

CHAPTER 1

Introduction: user studies for digital library development

Milena Dobрева, Andy O'Dwyer
and Pierluigi Feliciati

Why did we put together this book?

We share a passion for understanding users in the digital library (DL) context and believe that user studies is an exciting area. In the last decade we have been involved in a wide range of user studies across the DL domain, exploiting various research methods to investigate fascinating and important topics with multiple focal points. Studying issues as diverse as individual information needs, the learning styles of people with specific disabilities, cross-sectoral user-driven priorities on a national scale, and user response to Europeana – the European Commission's showcase DL – we were faced with the challenge of choosing the most appropriate methods for overall study design, data gathering and analysis, and the presentation of our findings.

Is there a gap in user studies?

Although major reference models developed in the DL domain such as the Digital Library Reference Model (DLRM) (Athanasopoulos et al., 2010) and Streams, Structures, Spaces, Scenarios, Societies (5S) (Gonçalves et al., 2004) incorporate the concept of users, they explore this only from a certain perspective. In the case of DLRM, users are one of its six 'domain concepts', while in the 5S model they are viewed in relation to Scenarios and Societies; but in both cases they are positioned mostly as clusters or as simplified homogeneous groups. More work is needed on how exactly knowledge about different users and types of user can help the process of development of a DL. Adding clarity to our understanding of users within DL models could help to identify gaps in our knowledge and establish a new research agenda for the user studies domain. Do such gaps exist? Surprisingly, yes – if we take as an example the work on digitization across different information sectors. It is quite alarming that:

we are currently witnessing a paradox: major institutions from the cultural heritage sector clearly emphasize the place of user evaluation and feedback in digitization-related policies. But in reality, decisions about aspects of digitization that impact [on] users are frequently taken without direct user involvement.

(Dobрева et al., 2011)

An additional alarming fact is that not only are real people – the intended users of DLs – rarely consulted, but also they are not addressed in detail in state-of-the-art DL research. A recent study of research topics on DLs (Nguyen and Chowdhury, 2011) constructed a knowledge map of 15 core DL research topics and 210 subtopics, based on an analysis of the papers presented in 37 editions of three major first-tier international conferences. User studies appear with only four subtopics – user feedback evaluation, information needs, user models and user communities. Does this mean that we already know all about users?

Even the recent strategic outcome of the Comité des Sages – the EU reflection group making recommendations on bringing Europe’s cultural heritage online – entitled *The New Renaissance*, mentions users mainly in the context of better accessibility. One expects to find more focus in a document entitled *The New Renaissance* on how the substantial work that continues to make Europe’s cultural heritage available online changes the perspectives and involvement of real people – after all, a Renaissance is not a merely technological change but a change in human perception and participation. In this strategic document the most detailed recommendation relevant to users appears under the heading ‘Technical issues’ and is related to sustainability:

Research & Development initiatives with a strong reference to practical user needs have to be supported on national and European level to constantly monitor the technological environment and to enhance preservation solutions. In addition, further research into solutions for handling large volumes of dynamic data is necessary.

(The New Renaissance, 2011, 30)

Of course the needs of users in relation to preservation must be addressed; yet it is legitimate to ask how much we know about user issues related to the numerous other aspects of digital culture, and to DLs in particular. Or, to summarize, there are several burning questions related to users in the DL context:

- Why do the developers of resources for users often neglect to consult them during the development stages?
- Why do models in DLs not address in sufficient depth the concept of users and its interaction with other key concepts?
- Do users seem too predictable and obvious to be addressed properly?
- Why do technological issues still enjoy more attention than the human side of DLs? Are DLs now seen primarily as *only* about the technology?

User studies: myth and reality

These were questions that each of us – the editors of this volume – wished to see answered. As our professional paths started to cross more and more frequently, we started to discuss our personal experiences, and quickly realized that we would each have loved to be able to learn about this domain from a book – a book that would present this area in a more holistic manner, thus helping readers to make more informed decisions about user-related issues in the DL context. As nobody else seemed to be writing such a book, we decided that we would put it together, and we invited colleagues whom we knew for their excellent work in this domain to share their experiences in what we believe is the first book to focus on user studies for DL development.

We have taken great care to address multiple issues and to provide a rich set of case studies which both serve as reality checks and give the reader a practical feeling not just of what works but why and how. We hope also to have provided evidence to demolish several myths and misconceptions about the value of user studies:

- *'We know our users'* – in many cases people who start working on a specific DL are convinced that they know enough about their users already and do not need to bother with any further study. While this might seem somewhat justified in the 'brick' memory institutions (in relation to traditional offline services), it is certainly not true in the case of 'click' resources – where the user base is potentially very wide. Indeed, studying users is, we maintain, always essential in order to stay relevant to them and responsive.
- *'If we build it they will come'* – a philosophy that can be observed in projects in the digital domain where the major effort is directed towards digitization and/or online services, but without making sure that there will be an interest in the resource. Further, many such development

teams assume that providing ‘good’ and reliable content and functionality is the only realm aim – mirroring the gatekeeper thinking (this is the most valuable we have and we are ready to share it) and supply-driven logic.

- *‘Users use similar devices and have similar abilities’* – in contrast with the funding motivations of the world wide web, developers of DLs sometimes neglect to ensure that all users should have access to content and services, regardless of any special information needs or disabilities and independently of the technology used and of the context in which they act; in that sense, accessibility seems to be a prerequisite for efficient DLs, and, even if we don’t address the related issues in this book, we are convinced that this should not be forgotten.
- *‘The Digital McDonald’s’* – this is apparent when the developers of a resource believe that several standard options will meet the expectations and needs of any user – akin to choosing from the options on a unified menu. As any of us who are vegetarians or fans of world cuisine know, people are more complex than that!
- *‘User studies is the same as evaluation’* – in fact, user studies and evaluation are different activities, and while evaluation can (and often does) involve users, users can be involved before a product is designed and during development.
- *‘Quality means innovation’* is another common attitude when the effort of a project is primarily targeted to introducing the newest gadgets and technologies without really understanding how to support users better.

How to read this book

Our book has five major parts: the first sets up the general scene, the second looks at user study methods and their use, the third explores specific DL issues and the fourth highlights applications of user studies across the information sectors. The final part summarizes how user studies can be used in the DL projects lifecycle.

The chapters are self-contained and can be consulted on their own, but those readers who would like to form a deeper and consistent understanding on the area, issues and methods should try to read through the material sequentially. For readers who have been involved in user studies themselves, or have come across issues in this domain, starting with Part 1 will provide the necessary more general overview of where user studies in DL fit. However, for the novice reader, we would suggest starting

with the chapters in Part 2 and then moving to Part 1, which taps into adjacent information science fields.

Readers will find that the styles of various chapters, contributed by 27 authors – from Australia, Canada, Denmark, Germany, Greece, Israel, Italy, the Netherlands, Switzerland, the UK and the USA – differ. Our aim has been to bring together points of view from different professional communities and, more particularly, of practitioners as well as of researchers, and we are particularly pleased to see that different voices can be ‘heard’ in our book. For a reader with only basic knowledge of the library and information sectors some chapters may seem overly specialized. However, as well as showing the depth and complexity of the domain, these chapters can usefully be returned to as the general reader develops their skills and experiences over time.

The first part of this collection, ‘Setting the scene’, presents the methodological underpinning of areas that help to contextualize user studies. Elaine Toms introduces the wider area of information behaviour studies and how such studies help better to address the users of DLs. Sudatta Chowdhury outlines an important trend of user-centric studies with examples from the DL domain. Petar Mihaylov looks at general design issues and how they can be accommodated better in DLs, while Giannis Tsakonas considers the convergences and differences between user studies and the evaluation of DLs in general.

Part 2, ‘Methods explained and illustrated’, presents specific methods for user studies as they are applied in the DL context. A traditional classification of user studies methods is into two groups – qualitative and quantitative. Qualitative methods are all methods which give a range of insights into users’ opinions about a product (a DL in our case), while quantitative methods seek to provide quantifiable data – which, depending on the study methodology, might cover a complete user population (e.g. deep log analysis) or might be generalizable to a larger population (e.g. a questionnaire that sets up numbers of participants to be representative for a particular sample). Qualitative methods (focus groups, in-depth interviews, diary analysis and ethnographic studies) help to provide an idea of the perspective of the target user community; this is done most often through immersion in a particular task or situation. The immersion can be designed specifically for the study – in the case of focus groups, for example; but in some cases the researcher is observing normal daily activities – as in the case of ethnographic studies. Qualitative methods (depending on the skills of the researchers) can help to obtain very rich, detailed data about the

participants’ perspectives. While quantitative methods most typically help to answer ‘how many?’ questions, qualitative methods can be of great help to answer ‘why?’ questions.

Table 1.1 presents an overview of the existing methods according to the type of involvement of users and the size of user population. Some methods, like interviews, eye tracking, focus groups, ethnographic studies and questionnaires, involve users directly and there is some form of communication between the researcher and the users taking part in the study. Another group of methods are based on the analysis of the behaviour of users and do not necessarily involve the users – in some cases, such as deep log analysis, this indeed is impossible!

Summative methods are a relatively new development, but have a particular place in the DL domain. Their aim is either to suggest generalized models that represent users (such as personalization models, or personas), or to tap into expert knowledge about the user behaviours of large user communities, using the experts’ predictions as to which user behaviours will be most typical in a particular situation.

Each chapter in this part of the book includes a case study of recent user study research – most studies reflect projects from the last 1–6 years. The range of methods that we address include focus groups and questionnaires, presented by Jillian Griffiths; expert evaluation, addressed by Claus-Peter Klas; deep log analysis, by David Nicholas and David Clark; eye-tracking studies, introduced by Panos Balatsoukas; and personas by Katja Guldbæk Rasmussen and Gitte Petersen.

Many of the case studies use mixed methods, i.e. they combine two or more methods as an instrument to gather a richer set of observations on different user-related viewpoints. The third part of the book, entitled ‘User

Table 1.1 *User study methods*

Method	Size of user population involved		
	Individual users	User samples (small to mid-size groups)	Entire population (huge groups)
Summative	Personalization and recommender models	Use scenarios and use cases ↻ Chapter 2	Personas ↻ Chapter 10 Expert evaluation ↻ Chapter 7
Indirect observation	Diaries Personal log analysis	Mid-size log analysis	Deep log analysis ↻ Chapter 8
Direct observation	In-depth interview ↻ Chapter 6 Eye tracking ↻ Chapter 9	Focus groups ↻ Chapter 6 Ethnographic studies	Web questionnaires ↻ Chapter 6

studies in the digital library universe: what else needs to be considered?' aims to provide the reader with a more detailed understanding of the range of issues that can be addressed by user studies in the DL domain. It addresses such issues as dealing with multilingual resources (presented by Paul Clough), studies of children – the future DL users (by Ian Ruthven, Monica Landoni and Andreas Lingnau), social media (by Jeffery Guin), digital preservation (by Kathleen Menzies and Duncan Birrell), the shift to mobile devices (by Lina Petrakieva), the specific issues in resource discovery for researchers working with special collections (by Zsuzsanna Varga), and the educational applications of social media (by Nicola Osborne).

Part 4, 'User studies across the cultural heritage sector', highlights how user studies are applied in different settings and makes a bridge of the 'brick' and 'click' issues in the context of different types of institutions; it looks at libraries (presented by Derek Law), archives (by Wendy Duff), museums (by Susan Hazan), audiovisual collections (by Andy O'Dwyer) and digitized art collections (by Leo Konstantelos). Harry Verwayen and Martijn Arnoldus then explore the new area of open metadata and what it actually means for cultural heritage institutions and aggregators who need to make new decisions on matters that have impact on the end-users.

The concluding summary chapter puts various elements together and gives an idea of what studies can be helpful at various stages of DL work, including front-end-user involvement, normative and summative evaluation and direct engagement.

Finally, the book refers to a wide range of sources. They cannot be considered as a complete bibliography of user-related research, but would be a good starting-point for any curious reader who would like to explore more on this topic.

What you will not find in this book

First of all, we should warn readers that this is not a handbook. Our final chapter provides some guidance on how to select an appropriate user-related method according to the aims of a particular study, but we do not provide step-by-step guidance or sample protocols for the different study types discussed – nor do we explain how to process data from different types of studies. Our aim was not to introduce methods from the social sciences domain such as questionnaires or focus groups in detail: rather than explaining different methodologies and their foundations, we focus on how these are used in relation to current DL practice.

Who contributed to the book

We were extremely happy to work with many authors who paved the way in this domain. They share not only theoretical thoughts; they have lived through all the pains of doing truly pioneering work. Putting a book together with 27 contributors is a great challenge, but our authors were extremely committed – to the extent that Lina Petrakieva, author of the chapter on mobile technologies, edited her whole chapter on a mobile phone!

Martijn Arnoldus specializes in the creative industries, particularly copyright and open content issues, and works for Knowledgeland in Amsterdam. He has been pivotal in the majority of Knowledgeland's projects on the creative economy since 2005. Martijn's current work is around creative industry policy and entrepreneurship, ranging from requests for strategic advice, to copyright problems, to business models for creative entrepreneurs. As a senior consultant on open content licences, Martijn is a member of the Creative Commons Netherlands project team. Martijn has a social geography background and before joining Knowledgeland he worked at the University of Amsterdam and the Technical University of Delft as a researcher.

Panos Balatsoukas is a researcher focused on information retrieval and the user-centred design and evaluation of information systems. He holds a PhD in Information Science and an MSc in Knowledge Management from Loughborough University, UK. His bachelor studies were also focused on Information Science and completed in the Department of Library Science and Information Systems of the Alexander Technological Institute of Thessaloniki, Greece. Recently, he completed two years of post-doctoral research in the Department of Computer and Information Sciences, University of Strathclyde in Glasgow.

Duncan Birrell was formerly a researcher at the Centre for Digital Library Research (CDLR) at the University of Strathclyde, UK, where he specialized in the user-led evaluation of DLs, digital archives and online cultural heritage resources for the arts and humanities. His research there included such projects as DiSCmap (Digitisation of Special Collections: mapping, assessment, prioritisation), funded by the Joint Information Systems Committee (JISC); the User and Functional Testing of *Europeana Version 1.0* and SHAMAN (Sustaining Heritage Access through Multivalent ArchiviNg). He currently works in the Cataloguing and Metadata department of Strathclyde University's Andersonian Library. He has research interests in user studies, academic and digital libraries,

methodologies for the digital humanities and the future of archives.

Sudatta Chowdhury is a Lecturer at the University of Technology (UTS), Sydney. She got her MPhil degree from the University of Sheffield and her PhD from the University of Strathclyde, UK. She has been involved in teaching and research for more than a decade, and has worked in different parts of the world, including Africa, Singapore and the UK. Before joining UTS, she was involved in two UK Higher Education Academy projects and two European projects, RevealThis and SHAMAN. Her publication track record includes over 50 papers in peer-reviewed journals and international conferences and five books. Her research interests include information seeking and retrieval, especially in the context of the web, DLs and social networking.

David Clark has worked at the interface of publishing and computation for 40 years: as bookseller, data analyst, publisher, software developer and information manager. He has a PhD in Computer Science from the University of Warwick, UK. David is a director of CIBER Research Ltd and is the world's leading expert in deep log analysis and is currently analysing the logs of Europeana and many leading publishers.

Paul Clough is a Senior Lecturer in Information Retrieval (IR) in the Information School at the University of Sheffield, UK. He is an active member of the IR community and his research has studied areas such as multilingual information access, geographical IR, evaluation and image retrieval. He has written over 80 peer-reviewed conference and journal papers and is co-author of the book *Multilingual Information Access: from theory to practice*, published in 2012 by Springer.

Milena Dobрева is a Senior Lecturer in Library, Information and Archive Studies at the University of Malta. She was the principal investigator of EC, JISC and UNESCO funded projects in the areas of user experiences, digitization and digital preservation and is a regular project evaluator for the EC. In 1990–2007 she worked at the Bulgarian Academy of Sciences, where she earned her PhD in Informatics and served as the founding head of the first Digitisation Centre in Bulgaria. Milena was also a chair of the Bulgarian national committee of the UNESCO Memory of the World programme. In 2007–11 she worked for the University of Glasgow and the University of Strathclyde. Milena was awarded an honorary medal for her contribution to the development of the relationship between Bulgaria and UNESCO (2006) and an Academic Award for young researchers (Bulgarian Academy of Sciences, 1998).

Wendy M. Duff is a professor at the University of Toronto's School of

Information. She is currently the Director of the Digital Curation Institute and teaches archives and records management, with a focus on access to archival materials. She is a founding member of AXSNet, an evolving international team of researchers interested in facilitating access to primary materials. Her current research focuses on archival users, access to archival material, digital curation and the convergence of libraries, archives and museums.

Pierluigi Feliciati is currently the ICT and information systems co-ordinator and Senior Researcher on Information Science (ING-INF/05) at the University of Macerata, Italy. Previously he co-ordinated the National Archives information system within the Italian Ministry of Culture. He is an Assistant Professor of Information Science Applications to Cultural Heritage and Digital Humanities at the University of Macerata, and teaches regularly in the Digital Archives Management and Preservation Masters Programme and in the International Masters in Digital Libraries (DILL). His research interests, since his involvement in the MINERVA European working groups on cultural web quality, are focused on the quality of web applications, the management of cultural heritage digital repositories, and evaluation methods for DL users' behaviour and satisfaction. He was the technical co-ordinator of the Europeana Local Project for Italy, and he is a member of the board of AIDA – Italian Association for Advanced Documentation – and of the Scientific Board of the Italian Central Institute for Archives.

Jillian R. Griffiths is a qualified information professional with experience in the fields of information behaviour and user experience (UX) of information systems in various contexts. Jill initially joined the Centre for Research in Libraries, Information and Media, CeRLIM, at Manchester Metropolitan University, UK, in 2000, where she worked on a wide range of projects including, for example, The Publication and Dissemination Behaviour of Researchers and the Influence of Research Assessment (funded by RIN and JISC), DiSCmap (funded by RIN and JISC), DEvISE funded by the Library & Information Commission), the European Internet Accessibility Observatory, EIAO (EC funded) and user evaluations of the MOSAIC and PERTAINS demonstrator services. She became a Lecturer in Information Studies in 2009 and recently joined MDR Partners as Consultant for the EC-funded PATHS project.

Jeffery K. Guin has more than 15 years' experience in writing, branding, design and communications management. In 2001 he began working with the US National Park Service's preservation technology research centre. There he initiated one of the first strategic campaigns using social media in the field of cultural heritage. Since 2006, he has coached individuals and

organizations in the use of social media technologies to create and grow vibrant communities that promote heritage resources. This effort has included development of his personal website, *Voices of the Past*, which was chosen by Alltop.com as a 'Best of the Best' blog in the social media category.

Katja Guldbæk Rasmussen is web usability consultant at The Royal Library in Copenhagen. She has worked with internet-based communication within the library sector since 1998 and since 2006 has increasingly focused on web usability and the usability of online information and communication. Katja has broad experience in usability test methods and has served as a testing consultant at both national and European levels.

Susan Hazan is Curator of New Media and Head of the Internet Office at the Israel Museum, Jerusalem (since 1992), identifying and implementing electronic architectures for the gallery, online and mobile platforms and outreach programmes. Her Masters and PhD at Goldsmiths College, University of London, in Media and Communications focused on electronic architectures in the contemporary museum. Susan has been recognized for her numerous publications on new media in education, art, museums and cultural heritage, and is currently investigating social networks, innovative platforms for disseminating the virtual museum, and DLs in the context of cultural heritage. Susan is a renowned visiting lecturer in the UK, Hong Kong and Israel.

Claus-Peter Klas has a doctorate in Computer Science from the University of Duisburg-Essen. In 2008 he became the chair of multimedia and internet applications at the FernUniversität (distance-teaching university) in Hagen, Germany. His research focuses on information retrieval, information systems, databases, DLs and long-term preservation architectures in GRID/Cloud environments. Claus-Peter has worked in several national and EC-funded projects, including EuroSearch (A Federation of European Search Engines) and Eurogatherer (Personalised Information Gathering System), DAFFODIL (Distributed Agents for User-Friendly Access of Digital Libraries), DELOS (Network of Excellence on Digital Libraries), and is currently involved in the projects European Film Gateway, SHAMAN and Smart Vortex. His track record includes around 40 publications.

Leo Konstantelos is a Research Fellow at the University of Portsmouth and the Principal Investigator for the POCOS (Preservation Of Complex Objects Symposia) project at HATII, University of Glasgow. At Portsmouth, Leo works on the KEEP (Keeping Emulation Environments Portable) project, where he investigates knowledge-base structures for emulation environments. At Glasgow, his research explores concepts

relating to the preservation of complex objects, focusing primarily on the digital arts. Leo has previously worked for a number of UK- and EU-funded projects, including PLANETS, SHAMAN, IVES and the Digital Preservation Console. Leo has a BSc in Management of Tourism and Cultural Resources, an MSc in Information Technology and a PhD in Humanities Computing.

Monica Landoni has been a senior researcher at the faculty of Informatics at the University of Lugano in Switzerland since January 2007. She has been a Lecturer in the Department of Computer and Information Sciences, University of Strathclyde, Glasgow, since December 1997. She was awarded a PhD from the University of Strathclyde in November 1997 for her thesis 'The Visual Book System: a study of the use of visual rhetoric in the design of electronic books'. Previously, she was a Research Fellow at Strathclyde University and a Grant Holder at the Joint Research Centre, Ispra, Italy. Monica's research interests are in the broad areas of human-computer interaction, DLs and interactive information retrieval. In particular, she has been actively exploring how e-books should be designed and evaluated, by focusing on different readers and reading types. Monica has also been proposing and evaluating novel interfaces for interactive information retrieval systems including web IR.

Derek Law MA, DUniv, FCLIP, FIInfSc, FKC, FLA, FRSE is an Emeritus Professor; he is chair of the JISC Advance Board, has worked in several British universities and has published and spoken at conferences extensively. He is a regular project evaluator for the EU. Most of his work has been to do with the development of networked resources in higher education and the creation of national information policy. A committed internationalist, he has been involved in projects and research in over 40 countries. He was awarded the Barnard Prize for contributions to Medical Informatics in 1993, Fellowship of the Royal Society of Edinburgh in 1999, an honorary degree by the Sorbonne in 2000, the IFLA medal in 2003, Honorary Fellowship of CILIP in 2004 and was an OCLC Distinguished Scholar in 2006.

Andreas Lingnau studied mathematics and computer science at the Gerhard Mercator University in Duisburg, Germany. From 1999 to 2005 he worked at the Institute for Computer Science and Interactive Systems at the University of Duisburg-Essen. His main focus has been on computer-supported learning in the classroom and technology-enhanced learning. He gained his PhD in this area (2005). He has also worked at the Knowledge Media Research Center in Tübingen, Germany; as a scientific co-ordinator of the LMMP project Learner Supporting Multimedia Platform for Pupils with Cognitive Disabilities he was responsible for the development of the software

Learning Chest, a learning environment for pupils with cognitive disabilities and learning difficulties. In September 2009 he joined the University of Strathclyde in the project PuppyIR, which aims to provide new search interfaces for children by using innovative hardware such as tabletop devices.

Kathleen Menzies is a PhD student in the Information and Communications Department at Manchester Metropolitan University, UK. Her PhD topic will seek to discern, measure and model the attitudes of academics across disciplines to new media/social media in relation to 'traditional media', scholarly research lifecycles and the wider socio-political and philosophical environments. She worked as a Researcher in the University of Strathclyde, Glasgow, where she contributed to the EU-funded SHAMAN project and to a number of DL projects, many of which have involved user studies and engagement with professionals and/or end-users. These include DiSCmap (Digitisation of Special Collections: mapping, assessment, prioritisation) and OCRIS (the Online Catalogue and Repository Interoperability Study).

Petar Mihaylov gained his MSc in Product Design and worked as a professional graphic designer for more than four years, during which time he gained a substantial insight into the main problems surrounding the display and the perception of various visual stimuli. Further, he explored different aspects of human perception, which led him to pursue a PhD in Visual Sciences (2011). His basic research interest is in in-depth understanding in the processes of human perception.

David Nicholas is a Director of CIBER Research Ltd. Previously he was Director of the Department of Information Studies, University College London, and Head of the Department of Information Science, City University London. His prime interest is in evaluating behaviour in the virtual space, especially that of the Google generation. His work was featured in the BBC's 'Virtual Revolution' television programme. Currently, he is researching the impact of social media on the research process.

Andy O'Dwyer is a Technologist/Project Manager at the BBC, working on digitization and access to audiovisual collections. He is active on a number of EU collaborative projects to bring archives online for public and academic use. As a member of the Television Studies Commission of the International Federation of Television Archives (FIAT) he promotes new techniques in linking audiovisual material with the education sector. He is a member of the European Television History Network, and a contributing author of the book *A European Television History*.

Nicola Osborne is the Social Media Officer for EDINA, a JISC-appointed

national data centre based at the University of Edinburgh. Nicola acts as an evangelist for new technologies, advising projects, services and colleagues on current social media tools, practice and opportunities, and contributing to organizational strategy in these areas.

Gitte Petersen holds an MA in language, literature and art. She has 15 years of experience working with online content, user experience and usability testing at The Royal Library of Denmark. She was Work Package Lead in the EuropeanaConnect project, with responsibility for user involvement and new access channels. Over the years, she has been involved in many cross-sectoral projects and networks within the domain of the Danish Ministry of Culture.

Lina Petrakieva teaches at Glasgow Caledonian University, UK. Her research interests were initially concentrated on computational linguistics, to which she was first introduced at age 15. After graduating with her MSc in IT and being continuously involved in research in computation linguistics, information retrieval, parsing and disambiguation Lina moved on to do a PhD in Machine Learning and Pattern Recognition. All of these different areas have one thing in common – the vision of how one day people will be able to use natural language and intuitive interfaces to achieve better human–computer interaction. After approaching the problem from the human side and realizing that humans are very difficult to change, Lina concentrated on looking for ways to change the technology and the ways humans work with it.

Ian Ruthven is a Professor of Information Seeking and Retrieval at the University of Strathclyde, UK. His research is centred on the development of effective and usable information access systems and is aimed at uncovering how people think about the process of searching, how information access systems could be designed differently to provide better support for searchers and how we can evaluate new types of information access system. He has carried out funded research projects on developing interactive information systems for children, cognitive decision-making processes in web retrieval and the information-seeking behaviour of marginalized groups. He received a PhD in Computer Science from the University of Glasgow, an MSc in Cognitive Science from the University of Birmingham and a BSc (Hons) in Computing Science from the University of Glasgow.

Elaine G. Toms is Chair of Information Science at the Information School, University of Sheffield, UK. She previously held appointments at Dalhousie University and the University of Toronto in Canada and to date has been the

only Canadian information scientist to hold a Canada Research Chair. Her research focus lies at the intersection of human–computer interaction with content-rich systems and information retrieval, as well as in the evaluation of various types of information systems. She organized the first DL workshop in Canada at the University of Toronto in 1999. She remains an ardent supporter of technology designed for people and is working towards next-generation information appliances (nGAIAs) – information tools that deliver information and not objects.

Giannis Tsakonas holds a BSc in Librarianship and a PhD in Information Science from the Department of Archives and Library Sciences, Ionian University, Corfu, Greece. He is a member of the User Support Department of the Library and Information Centre, University of Patras, Greece, and a post-doctoral researcher in the Database and Information Systems Research Group, Ionian University, Greece. He has been actively involved in national and European projects, such as the DELOS Network, the Hybrid Libraries project for the exploration of mobile devices in knowledge and memory institutions and the CARARE project. He has participated in the design and management of repositories and museum information systems. He is also a member of the Executive Board of E-LIS, the international subject repository on librarianship and information science. His research interests include DL development in information contexts, such as the fields of academia and museums; user-centred DL evaluation; information behaviour; aspects of information services integration; and visual communication.

Zsuzsanna Varga is the Keeper of the Hungarian Collection at Oxford University Libraries and has recently completed the project *East Looks West: East European Travel Writing in the Electronic Domain* with UCL. She holds a PhD in English Literature and a MSc in Library and Information Studies. Her research interests lie at the intersection of humanities and the digital domain. Her previous projects have included the bibliography of Scottish literature in translation, the bibliography of Hungarian literature in English translation, and the web representation of Glasgow University Library’s Novel Collection. She is very keen on exploring the potential of digital libraries and collections for research and teaching purposes.

Harry Verwayen is the Director for Business Development at Europeana. His main focus is the design and implementation of new business models and strategies that will support Europeana to fulfil its mission as a driver of innovation in the cultural heritage sector. Prior to this position, Harry worked at the Amsterdam-based think-tank KnowledgeLand, where he was responsible for innovation and positioning of the project Images for the

Future. He has over 10 years of experience in the academic publishing industry in various positions, including sales, business and product development, and worked for Kluwer Academic Publishing, Springer and IDC. Harry holds a MA in History from Leiden University and a certificate from Nyenrode Business University.

Many cultural heritage professionals are involved in digital projects these days, and they inevitably face a wide range of issues related to users: from understanding their needs and expectations to finding efficient ways of enhancing their engagement. Understanding the users is also closely related to the measurement of the impact and value of digital resources – because the value, which seems an abstract metric, actually becomes quite tangible when projected onto real people and how they see a digital resource. We hope that this book will help all such specialists to get a better idea of how to understand their users better. The book will also be helpful for students taking library, information science and archival courses.

References

- Athanasopoulos, G., et al. (2010) *The Digital Library Reference Model*, <http://bscw.research-infrastructures.eu/pub/bscw.cgi/d167719/D3.2a%20The%20Digital%20Library%20Reference%20Model.pdf>.
- Bignell J. and Fickers, A. (eds) (2008) *A European Television History*, Wiley-Blackwell.
- DiSCmap (2009) *Digitisation in Special Collections: mapping, assessment, prioritisation, report and appendices*, www.jisc.ac.uk/whatwedo/programmes/digitisation/reports/discmap.aspx.
- Dobрева, M., O'Dwyer, A. and Konstantelos, L. (2011) User Needs in Digitization. In Hughes, L. (ed.), *Evaluating and Measuring the Value, Use and Impact of Digital Collections*, Facet, 73–84.
- Gonçalves, M. A., Fox, E. A., Watson, L. T. and Kipp, N. A. (2004) Streams, Structures, Spaces, Scenarios, Societies (5S): a formal model for digital libraries, *ACM Transactions on Information Systems*, **22** (2), 270–312.
- Nguyen, H. S. and Chowdhury, G. (2011) Digital Library Research (1990–2010): a knowledge map of core topics and subtopics. In Crestani, F. and Rauber, A. (eds), *Digital Libraries: For Cultural Heritage, Knowledge Dissemination, and Future Creation. Proceedings of the International Conference on Asia-Pacific Digital Libraries (ICADL2011), Beijing 24–28 October*, LNCS vol. 7008, Springer Berlin/Heidelberg, 367–1.

The New Renaissance (2011) *The New Renaissance: report of the Comité des Sages. Reflection group on bringing Europe's cultural heritage online*,
http://ec.europa.eu/information_society/activities/digital_libraries/doc/refgroup/final_report_cds.pdf.