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## **Executive Summary**

JISC offers wide-ranging services and resources, from bibliographic databases to digital maps, to the further and higher education sectors and the research community in the UK. City University's Centre for Human-Computer Interaction Design was commissioned to conduct a set of usability studies of JISC services and Information Environment and to propose a framework to guide further usability work within JISC.

This set of studies comprised two main parts. Part I investigated how usability could best be applied to the services and resources provided by JISC, with particular reference to the further development of the Information Environment. Part II was complementary to Part I and focused on investigating the usability and accessibility of four existing JISC services, using the evaluation framework developed in Part I.

The major deliverable of this research is a usability and accessibility evaluation framework for Digital Libraries. This framework identifies specific aspects of web-based Digital Library design and provides a set of suggested applications of the most appropriate usability and accessibility methods, techniques and guidelines. The framework aims to assist JISC to further develop usable and accessible services for the higher and further education communities.

In Part I, usability requirements for JISC services were elicited by employing a set of query techniques. A literature review on the current best practices of usability techniques and methodologies was conducted, followed by an investigation of the best practices of similar JISC services in terms of resources and service provision in the UK and abroad. The evaluation framework specifies the stages at which designers should employ such methodologies and techniques in an iterative design process: requirements elicitation, design generation and evaluation stages. Thus, this workable framework enables designers and developers of JISC services and resources to employ the most suitable methodologies and techniques for each aspect, at each particular stage, in the development of the service or resource.

The studies in Part II are complementary to Part I and focus on investigating the usability and accessibility of existing JISC services. These studies demonstrate how JISC could apply the evaluation framework proposed in Part I in the development of current and future JISC services and resources. Four selected JISC services were evaluated using the evaluation framework.

In the evaluations, a set of query techniques was employed for requirements gathering, followed by usability evaluations conducted to identify the current usability and accessibility issues of the four JISC domains. User testing was conducted to identify the major usability and accessibility issues from current and prospective users; expert evaluations (heuristic evaluations and cognitive walkthroughs) were then employed to identify further usability and accessibility issues as a supplement to findings from the user testing. The results of this testing is confidential to the JISC and the services involved, but they have also been used to test out and develop the findings from Part I, which are presented here.

The data obtained from the evaluations were analysed to provide a set of recommendations for improvements to each of the existing services, together with a general set of usability and accessibility guidelines for the development of future JISC services and resources.

The main body of the report is presented in the following sections:

**Background:** An introduction to JISC and current usability practices

**Usability and accessibility:** The issues and the benefits

**Usability and accessibility methodologies and techniques:** An outline of the various techniques, their associated methodology and an example of how JISC could effectively implement them.

**Study of current practices:** Usability, accessibility and DL's.

**Usability and accessibility framework for digital libraries:** Review of how the framework was designed and implemented.

**Instrument development tools:** Design of techniques and methodologies for Digital Library framework

**Discussion:** Summary of framework and future directions.