore, he had a moderate knowledge of the given inspection method and of inspection methods and tools in general. Finally, he was fluent in English.

4.10.3 Target User Groups

On a par with the information for the system provider, the inspection team has categorised potential users in three user groups:
1. **Students from Sweden**: This is the primary target group for the Miun website. They use the website to search for available e-courses, find information about
curricula, register for online courses and find data on university procedures and student life in general.

2. **Foreign Students:** they may access the English part of the website to perform about the same functions as their Swedish peers would in the main website.

3. **International Journalists:** the website has a section dedicated to anyone who wishes to be informed about the university and the online courses it offers, as part of its public relations in an international context.

### 4.10.4 Functions per User Group

**User Group 1: Students from Sweden**

Functions that are addressed to Swedish students at the Miun University are:

1. Collect information about available online courses and how to attend them
2. Register to university and e-courses
3. Collect information regarding university procedures and student life in general
4. Search for information in the portal

**User Group 2: Foreign Students**

Functions that are addressed to foreign students at the Miun University are (in **bold** are the selected ones for inspection):

1. **Browse information**
2. **Download forms and the information pack for exchange students**
3. **Contact the university’s International Office as well as other members of the faculty**
4. **Access the library**
5. **Perform search**

**User Group 3: International Journalists**

Functions that are addressed to international journalists at the Miun University are (in **bold** are the selected ones for inspection):

1. **Browse information**
2. **Contact University**
3. **Perform search**
4.10.5 Inspection results

User-orientation of the overall system (all user groups)

The Miun website scores moderately in the inspection for user-orientation, and appears more oriented towards novice users than towards moderate or expert ones. This “bias” towards new users is particularly good for the system though, since it is more important for a system to be user friendly to its new members, who are just beginning to explore its functionalities and to create an opinion about the service, than to knowledgeable users of the system that may be more demanding in terms of functionalities but are also able to bypass many minor usability errors in the design of the system due to their experience. Returning to the websites user-orientation characteristics, potential users of the system should not only be well informed about its existence, but also the sources of information are favourable towards reporting on a system that will cover the needs of its users. However, once users wish to access the system, they will find it moderately available and when they begin to explore its functions, only novice ones will come out satisfied from the usage experience; nevertheless, the system may be less adapted to moderate and expert users but the sum is positive. Likewise, the system offers more ways to keep in touch with novice users and make them regular clients. However, it does not possess the means to make more experienced users return to the system for many times in the future.
Table 25. Miun - Overall User-orientation (all user groups)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Miun</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time and novice users</td>
<td>Moderate users</td>
<td>Expert users</td>
<td></td>
</tr>
<tr>
<td>Visibility to non-users (Form4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td>Quality of usage experience of first-time and novice users (Form 7)</td>
</tr>
<tr>
<td>Visibility to non-users (Form4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td>Quality of usage experience of first-time and novice users (Form 7)</td>
</tr>
<tr>
<td>Visibility to non-users (Form4)</td>
<td>Perceived usefulness and ease of use for non-users (Form 5)</td>
<td>Availability &amp; approachability to first-time and novice users (Form 6)</td>
<td>Quality of usage experience of first-time and novice users (Form 7)</td>
</tr>
<tr>
<td>User Group2</td>
<td>1.84</td>
<td>3.27</td>
<td>0.91</td>
</tr>
<tr>
<td>User Group3</td>
<td>1.78</td>
<td>2.27</td>
<td>0.91</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**USER GROUPS:**  
User Group 2 ‘Foreign Students’  
User Group 3 ‘International Journalists’
User-orientation of the system (User Group 2)

**Foreign Students** (User Group 2)  

**Visibility**  

*Scored: 2*  

The overall score for the website’s visibility to non-users is fairly high, despite the fact that visibility with search engines is only moderate. Nevertheless, the website as well as the online courses it offers are extensively advertised through different means: in effect, the Swedish Net University, which offers the online courses in cooperation with Miun University, offers information about them in its own website and in the information campaigns it leads. Added to this, Miun is in charge of its own publicity campaign and gives out brochures in its study centres and other student offices, such as the International Relations Office, to advertise its e-courses. A small but pertinent improvement would be to render all printed material about the e-courses in Braille.

**Perceived usefulness and ease of use**  

*Scored: 3*  

Foreign students can be informed about the benefits from participating in online courses from the International Office. The services of the website are most important to persons that would otherwise have little chance of participating in university education in order to attain third level qualifications. Besides, prospective students are assured that the courses offered online are equivalent to their offline counterparts and for this reason prerequisites for an online course are established in the same way as in the traditional education system; naturally the University offers the same accreditation for its e-courses as for the traditional ones. In addition, the website gives information to foreign students about the different procedures they need to follow in order to enrol in the University’s courses, such as different application forms, rules and regulations, procedures, requirements, application deadlines and visas for foreigners. Finally, users of the website will be informed about the lessons on Swedish language and culture.
Availability / Approachability

Scored: novice 1, moderate 1, expert 1

The availability of the website is overall satisfactory and displays both positive and negative aspects. On the positive side, users with low Internet connections should have no problem accessing the site, since it has been lightly design with the aim to facilitate downloading times for students without broadband. Moreover, Miun fends for its users who do not possess the right equipment to access the website: lack of equipment is very unusual to be a hindering factor for participating in education. This is because Miun co-operates with local learning centres, which are run by municipalities. At these local learning centres, computers and other technical equipment, necessary for participating in e-based distance courses, are available. Students without access to the required technological equipment can use the equipment of the learning centres. Finally, persons with learning disorders are often satisfied with online studies, since it is easier to read and study at a slower pace. On the downside, the system should clearly state which functions require registration and which are open to all. Also, the courses are taught in English, although English is not a minority language in Sweden. However, other languages are not supported by the e-based courses since by the words of the system’s providers they are very uncommon at Miun. Nevertheless, if the e-courses were to be offered in other languages, then perhaps new target groups would be formed and more persons would participate.

Overall quality of interaction experience

Scored: novice 1, moderate 0, expert 0

Foreigners who wish to enrol for higher education at the Miun University are likely to form an overall neutral opinion about the functionalities the Miun website offers to them, with new users having a small lead in being satisfied about the system’s functions. The overall visibility of the system’s functions for User Group 2 is good, however perceived usefulness is negative, which means that users may miss the point why they should take the trouble to actually use the functions that are offered to them. Once users decide to access the functions, these are invariably accessible to them, whether users are expert or new to these functions. Consequently, after making use of the functions, novice and moderate users are likely to be satisfied, while expert users may actually be disappointed by the simplicity of the functions. Finally, novice users are given more incentives to return to the functions at a later stage than more experienced users.

27 The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
Relationship maintainability

Scored: novice 3, moderate -1, expert -2

The website of the Miun university seems to be more apt at forming longstanding relationships with its users while they are still relatively new with the system, while on the other hand, the fidelity of better practiced users to the system may deteriorate with time. More specifically, novice users will prefer the system because they can find useful information about the university and about the procedures of taking the online and offline courses, including full contact details of all of the university members. Nevertheless, the university does not state on its website any specific policy on how the design of the courses takes account of disabled students and tends for their needs. Moreover, the system provides no extra options to expert users. This may bore them and deter them from reusing the Miun website.
### Table 26. Miun - Summary of Quality of Usage Experience (User Group 2)

<table>
<thead>
<tr>
<th>Name of system</th>
<th>Miun</th>
<th>Period of assessment</th>
<th>October 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Group's brief description</td>
<td>Foreign students</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Visibility to non-users</th>
<th>Perceived usefulness and ease of use to non-users</th>
<th>Availability &amp; approachability to first-time and novice users</th>
<th>Quality of usage experience of first-time and novice users</th>
<th>Relationship maintainability for first-time and novice users</th>
<th>Availability &amp; approachability to moderate users</th>
<th>Quality of usage experience to moderate users</th>
<th>Relationship maintainability for moderate users</th>
<th>Availability &amp; approachability to expert users</th>
<th>Quality of usage experience to expert users</th>
<th>Relationship maintainability for expert users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td>2.30</td>
<td>0.66</td>
<td>0.91</td>
<td>2.68</td>
<td>1.60</td>
<td>0.25</td>
<td>-0.66</td>
<td>-3.00</td>
<td>0.50</td>
<td>-4.00</td>
<td>-3.00</td>
<td>0</td>
</tr>
<tr>
<td>Function 2</td>
<td>2.30</td>
<td>0.50</td>
<td>0.91</td>
<td>2.68</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Function 3</td>
<td>2.64</td>
<td>0.83</td>
<td>3.33</td>
<td>3.44</td>
<td>4.00</td>
<td>4.00</td>
<td>2.80</td>
<td>-3.00</td>
<td>2.57</td>
<td>3.00</td>
<td>-3.00</td>
<td>2</td>
</tr>
<tr>
<td>Function 4</td>
<td>1.05</td>
<td>-4.00</td>
<td>1.33</td>
<td>-1.81</td>
<td>0.00</td>
<td>2.83</td>
<td>4.00</td>
<td>-3.00</td>
<td>2.71</td>
<td>-1.33</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Function 5</td>
<td>2.26</td>
<td>-1.50</td>
<td>1.88</td>
<td>-1.46</td>
<td>2.00</td>
<td>4.00</td>
<td>-2.00</td>
<td>-2.00</td>
<td>1.00</td>
<td>0.00</td>
<td>-4.00</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2</strong></td>
<td><strong>-1</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
<td><strong>2</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
<td><strong>-3</strong></td>
<td><strong>2</strong></td>
<td><strong>-1</strong></td>
<td><strong>-2</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 1 ‘Browse Information’
- Function 2 ‘Download Forms and the Information Pack’
- Function 3 ‘Contact’
- Function 4 ‘Access the Library’
- Function 5 ‘Perform a Search’
List of findings on the quality of interaction experience per function
(User Group 2: Foreign students)

(the symbols ⇧, ⇩, and ⇧ indicate a positive, negative, and neutral inspection finding respectively)

<table>
<thead>
<tr>
<th>Function 1: <strong>Browse Information</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browsing for information related to the university and its activities received a neutral overall score, which was due to the great discrepancies between its usability characteristics. To be more precise, the function’s visibility is more than adequate to the non-user, while its perceived usefulness falls only shortly behind. The availability of the function to its users is adequate, although it does not score high, while both quality of use and relationship maintainability display a similar pattern: they score considerably high for novice users, but they reach the extremes of the negative scale when the question comes to moderate and expert users.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

⇧ The visibility of the function is increased by the existence of a sitemap

⇧ When users have selected Academics, it is fairly easy to collect the required information

⇧ Using various browsers or operating systems does not change the visibility of the function

⇧ Accessing the web page with low rate connection does not change the visibility of the function

⇩ The user has to select the ‘Academics’ option to collect information regarding university procedures and student life. Since this information is pretty important for distance learning, it should be available in the main menu

⇩ Users with cognitive impairments may face problems locating the information they want

⇩ Searching “University procedures” and “Student life” is not very helpful. Many results are in Swedish, despite searching with English keywords

**Usefulness**

⇧ The information provided by this function is complete, valid and should be very useful for anyone interested in distance learning

⇩ The help section does not contain information about the utility of the function neither on how to use it
### Availability – approachability

**Novice users**

- It is very easy to remember how to use this function if one has previously accessed it, since the main menu’s options are simple and correctly labelled

- The user receives correct confirmation when reaching the right function

- The entry point of the function is not straightforward to find

- It would be better if the options in the Academics menu where not in alphabetical order but according to their importance

**Moderate users**

- The main menu’s options are simple and correctly labelled, thus for moderate users it is very easy to remember how to use this function

- The entry point of the function is not straightforward to find

- It would be better if the options in the Academics menu where not in alphabetical order but according to their importance

**Expert users**

- The users can bookmark the homepage of the function

- Expert users should be able to create shortcuts to specific steps of the process

### Quality of usage experience

**Novice users**

- The interaction sequence is consistent with other functions

- Errors do not occur during the interaction

- Users are appropriately informed about the input expected / required from them

- The process is not boring

- It is easy to abandon the function

- Users can see the effect of their actions

- The aesthetics of the interaction controls are clear and consistent

- The interaction is not efficient enough, because users need to follow a needless step in order to have access to main menu

**Moderate users**

- The system uses standard interaction controls and metaphors, and therefore
should be usable to moderate users

Expert users

There is no way to complete the task more efficiently

---

### Function 2: Download Forms and the Information Pack

<table>
<thead>
<tr>
<th>Score: 1</th>
</tr>
</thead>
</table>

Function 2 has a satisfactory degree of user-orientation, which is due to the fact that none of its characteristics falls below zero. More specifically, the function’s visibility is considerably high, its utility and quality of use are satisfactory and the function has a high degree of relationship maintainability. It ought to be noted that due to the nature of the particular function only user-orientation for novice users has been assessed since the downloading of forms is a procedure that usually should take place only once or twice in case something is missed out, but in any measure users are unlikely to access it regularly.

#### Visibility

- Same as for Function 1

#### Usefulness

- The information provided by this function is complete, valid and should be very useful for anyone interested in distance learning
- It is easy to find the links to forms that need to be downloaded
- The help section does not provide information about the utility of the function

#### Availability – approachability

Novice users

- It is very easy to remember how to use this function if one has previously

---

Miun, SWEDEN (eLearning)

FORTH-ICS

TR-373, February 2006
accessed it

† The main menu’s options are simple and correctly labelled

† The user receives correct confirmation when reaching the right function

⇩ It would be better if the options in the ‘Academics’ menu were not in alphabetical order, but according to their importance

⇩ The entry point of the function is not straightforward to find

**Moderate users**

*Not applicable*

**Expert users**

*Not applicable*

### Quality of usage experience

**Novice users**

† The interaction sequence is consistent with other functions

† The function is not error prone

† Users are appropriately informed about the input expected / required from them

† The process is not boring

† It is easy to abandon the function

† Users can see the effects of their actions

† The aesthetics of the interaction controls are clear and consistent

⇩ The interaction is not efficient enough, because the user needs to follow a needless step in order to have access to main menu

**Moderate users**

*Not applicable*

**Expert users**

*Not applicable*

### Relationship maintainability

**Novice users**

† The users can also collect information through e-mail to administrators

⇩ The user does not get informed about changes of the site status
### Function 3: Contact the International Office

Getting in touch with the International Office should pose no particular problems to users; the function is very easy to locate and access, although its utility is not so straightforward. The quality of use is consistently high across users of different expertise with the function, but the same could not be claimed for relationship maintainability, which is excellent for novice users but very disappointing for all practiced users.

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The link Contact can be reached not only through the main menu but also through the right hand menu of the website</td>
<td></td>
</tr>
<tr>
<td>The visibility of the function is indifferent of the Browser used</td>
<td></td>
</tr>
<tr>
<td>The visibility of the function is increased by the existence of a sitemap</td>
<td></td>
</tr>
<tr>
<td>Using various operating systems does not change the visibility of the function</td>
<td></td>
</tr>
<tr>
<td>Accessing the web page with low rate connections does not change the visibility of the function</td>
<td></td>
</tr>
<tr>
<td>Users with cognitive impairments will not face problems locating the information they want</td>
<td></td>
</tr>
<tr>
<td>Blind users will probably face problems locating the appropriate information, if they don’t have their own assistive technology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usefulness</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The information provided by this function is complete, valid, well structured, clearly labelled and should be very useful for anyone interested in distance learning</td>
<td></td>
</tr>
<tr>
<td>The help section does not contain information about the utility of the function, neither on how to use this function</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability – approachability</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First time users should find it quite easy to locate and reach the entry point of the function</td>
<td></td>
</tr>
<tr>
<td>The user receives correct confirmation when reaching the right function</td>
<td></td>
</tr>
</tbody>
</table>

**Moderate users**

*Not applicable*

**Expert users**

*Not applicable*
It is easy to remember how to use this function if the user has previously accessed it

**Moderate users**

- For moderate users it is very easy to remember how to use this function
- Since the function is on the right-hand menu that is always present during navigation to the site, no problem should arise when trying to locate it for a second time

**Expert users**

- The users can bookmark the homepage of the function
- Shortcuts are provided for quickly accessing the function
- However, expert users should be able to create their own shortcuts to specific steps of the process

### Quality of usage experience

**Novice users**

- Users can see the effect of their actions
- The interaction sequence is similar for all the functions of the system
- The aesthetics of the interaction controls are clear and consistent
- Errors do not occur during the interaction

**Moderate users**

- While testing the system, no problem with the function was noted
- The system use standard interaction controls and metaphors, and therefore should be OK for moderate users

**Expert users**

- The interaction in order to complete the task is quite fast
- All users follow the same steps every time in using the function in question

### Relationship maintainability

**Novice users**

- All the important aspects of the functions are explored
- The users can also collect information through e-mail to administrators

**Moderate users**
The user would probably like to know when the information provided was updated for the last time. Users should be able to have a profile.

Expert users

The user would probably like to know when the information provided was updated for the last time.

<table>
<thead>
<tr>
<th>Function 4: Access the Library</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessing the library displays both good practice examples and serious usability pitfalls; the visibility of the function may be adequate, but its perceived utility scores on the lowest part of the scale, since the function is rather confusing to users at a first glance. Nevertheless, it has good availability for new users, which ameliorates as novice users become more practiced. The quality of use is controversial between novice and expert users, for whom it scores badly, and moderate users for whose it scores high. Relationship maintainability is rather poor, in particular for moderate users.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

The option for accessing the library is always available as a shortcut on top of the site’s pages.

Users with cognitive impairments may face problems locating the information they want.

Using various browsers or operating systems does not change the visibility of the function.

Searching “library” was not helpful. No results at all were obtained.

Blind users will probably face problems locating the appropriate information if they don’t have their own assistive technology. Also the site of the library opens in a new window, which is not helpful for blind users.

Usefulness

The interaction sequence is not similar to the others functions of the system.

The effects of users’ actions are not clear enough.

Availability – approachability

Novice users

The entry point of the function is straightforward to find.

It is easy to remember how to use this function if the user has previously accessed it.

If a first time user has a pop-up blocker, s/he will not be able to access the library.
### Moderate users

- It is very easy to remember how to use this function if the user has previously accessed it
- There is not appropriate support from the system

### Expert users

- The users can bookmark the homepage of the function
- There is a shortcut available
- There is no way to interact faster

### Quality of usage experience

#### Novice users

- The interaction sequence is consistent with those in other functions
- It is not clear enough to users how to interact with the system
- If a novice user doesn’t know about pop-up blockers, s/he will not recover from this error
- It is not clear enough to the users what to do when selecting the option Library

#### Moderate users

- While testing the system, no problem with the function was noted

#### Expert users

- Users need to make 1 or 2 clicks (depending on the status of the shortcuts menu) in order to access this function. Maybe having the library in the main menu would help users to use this function more efficiently
- All users follow the same steps every time in using the function in question

### Relationship maintainability

#### Novice users

- The users can also collect information through e-mail to administrators
- The user does not get informed about changes in the site status

#### Moderate users

- Users should be able to have a profile

#### Expert users

- Nothing is done by the site to entice users to return to it
<table>
<thead>
<tr>
<th>Function 5: <strong>Perform a Search</strong></th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Although non-users should be able to locate the existence of the function pretty easily, the benefits from using it may be unclear to them. Nevertheless, the function is readily available for all users, especially novice and moderate ones. The low point of the function is its quality of use, which is not detrimental but still is on the negative scale, and its ability to create longstanding relations with its moderate and expert users.</td>
<td></td>
</tr>
</tbody>
</table>

**Visibility**

↑ The option for searching appears always on top of the site’s pages  

↑ Visibility for low vision users is quite good as the font sizes in the pages are relative and not strict, thus allowing the user to increase or decrease effectively the font size. But they also should use assistive technologies  

↑ Using various browsers or operating systems does not change the visibility of the function  

↓ Users with cognitive impairments may face problems to locate the information they want

**Usefulness**

↑ There are some search tips  

↓ The function is too simple without any criteria and options  

↓ The help section does not provide information about the utility of the function  

↓ After the first search, at the page with the results the user can also make a new search, but it doesn’t work properly

**Availability – approachability**

**Novice users**

↑ First time users should find it quite easy to locate and reach the entry point of the function  

↓ The user receives correct confirmation when reaching the right function  

↓ It is easy to remember how to use this function if the user has previously accessed it  

↓ The search button is too small

**Moderate users**

↑ Since the function is always on top of the website’s pages, no problem should arise when trying to locate it for a second time
**Expert users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The user can bookmark the homepage of the function</td>
<td></td>
</tr>
</tbody>
</table>

**Quality of usage experience**

**Novice users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Users are appropriately informed about the input expected / required from them, and they can clearly see the effects of their actions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It is difficult for users to recover from errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The few results of the search engine make this function not very helpful</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When no results are found, no explanation is provided</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When there are many results it is difficult to go to the next page, since the numbers have a very small active field to click. Also arrows for the next and last page are not used. Finally, it is very difficult to see which page of the results users are looking at, since there is no reference to the page number and colours alone are used to distinguish the page numbers</td>
<td></td>
</tr>
</tbody>
</table>

**Moderate users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There is no numbering in the results lists, which would help occasional users to quickly calculate new entries since last viewed. There is only the total number of the results</td>
<td></td>
</tr>
</tbody>
</table>

**Expert users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The function can quickly and easily be accessed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The user should be allowed to see the results with various sorting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All users follow the same steps every time in using the function in question</td>
<td></td>
</tr>
</tbody>
</table>

**Relationship maintainability**

**Novice users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The users can also collect information through e-mail to administrators</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The user does not get informed about changes of the site status</td>
<td></td>
</tr>
</tbody>
</table>

**Moderate users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There should be profiles for quicker searches</td>
<td></td>
</tr>
</tbody>
</table>

**Expert users**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There is not an option for more advanced search</td>
<td></td>
</tr>
</tbody>
</table>
User-orientation of the system (User Group 3)

International Journalists (User Group 3)  

Visibility  
*Scored: 2*  
The Miun website is highly visible to journalists, since any campaign led by the university also advertises its online courses. Moreover, the Swedish Net University also provides published material that mentions Miun due to their cooperation in developing and rendering the e-courses to students. Furthermore, journalists who are interested in finding information about the university’s history and activities can contact the International Office, which may direct them to the Miun website, containing all the required information.

Perceived usefulness and ease of use  
*Scored: 2*  
The website scores relatively high on perceived usefulness and ease of use since it is clear to users that Miun deals with distance education and this may be extremely useful to a group of persons that can only rely to distance learning in order to receive a university degree, due to their lifestyle. Moreover, anyone interested can address queries concerning the university and life in the country at the International Office or through an email dedicated to this, found in the Miun website. The only important fault is that it is not easy to find information that associates the university with industry and commerce, local authorities, governmental authorities and other bodies in the region.

Availability / Approachability  
*Scored: novice 1, moderate 1, expert 1*  
Same as for User Group 2 (see B.1.10.e.2 Availability / Approachability (Scored: novice 1, moderate 1, expert 1))

Overall quality of interaction experience

International members of the Press who are looking for information about the Miun University and its activities should leave the website more satisfied than not. Both summative visibility and perceived utility of the functions are moderate, however, the functions score considerably high on availability and approachability. The overall quality of use is also satisfactory, especially for novice and expert users, while moderate users lag behind. Finally, the functions offer more opportunities for creating a stable relationship to novice users, while on the other hand they fail to create longstanding bonds with more practiced users.

*28* The inspection scores on the quality of interaction experience for each system function are summarized in the next table. Then a full list of inspection findings per function is presented.
**Relationship maintainability**

*Scored: novice 0, moderate -1, expert -4*

The Miun website scores poorly in relationship maintainability for the user group in question, because it lacks information and functionalities, which could be disturbing for users as they become more familiar with the system. Thus, the system is only able to cover the basic informative needs of journalists possibly interested in the university and its online courses, and in addition it offers no functionalities to its users for staying up-to-date with the university’s news and activities. The only incentive for users to reuse the system after some time would be in order to search for the contact details of a university member.
### Table 27. Miun - Summary of Quality of Usage Experience (User Group 3)

<table>
<thead>
<tr>
<th></th>
<th>Miun</th>
<th>Period of assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of system</td>
<td>Miun</td>
<td>October 2005</td>
<td></td>
</tr>
<tr>
<td>User Group’s brief description</td>
<td>International journalists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Functions:
- Function 1 ‘Browse for Information’
- Function 2 ‘Contact the University’
- Function 3 ‘Search’

<table>
<thead>
<tr>
<th>Function</th>
<th>Visibility to non-users</th>
<th>Perceived usefulness and ease of use to non-users</th>
<th>Availability &amp; approachability to first-time and novice users</th>
<th>Quality of usage experience of first-time and novice users</th>
<th>Relationship maintainability for first-time and novice users</th>
<th>Availability &amp; approachability to moderate users</th>
<th>Quality of usage experience of moderate users</th>
<th>Relationship maintainability for moderate users</th>
<th>Availability &amp; approachability to expert users</th>
<th>Quality of usage experience of expert users</th>
<th>Relationship maintainability for expert users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td>2.53</td>
<td>1.00</td>
<td>4.00</td>
<td>3.76</td>
<td>1.00</td>
<td>4.00</td>
<td>0.50</td>
<td>-3.00</td>
<td>1.66</td>
<td>3.00</td>
<td>-0.57</td>
<td>2</td>
</tr>
<tr>
<td>Function 2</td>
<td>2.57</td>
<td>1.00</td>
<td>4.00</td>
<td>3.75</td>
<td>4.00</td>
<td>4.00</td>
<td>3.00</td>
<td>-3.00</td>
<td>3.66</td>
<td>3.00</td>
<td>-3.00</td>
<td>2</td>
</tr>
<tr>
<td>Function 3</td>
<td>2.57</td>
<td>-1.33</td>
<td>1.88</td>
<td>-0.37</td>
<td>2.00</td>
<td>4.00</td>
<td>-3.00</td>
<td>-2.00</td>
<td>1.00</td>
<td>0.42</td>
<td>-4.00</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>-3</td>
<td>2</td>
<td>2</td>
<td>-3</td>
<td>1</td>
</tr>
</tbody>
</table>

**FUNCTIONS:**
- Function 1 ‘Browse for Information’
- Function 2 ‘Contact the University’
- Function 3 ‘Search’
List of findings on the quality of interaction experience per function
(User Group 3: International journalists)

(the symbols ⬆, ⬇, and ⇔ indicate a positive, negative, and neutral inspection
finding respectively)

<table>
<thead>
<tr>
<th>Function 1: Browse for Information</th>
<th>Score: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The function is clearly visible to its users as well as being highly available and approachable, its perceived utility and ease of use could be enhanced though. Moreover, the availability of the function is excellent and the actual use proves highly satisfactory to users, with the exception of moderate users who are near neutral levels. The low point of the function is its ability to entice users to return to the function in the future.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

⬆ It is pretty easy to collect information regarding university procedures and student life

⬆ Using various browsers or operating systems does not change the visibility of the function

⬇ Searching “University procedures” and “Student life” was not very helpful. Many results were in Swedish, instead of searching with English keywords

⬇ Users with cognitive impairments may face problems to locate the information they want

Usefulness

⬆ The information provided by this function is complete, valid and should be very useful for anyone interested in distance learning

⬇ The help section does not provide information about the utility of the function

Availability – approachability

Novice users

⬆ It is very easy to remember how to use this function if one has previously accessed it

⬆ The main menu’s options are simple and correctly labelled

Moderate users

⬆ Same as above

Expert users

⬆ Users can bookmark the homepage
Expert users should be able to shortcut to specific steps of the process

### Quality of usage experience

**Novice users**

- User can see the effects of their actions
- The interaction sequence is similar for all the functions of the system
- The aesthetics of the interaction controls are clear and consistent
- The information provided is well structured
- The function is not error prone

**Moderate users**

- The system use standard interaction controls and metaphors
- This function is pretty simple, no real problems were found

**Expert users**

- The function is very simple, so there is not more efficient way to complete it

### Relationship maintainability

**Novice users**

- The user can also collect information through e-mail to administrators
- The user does not get informed about changes of the site status

**Moderate users**

- The user would probably like to know when the information provided was updated for the last time. Users should be able to have a profile

**Expert users**

- There are telephone numbers and e-mail address for further information
- All the users follow the same steps to complete the function
- The user would probably like to know when the information provided was updated for the last time

---

**Function 2: Contact the University**

<table>
<thead>
<tr>
<th>Score: 2</th>
</tr>
</thead>
</table>

The ‘contact’ function presents very satisfactory user-orientation features; on the high end of the scale are its visibility and quality of use, while its availability and approachability present a good usability example across all users. The function also scores excellent in maintaining a relationship with its new users, however it does badly when it comes to experienced ones, and this is the only feature that requires attention.

Miun, SWEDEN (eLearning)
Visibility

⇧ Journalists can contact the university from the links at the right-hand menu of the website

⇧ The function is also made visible through the sitemap

⇧ Users with cognitive impairments will not face problems locating the information they want

⇧ Using various browsers or operating systems does not change the visibility of the function

⇧ Accessing the web page with low rate connection does not change the visibility of the function

⇩ Blind users will probably face problems to locate the appropriate information, if they don’t have their own assistive technology

Usefulness

⇧ The information provided by this function is complete and well structured

⇩ The help section does not provide information about the utility of the function

Availability – approachability

Novice users

⇧ First time users should find it quite easy to locate and reach the entry point of the function

Moderate users

⇧ Since the function is on the right-hand menu that is always present during navigation to the site, no problem should arise when trying to locate it for a second time

Expert users

⇧ Users can bookmark the homepage

⇧ The interaction is the minimum possible

Quality of usage experience

Novice users

⇧ User can see the effects of their actions

⇧ The interaction sequence is similar for all the functions at the system

⇧ The aesthetics of the interaction controls are clear and consistent
Moderate users

⇧ While testing the system, no problem with the function was noted
⇧ The system use standard interaction controls and metaphors, and therefore should be OK for moderate users

Expert users

⇧ The interaction in order to complete the task is quite fast
⇨ All users follow the same steps every time in using the function in question

Relationship maintainability

Novice users

⇧ All the important aspects of the functions are explored

Moderate users

⇩ The user would probably like to know when the information provided was updated for the last time. Users should be able to have a profile

Expert users

⇩ The user would probably like to know when the information provided was updated for the last time

<table>
<thead>
<tr>
<th>Function 3: Perform Search</th>
<th>Score: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>The visibility of the function to non-users is high; however the system does not make clear why users should make use of it. Nevertheless, the availability of the function is considerably high for novice and moderate users, while it deteriorates slightly for expert users. The quality of use, on the other hand, is mostly negative, while the function manages to retain its new users but if fails to forge longstanding relationships with the more experienced users.</td>
<td></td>
</tr>
</tbody>
</table>

Visibility

⇧ The option for searching appears always on top of the site’s pages
⇧ The function is made visible also through the sitemap
⇧ Users with cognitive impairments will not face problems locating the information they want
⇧ Using various browsers or operating systems does not change the visibility of the function
⇧ Accessing the web page through low rate connections does not change the visibility of the function
⇩ Blind users will probably face problems to locate the appropriate information,
if they don’t have their own assistive technology

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ There are some search tips</td>
</tr>
<tr>
<td>↓ The function is too simple, without any criteria and options</td>
</tr>
<tr>
<td>↓ After the first search, at the page with the results the user can also make a new search but it doesn’t work properly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability – approachability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>↑ First time users should find it quite easy to locate and reach the entry point of the function</td>
</tr>
<tr>
<td>↑ The user receives correct confirmation when reaching the right function</td>
</tr>
<tr>
<td>↓ The search button is too small</td>
</tr>
<tr>
<td><strong>Moderate users</strong></td>
</tr>
<tr>
<td>↑ Since the function is always on top of the website’s pages, no problem should arise when trying to locate it for a second time</td>
</tr>
<tr>
<td><strong>Expert users</strong></td>
</tr>
<tr>
<td>↑ The user can bookmark the homepage of the function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of usage experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice users</strong></td>
</tr>
<tr>
<td>↑ The users are appropriately informed about the input expected / required from them</td>
</tr>
<tr>
<td>↑ Users can see the effect of their actions</td>
</tr>
<tr>
<td>↑ It is easy to abandon the function</td>
</tr>
<tr>
<td>↓ It is difficult for the users to recover from errors</td>
</tr>
<tr>
<td>↓ The Few results of the search engine make this function not very helpful</td>
</tr>
<tr>
<td>↓ When no results are found, no explanation is provided</td>
</tr>
<tr>
<td>↓ When there are many results, it is difficult to go to the next page, since the numbers have a very small active field to click. Also arrows for the next and last page are not used. Finally, it is very difficult to see which page of the results one is looking at, since there is no reference to the page number and colours alone are used to distinguish page numbers</td>
</tr>
</tbody>
</table>
### Moderate users

- ⇩ There is no numbering in the results lists, which would help occasional users to quickly calculate new entries since last viewed. There is only the total number of the results.

### Expert users

- ⇧ The function can quickly and easily be accessed
- ⇩ There is no way to complete the task more efficiently
- ⇩ The function should allow the user to see the results with various sorting

### Relationship maintainability

#### Novice users

- ⇧ The users can also collect information through e-mail to administrators
- ⇩ The user does not get informed about changes of the site status

#### Moderate users

- ⇩ The system should allow saving profiles for quicker searches

#### Expert users

- ⇩ There is not an option for more advanced search that is useful for expert users
Chapter 5

SUMMARY

5.1 eGovernment

The eGovernment websites that have been inspected display mostly neutral to negative values concerning their user-orientation. Although the number of websites inspected is too small to draw safe conclusions, it can be observed in the graph below that all three web services converge at some points, while they also share the same downward movement. This slightly declining trend towards the end signifies that all eGovernment services seem to be better adapted to the needs and abilities of novice users, while they gradually fail to satisfy them as they become more experienced with the system. What is particularly disappointing here is the failure to maintain a relationship with the users of a service, especially with moderate and expert ones. On the positive scale, it is evident that all eServices with almost all types of users are at least moderately available (in the sense of reachable and approachable in terms of time, financial, operational and other requirements).

Figure 14. User-orientation scores of the three eGovernment services inspected

A detailed presentation of the common findings among eService user-orientation characteristics that provide insights on the overall degree of user-orientation of eGovernment services follow in the next section.
5.1.1 Visibility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The service is referenced in other governmental websites</td>
<td>• Little search engine coverage</td>
</tr>
<tr>
<td></td>
<td>• Limited efforts to advertise the service</td>
</tr>
</tbody>
</table>

5.1.2 Utility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Combination of detailed information and entry-level information</td>
<td>• Insufficient or lacking help and FAQ sections</td>
</tr>
<tr>
<td>• Downloadable material</td>
<td>• Site part dedicated to foreigners should be careful with the translation of the content</td>
</tr>
<tr>
<td>• Clear and precise wording of the context</td>
<td></td>
</tr>
<tr>
<td>• Structured material, best accompanied by a sitemap</td>
<td></td>
</tr>
</tbody>
</table>

5.1.3 Availability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Straightforward, easy to memorise and type url</td>
<td>• Operational constraints linked to plug-ins</td>
</tr>
<tr>
<td>• Bookmarking the website comes with representative logo and explanatory text</td>
<td>• Heavy graphics pose problems to users with low bandwidth connections or those who access the service through PDAs or mobiles</td>
</tr>
</tbody>
</table>
5.1.4 Usage quality

![Graph showing user perceived quality of use of the three eGovernment services inspected]

Figure 15. User perceived quality of use of the three eGovernment services inspected

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>The visibility of the functions is indifferent of the browser used</td>
<td>Irrelevant content to the website such as pop-ups may hinder the visibility of the functions</td>
</tr>
<tr>
<td>Font size is relative and can be thus altered to suit the needs of low vision users</td>
<td>A function may not be visible if not grouped under a logical position</td>
</tr>
<tr>
<td>Short and precise preliminary information about the function</td>
<td>Alt text should be provided for blind users</td>
</tr>
<tr>
<td>Clear structure, easy to remember how to reach the entry point of the functions</td>
<td>Help and FAQ sections do not provide enough guidance and information on the utility of the functions</td>
</tr>
<tr>
<td>Not only the homepage but also the page of each function can be bookmarked with clearly defined text</td>
<td>Lack of shortcuts to most frequently visited webpages</td>
</tr>
<tr>
<td>Error messages are directional and offer suggestions to overcome the problem</td>
<td>Not clear distinction between internal and external links</td>
</tr>
<tr>
<td>Provide users with dynamic ways to</td>
<td>The design of the websites does not always follow standard conventions</td>
</tr>
<tr>
<td></td>
<td>The systems should protect users</td>
</tr>
</tbody>
</table>
alter the appearance of a webpage according to their liking

- Colour coding alone for distinguishing between items is avoided

If users require additional information at any step of a process it can be provided to them

- When links open in a new window it is noted
- The system supports other languages
- The system sends notifications and reminders to users regarding matters that interest them
- Consistent interfaces and common approaches to performing tasks within a system promote relationship maintainability

from making mistakes and should provide guidance for recovering from them

- The website should “speak the language” of the users
- Accessibility issues for blind or low vision users
- In cases where user input is required, it is not always clear and directional
- Specific help sections for major functions
- Users should be able to create and save their profiles
- If users send data to the system, they should have the ability to edit them
- In case a website becomes updated, users should be informed about it
- The system should distinguish between new and expert users and provide different tools to each for accomplishing a task

5.1.5 Relationship maintainability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The overall high quality of a service motivates users to re-use it</td>
<td>• Lack of offline communication with users, such as a contact service</td>
</tr>
<tr>
<td>• Multiple functionalities can appeal to a wide range of users</td>
<td>• Unreliable services that crash often deter users from re-using them</td>
</tr>
<tr>
<td></td>
<td>• A system should ask for users’ feedback on the usage experience</td>
</tr>
</tbody>
</table>
5.2 eHealth

Based on the results of the inspection for the eHealth domain, it can be inferred that the provided web services for maintaining a health profile, retrieving own health data, performing online diagnoses and searching for health related information are of considerably high quality and seem to have been designed in consideration of their target users. Most of the user-orientation scores for the services move above borderline acceptance levels, and some characteristics even touch the highest scores, while, on the other hand, only one service displayed few minor usability problems. Moreover, it has been observed that services with similar design and user interface layout, as well as similar goals and purposes, follow parallel courses. For instance, services eHealth2, eHealth3 and eHealth4 (see Figure 16), all show very encouraging visibility and utility scores, but they lose many new users due to their poor availability and moderate usage quality. They all seem to perform better with moderate users, which could be explained by the fact that those who stick with the service after the initial interactions with it are likely to learn how to overcome some of its usability and accessibility barriers and will profit from using it. On the contrary, the systems fall short of the expectations of expert users, especially in the fields of availability and usage quality, but they still possess the means to maintain a relationship with their users. Service eHealth1 shares some of the scores for the initial user-orientation characteristics, but diverges greatly thereafter; this is probably due to the specific nature of the service (online diagnosis of a disorder/impairment), which is in fact a set of online tools rather than an information portal like the rest of the services that have been assessed. This service, contrary to the lot, displayed very low relationship maintainability levels, while all other user-orientation features were around borderline acceptance levels.

Figure 16. User-orientation scores of the four eHealth services inspected
5.2.1 Visibility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Website reference in major health portals</td>
<td>• Advertisements and other publicity material should be rendered in accessible forms</td>
</tr>
<tr>
<td>• Awards and distinctions produce positive publicity</td>
<td>• The website should come up in related searches with the most common keywords for it</td>
</tr>
<tr>
<td>• Reference in governmental websites</td>
<td>• TV and radio advertisements increase publicity and touch non-users of the Internet</td>
</tr>
</tbody>
</table>

5.2.2 Utility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Referenced with appraising comments by related health portals</td>
<td>• The service should be recommended by other recognisable and reliable organisations</td>
</tr>
<tr>
<td>• Clear review of all provided services and functionalities within a web service</td>
<td></td>
</tr>
<tr>
<td>• Highlight the reasons why a service may be of use to a particular user group (specialised services, localised content, specialisation in a field, etc.)</td>
<td></td>
</tr>
<tr>
<td>• Awards and distinctions increase perceived utility by the public</td>
<td></td>
</tr>
</tbody>
</table>

5.2.3 Availability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Straightforward, easy to remember home page URL address</td>
<td>• Minor or major accessibility issues that hinder the availability of the service and/or its components to</td>
</tr>
</tbody>
</table>
- Available through multiple access points
- Available through multiple AT devices
- No time constraints
- Ability to personalise web pages according to individual preferences

<table>
<thead>
<tr>
<th>disabled users</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Heavy graphics may increase loading times for users with low bandwidth connections</td>
</tr>
<tr>
<td>• Lack of accompanying logo or descriptive label when bookmarking the service</td>
</tr>
</tbody>
</table>

### 5.2.4 Usage quality

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good main menu structure and logical hierarchy increase visibility of the functions</td>
<td>• Site maps increase the visibility of functions</td>
</tr>
<tr>
<td>• More than one entry points for a given function and more than one ways to complete it</td>
<td>• No function should be placed very deeply in the hierarchy or users may never become aware of its existence</td>
</tr>
<tr>
<td>• All of the service’s functions are visible with any web browser</td>
<td>• Inconsistencies and layout changes of the main menu at different parts of the website</td>
</tr>
<tr>
<td>• Important functions are prioritised</td>
<td>• A text-only version would be useful for accessibility</td>
</tr>
<tr>
<td>• Main menu is visible during navigation within the site</td>
<td>• Need for special equipment or advanced operating systems to perform a function</td>
</tr>
<tr>
<td>• Functions are accompanied by logos or pictures</td>
<td>• Users are not informed about the time needed to complete a task</td>
</tr>
<tr>
<td>• Appropriate guidance and help is present</td>
<td>• Check for broken links</td>
</tr>
<tr>
<td>• Simple and standard controls</td>
<td>• All information about a function and its status need to be available</td>
</tr>
<tr>
<td>• Shortcuts to functions are welcome</td>
<td>• Missing ‘back’ button</td>
</tr>
<tr>
<td>• Interesting and not long processes</td>
<td>• No policy or disclaimer for handling personal information</td>
</tr>
<tr>
<td>• ‘Home’ and ‘top’ buttons are available while navigating around the website</td>
<td>• The system could remember past interactions with users so as to require less input and simplify procedures</td>
</tr>
<tr>
<td>• Disclaimer of the information is present</td>
<td>• When long interactions need to take</td>
</tr>
</tbody>
</table>
• Advanced tools for expert users
• When user input is required, validation messages appear
• The function has the ability to remember past interactions with users
• The functions are not error-prone
• The website content is up-to-date
• The interaction with the system does not contain needless steps
• Functions can also be educative for the public, promoting well-being
• Contact details are available
• Pleasant aesthetics that promote the feeling of trust and reliability towards the service
• Newsletter subscription with personalisation features
• RSS feed to keep up-to-date with the changes on the website

place, the system should allow stopping at any stage and saving the process that has been completed to recover later
• Email notifications, SMS alerts, etc., for informing users about changes that concern them
• Users should be asked to provide feedback about the usage experience and about any changes they would like
• Make all functions that help stay in contact with users prominent and visible

Figure 17. **User perceived quality of use of the four eHealth services inspected**
### 5.2.5 Relationship maintainability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reliable and trustworthy information</td>
<td>• Newsletters do not arrive periodically</td>
</tr>
<tr>
<td>• Preferably personalised newsletter</td>
<td>• Protection of personal data</td>
</tr>
<tr>
<td>• High “referenceability” in health portals helps remember a system</td>
<td>• Accessibility issues</td>
</tr>
<tr>
<td>• Multiple access channels</td>
<td></td>
</tr>
<tr>
<td>• Alerts, notifications and reminders concerning users’ health</td>
<td></td>
</tr>
<tr>
<td>• Online user profile with dynamic features</td>
<td></td>
</tr>
<tr>
<td>• Regularly updated content</td>
<td></td>
</tr>
<tr>
<td>• Simple to use, consistent menus</td>
<td></td>
</tr>
<tr>
<td>• Reliable providers of information</td>
<td></td>
</tr>
<tr>
<td>• Certifications of the content</td>
<td></td>
</tr>
</tbody>
</table>
5.3 eLearning

The eLearning websites that have been tested display diverse user-orientation levels but alike the previous domains, those websites that share similar usage objectives and characteristics (see Figure 18. User-orientation scores of the three eLearning services inspected, eLearning2 and eLearning3) seem to follow the same pattern, while the remaining case (eLearning1) is somewhat different. Thus, apart from the service eLearning1, non-users of eLearning are very likely to come across information about the systems and to appreciate the utility of the services. Furthermore, all services have scored considerably well in the field of availability and approachability to their users, although the scores are declining slightly as user experience increases. The eLearning services perform very well in the field of the actual use of their functions but again they are more oriented towards novice, inexperienced users than towards moderately familiar or expert with the systems. Finally, an issue with all services is the poorly designed area of forging and preserving a relationship with the users, which is equally disappointing for all types of users, regardless of their familiarity with the systems, and which in some cases falls below acceptable levels.

![Figure 18. User-orientation scores of the three eLearning services inspected](image)

5.3.1 Visibility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Advertisements on the TV and radio</td>
<td>• Bad search engine referenceability, especially when searching with</td>
</tr>
</tbody>
</table>
5.3.2 Utility

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Collaboration with other known organisations</td>
<td>• Lack of promotional activities about the service</td>
</tr>
<tr>
<td>• Distinctions and awards</td>
<td></td>
</tr>
<tr>
<td>• Consideration for persons with disability</td>
<td></td>
</tr>
<tr>
<td>• Addressing the needs of specific user groups that would otherwise not be able to participate in eLearning</td>
<td></td>
</tr>
<tr>
<td>• Accreditation of courses</td>
<td></td>
</tr>
</tbody>
</table>

5.3.3 Availability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Easy to type and memorise url address</td>
<td>• Lack of a help section</td>
</tr>
<tr>
<td>• No time constraints for using the services</td>
<td>• Slow downloading time for users with low bandwidth Internet connections</td>
</tr>
<tr>
<td>• No complex devices needed to access the service</td>
<td>• Bookmarks are not accompanied by a descriptive logo and text</td>
</tr>
<tr>
<td>• Public areas for accessing the service</td>
<td></td>
</tr>
<tr>
<td>• Information in various languages</td>
<td></td>
</tr>
<tr>
<td>• Different modalities for accomplishing a task</td>
<td></td>
</tr>
</tbody>
</table>
5.3.4 Usage quality

![User perceived quality of use of the three eLearning services inspected](image)

**Figure 19.** User perceived quality of use of the three eLearning services inspected

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Functions are operable with all types of browsers</td>
<td>- Lack of site map</td>
</tr>
<tr>
<td>- Core functions are always present in the main menu, which remains visible during navigation to the site</td>
<td>- Accessibility barriers to functions</td>
</tr>
<tr>
<td>- Well structured and complete content</td>
<td>- Misleading titles</td>
</tr>
<tr>
<td>- Simple and consistent procedures</td>
<td>- Not helpful help section</td>
</tr>
<tr>
<td>- Preliminary information to a function is precise and helpful</td>
<td>- Malfunctioning parts of the service</td>
</tr>
<tr>
<td>- More than one entry points to a core function</td>
<td>- The effects of their actions are not clear to users</td>
</tr>
<tr>
<td>- The homepage of the function can be bookmarked</td>
<td>- Difficulty in recovering from errors</td>
</tr>
<tr>
<td>- Advanced features for experienced users</td>
<td>- Users cannot modify data they have inserted in the system</td>
</tr>
<tr>
<td>- Standard design for interaction</td>
<td>- No last updated clues</td>
</tr>
<tr>
<td></td>
<td>- Needless steps are present during the interaction</td>
</tr>
<tr>
<td></td>
<td>- Pop-up windows may be blocked in case users have special filters on their browsers</td>
</tr>
</tbody>
</table>
controls

- Clear and pleasant aesthetics
- Standard interaction controls and metaphors
- The input expected by users is clear
- Abandoning a function is easy
- Processes are not boring

### 5.3.5 Relationship maintainability

<table>
<thead>
<tr>
<th>Good practices</th>
<th>Recurring issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Straightforward interaction</td>
<td>- User profiles should be supported</td>
</tr>
<tr>
<td>- Provision of new enticing features</td>
<td>- Users cannot see all the data they have sent out to the system and/or they cannot modify them</td>
</tr>
<tr>
<td>- Advanced options for experienced users</td>
<td>- Repeated processes ever time users need to enter a function</td>
</tr>
<tr>
<td>- Contact information provided</td>
<td>- Inform users changes in content of the website</td>
</tr>
</tbody>
</table>
Chapter 6

CONCLUSIONS AND FUTURE WORK

6.1 Conclusions

The overall image of eServices across the three domains is borderline acceptable since, as shown in Figure 20, they perform close to borderline levels at most user-orientation features. Although it is promising that few features fall below zero, which would indicate major or minor user-orientation flaws, the actual positive scores are only moderate, giving much room for improvement. Moreover, all eService domains have some converging characteristics that allow for common conclusions on their overall user-orientation status. This is especially true for eHealth and eLearning, which display a smooth course of user-orientation characteristics, moderately above acceptance levels. In fact, the inspected eHealth websites were able to provide some minor good practice examples in the area of promoting the feeling to potential users that the service is useful to them. More on the health eService domain, the summary scores for user relationship maintainability were very satisfactory, across all users types (novice, moderate, expert), in an area where most other eServices fail to provide any major user-orientation examples of good practice; thus, a useful step would be to bequeath this knowledge on online services from other domains. Likewise, the eLearning domain has a stable and acceptable overall approach towards the needs of users; in effect, no major usability highs and lows have been noted, across a score range that never falls below zero. The most salient observation about eLearning is that it proves best adapted to the needs of new users, since user-orientation levels slowly decline thereafter.

Slightly different is the case for eGovernment, which presents both interesting good practice examples and usability problems. On the negative part of the scale, the somewhat low user perceived utility may be the reason why non-users of an eGovernment service may decide not to use it, even though they may have been informed of its existence. Moreover, the summative quality of use is badly perceived by users who have accessed the services more than once or twice, while usage quality does not rate far better for new users either. In addition, relationship maintainability is extremely poor for moderate users and only borderline for other users. On the other hand, the services are highly available and approachable to users, especially novice and expert ones. Thus, the inspected eGovernment services are in most need of usability and accessibility improvements to address the true needs of users in order to boost their take-up rates.
A close-up on the summary results from all three domains of interest reveals interesting conclusions about the overall user-orientation of eServices. First of all, an initial positive conclusion is that a high standard of user-orientation is maintained throughout specific features, which is exposed by the fact that no single characteristic falls below the designated borderline acceptance level (zero). On the other hand, good practice examples were of an average score, with those distinguished being visibility and perceived utility for potential users of a service who have not accessed it yet, and availability, which is almost equally high for all users, whether novice or experienced. The tests also revealed one area that requires extra attention; the one of user perceived quality of use. Despite the fact that first-time users the quality of the interaction experience appears to be more or less satisfying for, both moderate and expert users, these are very close to borderline levels of satisfaction, implying that it is necessary to increase user-orientation of the services’ functions. It should be noted though that usually, quality of use problems for experienced users are not only of usability nature in the narrow sense (having difficulty or failing to accomplish a task due to a design bad practice) but are also related to lack of advanced features and online sophistication. Moreover, looking at the diagram below, it is evident that the eServices in question are considerably more oriented towards the needs of new users, which they seem to satisfy to a very good level, than to moderate and expert users, for whom the quality of use of the provided services is mainly dissatisfying. Finally, the overall ability to entice users to re-use the systems is average for novice and expert users, but low for moderate users, since it was a general conclusion for almost all individual services from all service domains that more action needs to be taken in order to ensure that users keep returning to the systems.
6.2 Future work

Future work includes the validation of the proposed framework in evaluation experiments of various types of systems including typical systems, systems developed following a Design for All approach, and systems dedicated to disabled users. The applicability of the framework for driving both expert-based inspections and user-based studies will also be investigated.

The paper-based method and tool for expert-based evaluations building on the proposed framework is currently under finalization and an online interactive version is also planned for later on.

Finally, additional studies are required in order to further examine the issues involved when considering repeated system usage in the long run, as well as their impact on the proposed framework.
References

http://www.accenture.com/xd/xd.asp?it=enweb&xd=industries%5Cgovernment%5Cgove_eimgov_lea.png
er.xml


