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# INTEGRATED INFORMATION

International Conference on Integrated Information

Kos, Greece      September, 29 – October, 3 2011

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**All papers have been peer-reviewed**



**Piraeus, Greece, 2011**

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# **Preface: Proceedings of the International Conference on Integrated Information (IC-ININFO 2011)**

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## **Aims and Scope of the Conference**

The International Conference on Integrated Information 2011 took place in Kos Island, Greece, between September, 29 and October, 3, 2011. IC-ININFO is an international interdisciplinary conference covering research and development in the field of information management and integration.

The conference aims at creating a forum for further discussion for an Integrated Information Field incorporating a series of issues and/or related organizations that manage information in their everyday operations. Therefore, the call for papers is addressed to scholars and/ or professionals of the fields of Library and Archives Science (including digital libraries and electronic archives), Museum and Gallery Studies, Information Science, Documentation, Information Management, Records Management, Knowledge Management, Data management and Copyright experts the latter with an emphasis on Electronic Publications. Furthermore, papers focusing on issues of Cultural Heritage Management and Conservation Management are also be welcomed along with papers regarding the Management of Nonprofit Organizations such as libraries, archives and museums.

One of the primary objectives of the IC-ININFO will be the investigation of information-based managerial change in organizations. Driven by the fast-paced advances in the Information field, this change is characterized in terms of its impact on organizations that manage information in their everyday operations.

Grouping emerging technologies in the Information field together in a close examination of practices, problems and trends, IC-ININFO and its emphases on integration and management will present the state of the art in the field. Addressed jointly to the academic and practitioner, it will provide a forum for a number of perspectives based on either theoretical analyses or empirical case studies that will foster dialogue and exchange of ideas.

## **Topics of general Interest**

Library Science, Archives Science, Museum and Gallery Studies, Information Science, Documentation, Digital Libraries, Electronic Archives, Information Management, Records / Document Management, Knowledge Management, Data Management, Copyright, Electronic Publications, Cultural Heritage Management, Conservation Management, Management of Nonprofit Organizations, History of Information, History of Collections, Health Information

## **Symposia**

The Conference offered a number of sessions under its patronage, providing a concise overview of the most current issues and hands-on experience in information-related fields.

- Symposium on Integrated information: Theory, Policies, Tools
- 4th Symposium on Business and Management and Dynamic Simulation Models supporting management strategies

- Session on Open Access Repositories: Self-archiving, Metadata, Content policies, Usage
- Session on Evidence-Based Information in Clinical Practice
- Session on Business Management and Communication Strategies supporting Decision Making Process in Tourism Sector
- Session on Electronic Publishing: A Developing Landscape
- Session on Information and Knowledge Management
- Session on Information Content Preservation as Outcome of Conservation of Cultural Heritage: Ethics, Methodology and Tools
- Session on Advances Information for Strategic Management
- Session on Information History: Perspectives, Methods and Current Topics
- Session on Divergence and Convergence: Information Work in Digital Cultural Memory Institutions
- Session on Contemporary issues in Management: Organisational Behaviour, Information Technology, Education & Hospital leadership.

The wide range of aspects that the sessions covered, highlighted future trends in the Information Science.

### **Paper Peer Review**

More than 300 papers had been submitted for consideration in IC-ININFO 2011. From them, 91 were selected for presentation, after peer review in a double blind review process. The accepted papers were presented at IC-ININFO 2011.

### **Thanks**

We would like to thank all members that participated in any way in the IC-ININFO 2011 Conference and especially:

- The famous publishing house Emerald for its communication sponsorship.
- The co-organizing Universities and Institutes for their support and development of a high-quality Conference scientific level and profile.
- The members of the Scientific Committee that honored the Conference with their presence and provided a significant contribution to the review of papers as well as for their indications for the improvement of the Conference.
- All members of the Organizing Committee for their help, support and spirit participation before, during and after the Conference.
- The Session Organizers for their willing to organize sessions of high importance and for their editorial work, contributing in the development of valued services to the Conference.
- PhDC Marina Terzi for her excellent editorial work, contributing in the production of the Conference proceedings.

## CONFERENCE DETAILS

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Dimitris Kouis, Greek Ministry of Education, Lifelong Learning and Religious Affairs  
Dionysis Kokkinos, National Technical University of Athens

## KEYNOTE SPEAKER



Professor Amanda Spink

Professor Amanda Spink has published over 340 scholarly journal articles, refereed conference papers and book chapters, and 6 books. Many of her journal articles are published in the *Journal of the American Society for Information Science and Technology*, *Information Processing and Management*, and the *Journal of Documentation*. She is Editor of the Emerald journal *Aslib Proceedings*. Amanda's research has been published at many conferences including ASIST, IEEE ITCC, CAIS, Internet Computing, ACM SIGIR, and ISIC Conferences. Her recent books include *Information Behavior: An Evolutionary Instinct* and *Web Search: Multidisciplinary Perspectives*, both published by Springer. Amanda's research focuses on theoretical and empirical studies of information behavior, including the evolutionary and developmental foundations. The National Science Foundation, the American Library Association, Andrew R. Mellon Foundation, Amazon.com, Vivisimo. Com, Infospace.com, NEC, IBM, Excite.com, AlltheWeb.com, AltaVista.com, FAST, and Lockheed Martin have sponsored her research. In 2008 Professor Spink had the second highest H-index citation score in her field from 1998 to 2008 [Norris, M. (2008)]. Ranking Fellow Scholars and their H-Index: Preliminary Survey Results. Loughborough University, Dept of Information Science Report].

# Towards the Preservation and Availability of Historical Books and Manuscripts: A Case Study

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**Abstract:** We present a case study on the use of digitization for the preservation and availability of the books and manuscripts in a historical library. At first, we give a brief description of the collection. Then, we describe the process of digitization and our approach to the availability and awareness of the digitized documents.

**Keywords:** Historical documents, Digitization, preservation, Availability

## I. INTRODUCTION

Collections of manuscripts and early printed books of great philological and historical interest are often kept in libraries of monasteries and other remote historical sites. Access to such collections is a quite difficult task due factors like: the deteriorated state of the documents, the conditions under which the collections are kept, the limited accessibility to the location, etc. The digitization of the documents and their availability to the public via electronic media contributes to their awareness and in the same time their preservation since, it ensures full access to their content without frequent use of the original which would contribute to a further deterioration of their bad state. Recently, mass digitization of historical documents was made possible in the course of research projects such as IMPACT which was funded by the European Commission and aimed at massively digitizing European historical texts and at proposing methods for improving the access to their content (Balk 2009).

In this paper, we discuss the problem of preservation and awareness of the collection of books and manuscripts in the library of the “Evangelistria” holy monastery (The holy monastery of the Annunciation of the Virgin) on the island of Skiathos, Greece. The paper is organized as follows: In section 2 we give a brief description of the monastery and its library while in section 3 we describe the digitization of the documents and problems we came across during this process. In section 4 we discuss our approach to the availability and awareness of the digitized documents. Finally, in section 5 we draw conclusions and point to future work.

## II. THE LIBRARY

### A. The Monastery

The “Evangelistria” Monastery (the holy monastery of the Annunciation of the Virgin) was founded on

the island of Skiathos, Greece in 1794 by a group of monks, members of the “Kollyvades” spiritual movement who were forced to leave the Holy Mount of Athos in the face of disturbances resulting from disputes over the celebration of Canonical Requiem Masses Saturdays rather than Sundays. The “Kollyvades” movement had as an objective the return to the traditions of the ancient orthodox church and greatly influenced the spiritual life of the island. In addition, the Monastery provided significant moral and material assistance to the Greek revolution of 1821 as well as to the pre-revolutionary movements. The cultural sites of the Monastery include the religious and national museum, the folk museum, the exhibition where byzantine and post-byzantine icons, wooden and silver crosses, liturgical vessels, and other ecclesiastical items are kept.

### B. The Content of the Library

Of particular interest is the library where a significant number of rare manuscripts and early printed books are kept and was formed by learned and bibliophile monks and other scholars who donated their books and manuscripts to the Monastery. The collection comprises books printed from the 16th to the 19th centuries, manuscripts from the 13th to the 19th centuries, and patriarchal documents. Obviously, most documents in the collection are religious ones. Indicatively, there are works by St. John Chrysostom, Saint Basil the Great, Athanasius Parios, Nikodemos the Hagiorite, Patriarch Photius etc. Besides religious documents there is also a significant number of books of general interest such as Geography, Mathematics, Grammar and works by Homer, Thucydides, Aristotle etc. The oldest printed book is a hand-bound edition of the Gospel with gold, silver and precious stones which was printed in Venice in 1539 (Fig. 1).



Figure 1. The Gospel (published in 1539).

### III. DIGITIZATION

Recently, the task of digitization the library was under-taken in the course of the effort for the maintenance and reconstruction of the Monastery. The main reason for this undertaking was the increasing interest of philologists, theologians and historians in the books and manuscripts of the collection and at the same time a very bad state of the documents. Therefore, our goal was twofold:

- prevent any further damage of the documents
- facilitate the work of the researchers

For the initial recording and classification of the documents we used the “Catalog of Manuscripts and Books of the Holy Monastery of the Annunciation of the Virgin in Skiathos” which was created 1916 and published in 1961-62 by Anthony former Bishop of Elia (1961, 1962a, 1962b). Following the catalog, the documents were located, classified and arranged on the shelves.

An appropriate database was created which would contain all the elements of the catalog and help the location of the documents on the shelves. So, each record of the database would contain the following fields: serial number, title, author/editor, language, publisher, publication year, publication country, volume number, number of pages, comments, library/shelf number. Then, the documents were digitized and linked to the database. The digitization was performed using a digital camera and a tripod bringing to light rare documents as well as their extremely bad condition due to:

- damage (Fig. 2),

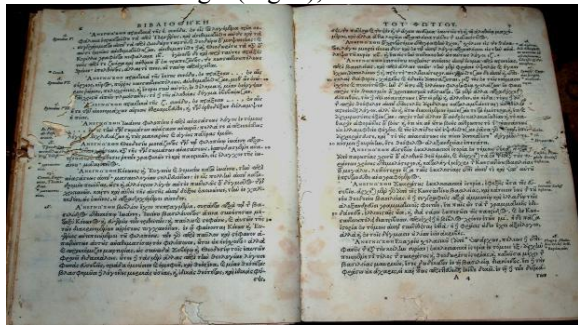


Figure 2. Damaged document.

- stains (Fig. 3)



Figure 3. Stained document.

- bleed-through distortion (Fig.4)

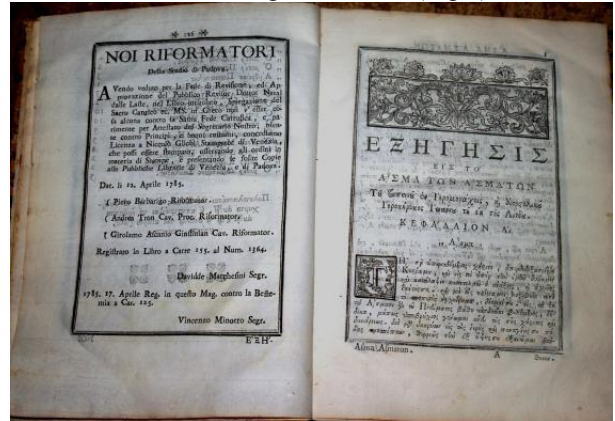


Figure 4. Bleed-through distortion.

- annotations (Fig.5), etc



Figure 5. Annotated pages.

Kesidis et al. (2009) and Kesidis et al. (2011) have proposed methods for dealing with the abovementioned problems along with solutions to the problem of accessing the content of the digitized documents in the collection without the use of an optical character recognition system.

Significant results of an application of these methods are reported in (Kesidis et al., 2011). The experiment was performed on 110 images corresponding to single pages of documents printed during the 17th and 18th centuries and using a query set consisting of 32 key-words. In the proposed word spotting framework, image processing techniques were used to improve the quality of the document images and word segmentation locating words in the document was performed. Then word images were created from keywords and compared to all the words in the digitized documents. Research procedures were refined with the help of a user feedback process. In order to improve the efficiency of the retrieval procedure, a set of natural language processing tools was created, comprising:

- a morphological generator for early Modern Greek that provides the user with the ability search the documents using only a base form and locate all the inflected word forms
- a synonym dictionary which facilitates access to the semantic context of the documents and enriches the results of the search process.

The experimental results have shown that the use of generated word-forms in the word spotting procedure along with the user's feedback has led to significant improvement of the retrieval performance compared to the case when only the keywords were considered.

Upon completion of the digitization procedure of all the documents of the collection, we plan to use the abovementioned techniques in order to improve document images and provide access to the content of the totality of the documents thus facilitating the work of the researchers.

#### IV. AVAILABILITY AND AWARENESS

With the digitization of the documents and their linking with the database, the first challenge of this undertaking was met; access to the documents became possible without using the originals, thus avoiding further deterioration of their state. Yet, the availability remained an open issue since the system was less than user-friendly.

In order to facilitate the availability and awareness of the digitized documents their publication on a set of DVDs was decided. A user-friendly navigation software to the digitized material was created and 59 printed books (corresponding to about 28000 pages) were processed and published on 3 DVDs along with the software (Fig. 6). The subset of the digitized collection consisting of these 59 books is a representative example of the documents in the library taking into account their philological, theological and/or historical interest, their rarity, their thematic diversity etc.

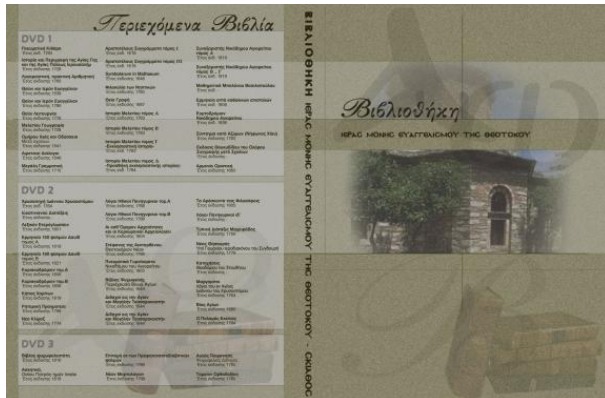


Figure 6. The 59 books available on DVDs.

Special importance was placed on the user-friendliness of the navigation software since the target group would consist mainly from experts in the Humanities who were not particularly familiar with advanced computer use.

With the use of the navigation software, the user is able to access a book (fig. 7),

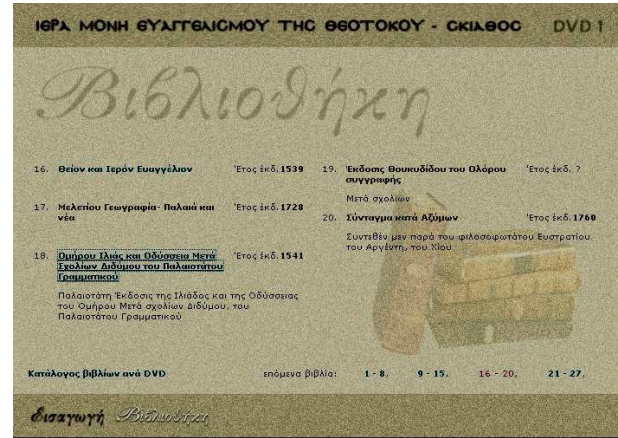


Figure 7. Excerpt of a list of books on DVD .

inspect each page (fig. 8) and print it for further study.

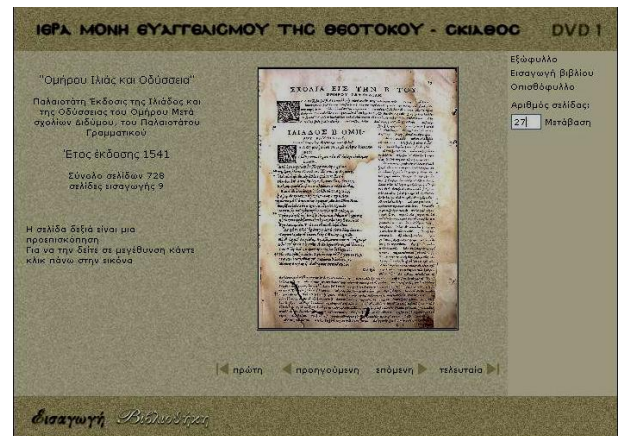


Figure 8. Inspection of an annotated edition of Homer's Iliad and Odyssey (published in 1541) .

The abovementioned undertaking of digitizing the documents and their publication on a set of DVDs was implemented by the Department of Informatics of the Technological Educational Institute of Athens and the company Data & Control Systems Ltd with the support of the Municipality of Skiathos.

#### V. CONCLUSIONS

In this paper, we have described the first phase of an ongoing project for the preservation and awareness of the historical books and manuscripts in the library of the Evangelistria Monastery on the island of Skiathos, Greece. It comprised:

- the creation of the infrastructure for the inventory and digitization of the documents,

- the digitization of a significant subset of the documents and
- the publication of a representative number of digitized documents on a set of DVDs.

Future work involves the completion of the digitization procedure, the complete cataloguing of the collection, and the availability of the digitized documents on the Web.

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