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Editorial message

Dear Colleagues,

It is with pleasure to announce the new issue of the **Journal of Integrated Information Management (JIIM)** publication.

JIIM is an international, multidisciplinary, blind peer-reviewed journal that publishes research efforts on all aspects and issues regarding Information Science and Integrated Information Management.

We are aiming at making JIIM a reputable scientific communication channel, and we are now welcoming submissions for the upcoming journal issues as well as proposals for Special Issues.

Your proposal should be no more than five pages and include at least an executive summary, a proper justification why the Special Issue is needed and how it is suitable with the JIIM topics. Special Issues proposals should be sent directly via email the Assistant Editor-in-chief (dkouis@uniwa.gr).

Finally, we would like to express our commitment to promoting scientific papers of high-grade quality and that we expect your contribution and active support with remarks and points of improvement.

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Digital Preservation for the Individuals

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Abstract:

Purpose - This is a concept paper highlighting the most important points pertaining to the development of a web service for the preservation of the digital assets of individuals.

Design/methodology/approach - A commercial web service aimed at the general public for the preservation of their digital assets is outlined. It encompasses the ability to legitimately bequeath one's digital assets to another individual in case of death or inability, and ensures the preservation and accessibility of the digital files and their metadata for a given (long) period of time, by applying the principles of digital preservation, as described by OAIS. The development and scientific challenges of this endeavor are also briefly discussed.

Originality/value - The project responds to a real contemporary public need, and proposes a service which will become highly relevant in the near future. The lacking of such a service will very soon be painfully felt by the public, with the mass loss and depreciation of their personal digital assets.

Index Terms — digital assets, individuals, digital preservation, bequeathal, MyDAS

I. CONCEPT OVERVIEW

This is a concept paper highlighting the most important points, as we have conceived them, pertaining to the development of a web service for the preservation of the digital assets of individuals.

The explosion of digital technologies has led to the overproduction of digital objects by the general public, mainly of photographs and texts, but also of videos, music and data, existing as single files in smartphones, computers, clouds or storage media, or in combinations in postings on social networking services, emails, blogs etc. These digital objects comprise the individuals' personal digital assets (PDAs) [1], with significant economic and non-economic value to their owners. However, these individual digital assets taken together become invaluable, as they represent a large part of the contemporary culture and creativity. At the same time, the combination of the multifaceted individual personal stories, inherent in the PDAs, records

every aspect of everyday life, thus comprising a major part of the history of current civilization. Despite their value, common people are not only lacking the necessary tools and expertise, but most importantly, are oblivious to the imminent risk of permanently losing their PDAs, unlike many organizations that have both the awareness and the resources for digital preservation [2].

The practices for the preservation of the digital assets by individuals have not been rigorously surveyed, are largely unknown in their details, and may change over time. As literature [3], anecdotal evidence and common sense suggest, individuals store their digital assets in their PCs, tablets and smartphones, various cloud services, external hard drives, and other storage media. The various digital files are not described in detail (with appropriate metadata), are probably aggregated in folders, and in the best-case scenarios the individual files and folders are given vaguely descriptive names. Photograph files are usually stored automatically in smartphones and digital cameras with meaningless file names, making accessing a specific file a frustrating endeavor [3]. Moreover, individuals seldom back their files up, and if they do, they do it haphazardly. All the above indicate that the digital preservation practices of individuals are practically nonexistent.

According to the literature and the digital preservation standards, the lack of provenance and description (appropriate metadata) of digital files will inevitably lead to the loss of important information, and after a generation, to their general depreciation [2], [4]. One can imagine that some thousand photographs in a hard drive, even if they are preserved as accessible digital objects, when they are passed to the next generation, they will be just files that no one will know who and what is shown, or when (in what occasion or date) and where they were taken. The loss of information, which will result not only from its abundance but also because of the absence of provenance, has often been referred to as the digital Dark Ages [5].

We have envisioned a commercial web service aimed at the general public for the preservation of their digital assets, enabling individuals to upload their files and insert preservation metadata easily and intuitively, which has been given the tentative name MyDAS¹ (My Digital ASsets). This service will encompass the ability to legitimately bequeath one's digital assets to another individual (child, spouse, friend or relative) in case of death or inability, and will ensure the preservation and accessibility of the digital files and their metadata for a given (long) period of time, by applying the

¹ MyDAS brings to mind the legendary king Midas of Phrygia, who had the ability to turn everything he touched into gold.

principles of digital preservation [2], [4].

This web service must be easy for the layperson to use, and can be scaled to cater for various needs. For people with basic needs, after registration, a limited space will be offered free of charge (**free user**, probably supported by advertisements), together with a very basic set of metadata. One possible usage scenario may be as follows: The user will upload photographs (or other files), manually or automatically by use of an app or a plug-in immediately after the photograph is taken, and then receive a message asking him/her to provide some details about the photo, such as who are shown in the photograph, and where and when it was taken. Time-stamp and spatial metadata can also be acquired by the digital camera or phone and be converted to human friendly format. Face recognition technology will assist the identification and provide suggestions. An ontology describing relations between persons, places, activities, and objects will provide the necessary connections between inserted metadata entities. Apart from achieving its main target, which is the preservation of the personal digital assets, the service will allow for easy access and organization of the photographs.

At a higher level of complexity (**premium user**), the service will have a subscription fee and the metadata schema and underlying ontology will be more complex, in order to support more complicated situations. At its highest level (**corporate/professional user**), the service will address corporations, artists, scientists, politicians, actors etc., i.e. people who produce large amounts of high-value digital data, and who have complex description and organization needs. The service must allow for the creation of groups with diverse access rights (mainly addressing organizations, corporations and societies) and collections (such as artists' portfolios). The owners of the data will have the right to render their data accessible to other users or groups.

The development of the web service can be organized in several steps. Initially, the financial success and sustainability of the endeavor must be ensured, and a publicity campaign should be designed highlighting the risks of the digital assets of individuals, and the solutions this service can offer. An exploratory study addressed to individuals can gather data on their storage and safekeeping practices of their PDAs, their level of awareness of the dangers involved, their intention to adopt such a service, and their needs and preferences. This information will be used for the design and the promotion of the service. This step has been partially implemented, since a pilot survey addressed to the students and personnel of the University of West Attics was performed. Indeed, universities can serve as the perfect environment for developing, testing, debugging and pilot running of such a service. A development scheme could involve three European universities, which in cooperation with private IT companies can develop the software, the metadata schemas, the ontologies, the plug-ins and the user interface independently or in collaboration. This way, the best solutions can be incorporated in the final

design after extensive testing and employment of the service for their own students and personnel for a pilot period.

The metadata schema and ontology should have at least three levels of complexity, addressing the different needs of the three levels of usage discussed above. The system should be designed to incorporate the principles of an Open Archival Information System (OAIS), regarding the information model, the functionality and the preservation practices. The user interface must be optimized for smartphones, and studied extensively so that it does not intimidate the non-expert user.

Several apps and plug-ins can be developed or adapted to improve the functionality and the user-friendliness of the service, while an API can also be provided for independent developers who wish to contribute. These may include:

- An app that automatically uploads a photograph or video immediately after it is taken, together with basic time and spatial metadata.
- Face recognition software, which can be tweaked and guided by the user, linked to a person's database and the underlying ontology
- Plug-ins for the mass migration of files and their metadata
- Apps for harvesting files and their metadata from various cloud and social networking services
- Speech recognition technology for metadata insertion

The above list is not exhaustive, and hopefully more helpful apps and plug-ins will be developed.

It can be argued that such a service is redundant, since many similar solutions are commercially available. For example, Facebook, Instagram and many cloud services are available for the storage of personal digital assets. A number of them offer options for bequeathal, and some of the extras described above. Nevertheless, there is a key issue with all of them. Their aim is not digital preservation, and this is obvious from the beginning. By signing in, the user must accept a disclaimer which states that the service carries no liability in case of data loss! There are also several services offered for critical data preservation, but they are not aimed at individuals, and their context is financial, technical, legal, or administrative. Available open source and commercial solutions that are partially relevant to the service, such as Omeka, DSpace, Fedora, and DuraCloud do not address the general public, but need certain expertise for setup, administration, tweaking and usage.

Several scientific and technical challenges must be addressed effectively, because this endeavor is unprecedented. Legal issues involving bequeathal and digital rights management must be researched and resolved. The service should assume responsibility for the preservation of the digital files, ensuring their security, usability, and accessibility for a given period of time. The typical disclaimer of various cloud services that the user has to accept in order to use them should be replaced by a warranty that the data will be preserved through various manipulations for a given period of time. An auditing procedure by a suitable

organization should be also involved. Modification of the OAIS principles should be also studied and suggested, the most important of them stemming from the fact that the Administration and Management (as defined by the OAIS model) must involve the individual owners of the digital assets, which are an ill-defined Designated Community with no specific Knowledge Base [2], [4]. User awareness campaigns must also be organized, that will inform the public of the risks concerning their digital assets.

Rigorous study will specify the system's technical and performance specifications and limitations. Finally, the commercial model of running the service must be decided and implemented.

The project suggested above responds to a real contemporary public need, and can offer a service which will become highly relevant in the near future. If this need is neglected, the lacking of such a service will very soon be painfully felt by the public, with the mass loss and depreciation of their personal digital assets.



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Best collaborative practices for advocacy and promotion of Open Educational Resources

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Abstract:

Purpose – The present study, after reviewing the relevant literature and the recent trends that became evident from the Open Education Global Conference 2018 (and other similar fora), documents the best practices to be adopted by the Greek academic libraries, in order to support the OER actions in Higher Education by making the Academic Community aware of the culture of OER adoption/use.

Design/methodology/approach – It emerged from the analysis of the empirical results of a relevant research conducted among faculty of Greek Universities. The research inquired into the support/guidance that academic libraries offer to the faculty of their institutions for: a. adopting/using Open Educational Resources (OER), b. creating OER and c. OER intellectual property (copyright).

Findings – The results of the research showed that most of the faculty does not consider academic libraries much supportive of them in any of the three areas investigated -as opposed to what occurs in Europe and internationally.

Originality/value – The practices documented could: a. gain advantage from the existing library infrastructure and enhance the know-how and digital competence of librarians in the following areas: OER location, intellectual property (copyright), metadata and quality assurance, institutional repositories (storage and preservation), b. support faculty and students in cultivating their digital skills and thus achieving “OER Literacy”.

Index Terms — academic libraries, universities, collaboration, Open Educational Resources (OER), faculty, students

I. INTRODUCTION

The purpose of the present study is to determine the best advocacy practices that have resulted from the collaborative efforts of the academic libraries and the Higher Education Institutions (HEIs) to promote Open Educational Resources (OER).

The starting point for this review is the outcome of the empirical research conducted (in March 2017) among faculty that had participated in the “Kallipos” Project (<https://www.kallipos.gr/en/>), the first Greek initiative for

creating academic e-textbooks and making them available through an open access digital Repository (<https://repository.kallipos.gr/?locale=en>); the results of interest for the academic libraries were first presented at the 23rd PALC¹. Specifically, deriving out of the answers given to questions about the extent to which Academic Libraries have supported and guided them to a. OER adoption/use, b. OER creation and c. OER intellectual property (copyright), it is revealed that the faculty of the research sample does not consider academic libraries much supportive of them in any of these three areas [1]. More precisely, only 22% of the survey’s participants believe that academic libraries have guided them on OER intellectual property (copyright), another 26% consider that academic libraries have supported them in the OER creation, and less than one in three (30%) are of the opinion that the academic libraries have contributed to their OER adoption/use (see figure 1).



Figure 1. OER faculty support for academic libraries.

The aforementioned research findings -although apparently explained by the fact that it’s just the last five years that OER have been created and are available for use by the Greek Academic (and Research) Community- are contradictory with the findings of the literature review in the field, which is presented in brief in the next section. Indeed, by reviewing the literature (see in details below) it results that -in their policy frameworks- international organizations advocate the establishment of collaborative models between Academic (and Research) Libraries and Academic Community to raise awareness on OER and their subsequent promotion. Also, the recommendations for collaborative projects between academic libraries and faculty are aligned with the current

¹ The full text of the research article (in Greek) was presented at the 23rd PanHellenic Academic Libraries Conference (“Academic Libraries: A roadmap to sustainability”, 15-16 November 2017, AUTH).

trends for Open Education² (and Open Science) projects that have been designed and implemented mostly by US and Canadian Universities (but with growing rates in European HEIs too) in terms of OER creation, OER adoption/use and OER intellectual property. These trends were recently presented in the Open Education Global Conference 2018 [see the sessions under the topic “Library and OER” (<https://conference.oeconsortium.org/2018/program/themes/#Lib>)³].

II. THEORETICAL FRAMEWORK

In general terms, cooperation is defined as the exchange of help and support among individuals or teams that have common or similar aims. In the context of our digital world, cooperation means “*sharing information, insights, strategies and resources across projects, organizations and sectors, leading to increased efficiency and impact*” (<https://digitalprinciples.org/>). According to ACRL [3], libraries do promote cooperation as a professional value. For Goodsett, Loomis and Miles [4], the academic libraries cooperate with people and organizations within and outside their HEIs, in their attempt “*to better serve their students, institutions and communities*”, by adopting innovative methods. A technological innovation that can be used by academic libraries is OER.

Open Educational Resources are “*teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license⁴ that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions*” [5], and due to their unique characteristics they offer numerous opportunities for better learning outcomes and quality of teaching [6] [7]. Additionally, OER may appear in many different forms, e.g. textbooks, entire courses, lesson plans, open access scholarly publications, videos, lecture notes, diagrams, infographics, quizzes, online tutorials, podcasts, etc. Customarily, OER have been created within the framework of Open Education/Science projects implemented by institutions, libraries and international organizations, and are made available through digital libraries, open access repositories, educational websites, catalogs, etc. In Greece, they have been created within two co-funded projects for Higher Education, the “Greek Academic Open Courses” (<http://www.opencourses.gr/>) and the “Kallipos” Repository (<https://repository.kallipos.gr/>).

Having examined critically the European and international literature of the field [8]-[22], we have concluded the following: in most HEIs, academic libraries support the teaching/learning/research activities in many different ways, e.g. by gathering resources for the

undergraduate/postgraduate curricula and research, by providing access to supplementary teaching material for use in classes, by aggregating free, open academic content and making it accessible through institutional repositories and their websites, by providing Information Literacy skills to the students, by creating guides about the use of particular educational resources, learning objects, etc.

Furthermore, openness offers a lot of opportunities for collaboration with the faculty, since OER creation and use has opened a new action field for academic libraries. According to Okamoto [23], academic libraries can play a leading role in many OER areas, e.g. in “OER advocacy, promotion and discovery”, in “OER evaluation, collection, maintenance/preservation”, in “OER curation and facilitation”, etc. A special challenge for the academic libraries is OER aggregation, due to the existence of various open access sources and locations as well as extremely rich open educational content (such as open textbooks, etc.).

It should also be noted that, in the *Standards for Libraries in Higher Education* there are guidelines for academic libraries to be assisted in meeting the required “*expectations for library contributions to institutional effectiveness*” and strengthen their role as “*partners in educating students*”. Besides that, in these standards it is stated that “*library personnel collaborate with campus partners to provide opportunities for faculty professional development*” [3].

Moreover, according to BL [24] the modern academic librarians should be enabled to “*integrate technology skills into their existing library and information technology skill set, and to understand how this new blend of skills can promote better connections with faculty*”. In that case, by combining their professional skills and the services they offer, they will be capable of: a. developing Information Literacy initiatives in their campuses, aiming to facilitate the engagement of the Academic Community in the teaching/learning process, b. assisting faculty to apply technological innovations (including OER) and provide “*enhanced*” teaching/learning experiences, c. undertaking a leadership role as agents of change and innovation in their universities.

Finally, academic libraries’ involvement with OER training should include the expansion of their activities in providing Information Literacy courses which will support faculty and students in the OER selection and evaluation. Should this happen, “OER Literacy” [25] invests in their current professional framework - since the skills needed to locate and use OER are very much alike to the Information Literacy skills that academic librarians already have as well as to their digital competence.

III. BEST PRACTICES

By reviewing the relevant literature [9]-[16], [18]-[21], we

² For the concept of Open Education, see the Cape Town Declaration on Open Education (<https://www.capetowndeclaration.org/read-the-declaration>).

³ About the Greek participation in OE Global 18, see the presentation and the article in the Conference Proceedings [2].

⁴ For the term “open license” as well as for examples of open licensing, see <http://opendefinition.org/guide/> and Creative Commons (CC) licenses (<https://creativecommons.org/choose/?lang=en>).

have assembled the best practices proposed to ensure the cooperation of the Greek academic librarians with the Academic Community in Greece regarding OER.

a. Academic libraries, should adopt any of the following methods:

- Appoint a librarian who will deal exclusively with OER.
- Suggest to the students OER that are subject relevant to the content of their courses.
- Provide students the opportunity to make comments and suggestions about OER.
- Promote open textbooks by recommending them to the students.
- Produce videos starring faculty members who have replaced -in their courses-commercial/conventional textbooks with open ones.
- Organize seminars/workshops for the faculty as well as individual (“one-on-one”) meetings.
- Discuss peer-review processes for OER.
- Promote national (such as “Kallipos” Repository, “Greek Academic Open Courses”, etc.), European, and international OER initiatives.
- Create online guides dedicated to openness [OER introductory lessons (definitions, the “5Rs” of openness, etc.), CC licenses, open textbooks, open data, open software, open courses (MOOCs), etc.].

b. Librarians should create a library environment that promotes an OER culture and advocates OER benefits [17], [21], [22], [26]. In particular, it is recommended that librarians contribute to the following four areas - *OER awareness, curation, creation, licensing* - by using the methods described below:

i. *Understanding and disseminating information about the use and benefits of OER, by*

- gaining OER knowhow in cooperation with other librarians through peer to peer training and professional meetings,
- contributing to the wider educational community’s awareness of OER and Open Educational Practices’ benefits for teaching and learning -via newsletters, social media and other communication channels.

ii. *Curation of OER collections, by*

- identifying and evaluating OER for supporting the curriculum through the use of established quality indicators,
- assessing OER in close cooperation with faculty and students.

iii. *Creation of new OER, by*

- creating OER in close cooperation with faculty and students.

iv. *Evaluation and selection of open licenses, by*

- guiding faculty and students to make proper/legitimate use of the open content,

- using their librarian expertise in advising faculty and students to choose the appropriate open license for their works.

In general, it is recommended that academic librarians should create *communities of practice* [26] for OER promotion⁵. Also, it is advisable that they should undertake professional development by organizing and participating in awareness conferences/events, by attending OER webinars and online fora, etc.

IV. CONCLUSIONS

Based on the preceding information, it is apparent that, at European and international level, academic libraries are increasingly involved in the OER areas, contributing mainly to the following: a. OER location, b. OER metadata and quality assurance, through the use of methods that render OER easily retrievable and through specific standards that ensure high quality descriptive metadata, c. OER maintenance/preservation in open access repositories, d. OER intellectual property (by providing information about the licenses required to share content as well as adequate support for OER creation), e. OER policies (support to the design of the appropriate institutional policies).

All over the world, through their involvement in the promotion of Open Access and Open Science, academic librarians can and should be the link between different settings, policies, and strategies. In Greece, too, they should mobilize the universities to produce and publish open content such as the European agenda demands, and as is already the case in the US, Canada and elsewhere.

As for the special Greek academic culture and environment, a strong supporter towards the fulfillment of this vision is the Hellenic Academic Libraries-Link, the Consortium of academic libraries, which “*works consistently to forward the concept of open access, open education resources and open science to its institutions*” [27].

However, given the shrinking budgets and reduced staff in many academic libraries in Greece, it is crucial for the library administration to carefully consider and select the most appropriate strategies for OER management ensuring that OER collections are both useful and valuable to the Academic Community. Definitely, planning is a critical factor, otherwise, OER collections may not be proved effective for the purposes they are intended.

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⁵ A promotion tool is the Open Education Resource Repository Rubric (https://mediawiki.bccampus.ca/images/d/d1/OERR_Rubric.pdf).

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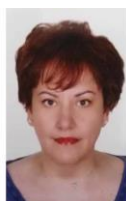
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Greek Libraries Network

Purpose, goals, vision. The audience development in libraries through educational programs for children

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Abstract:

Purpose – Abstract:

Purpose - In 2015 the National Library of Greece took over the Greek Libraries Network to support the efforts of academic, research, public, municipal and school libraries in the country to develop and advance the services they offer to the public.

The main objective is to make this network a center of knowledge diffusion, networking and professional communication among its members as well as making libraries hubs of creativity for everyone.

Design/methodology/approach - *The existence of this network gives each member-library the ability to multiply its users, since the users of each library are members of the entire network. The actions of the Greek Libraries Network aim at audience development in the libraries, with a special focus on children, in order to create a new generation of readers.*

Findings - *The proposed educational programs promote reading through specific themes and books. Through specially designed workshops children can experience the library as a space that offers innumerable opportunities for education and creativity.*

Originality/value - *In this endeavor, the National Library of Greece stands shoulder to shoulder by visiting the natural spaces of each member-library of the Greek Libraries Network, heeding their needs and concerns, but also getting feedback and new ideas for the improvement of its services.*

Index Terms — networking; libraries; collaboration; Summer Campaign; library networks

I. INTRODUCTION - IDENTITY OF THE PROJECT

In 2015, the National Library of Greece (NLG) took over the libraries network which was initiated and funded by the Stavros Niarchos Foundation (SNF) and the Non-Profit Civil Partnership (NPCP) Future Library.

As part of the transition of the National Library of Greece to its new facilities at the Stavros Niarchos Foundation

Cultural Center (SNFCC), the project was included in Action 4, which focused on the Audience Development. The network was taken over by the NLG and in 2016 the Greek Libraries Network (GLN) was created.

II. HISTORICAL BACKGROUND

In 2011, the NPCP Future Library, with exclusive donor the Stavros Niarchos Foundation, created a network of libraries from all over the country with a view to reinforcing people's awareness of the importance of libraries as centers of learning, creativity and interaction. One of its actions was the Summer Campaign for the Promotion of Reading and Creativity, under the theme "Journeys with the Library as a Compass" in the summer of 2012. During the first year that the Summer Campaign activities were implemented in 87 Public and Municipal Libraries across Greece, they attracted the interest of the public which visited them: more than 20,000 people, adults and children. The actions continued under the guidance of Future Library until 2014.

In 2015, the National Library of Greece has taken over the baton assuming the role of coordinator and trainer. The Future Library [1] and the Stavros Niarchos Foundation, which funded the actions, collaborated with the NLG during the first year in order to prepare and implement the Summer Reading and Creativity Campaign.

In 2016, the Summer Campaign (SC) started with a three-day seminar in Athens, where libraries' staff from all over Greece participated in interactive workshops and work groups, so that they could be able to transmit to the rhythms/atmosphere, and respond to the requirements and the challenges of the Summer Campaign in their city. As part of the development of the project, the webpage of the Greek Libraries Network (<https://network.nlg.gr/>) was created, in which the member-libraries were placed on a common map, through an online process of application for the submittal and posting of their data. Finally, 2016 has been the last year that the exclusive donor was the Stavros Niarchos Foundation.

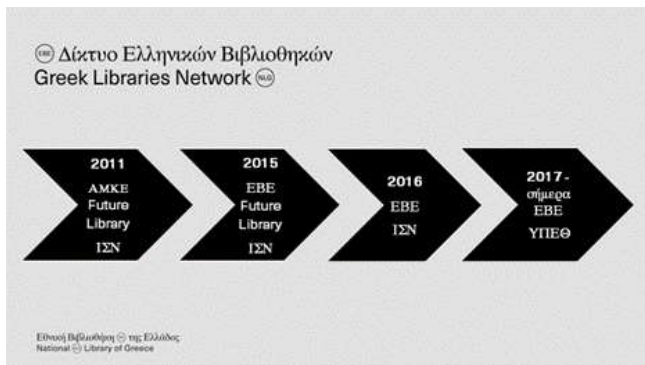


Figure 1. Historical background - GLN Creation.

As of 2017, the National Library of Greece has planned, organized and coordinated the actions of the Greek Libraries Network funded by the Ministry of Education, Research and Religious Affairs. Educational programs have grown as well; in addition to the Summer Campaign, there are actions to celebrate Christmas, World Book Day and a series of monthly thematic workshops since January 2018.

The website of the GLN is gradually being developed on a training and communication platform, enabling each member-library of the GLN to be informed, to communicate with each other and to take part in projects through special forms. The platform also hosts the educational / informative meetings of the NLG's library staff, which are being livestreamed, no longer requiring physical presence. In this way, the Greek Libraries Network follows the National Library of Greece in its transition to a new era.

III. PURPOSE AND OBJECTIVES OF THE PROJECT

The GLN's aim is to support the efforts of the academic, research, public, municipal and school libraries of the country in order to develop and advance the services they offer to their public. In the organizational sector, the NLG aims to provide library support by creating common catalogs and to defend their political, economic and social positions so that libraries throughout the country are at the epicenter of every community.

The main objective of the network is to be a basis and a means of information, dissemination of information, knowledge and professional communication among its members. The focus is always on highlighting libraries as hubs of creativity for both the young and the elder people. The existence of this network allows each member-library to multiply its users, since the users of each library are members of the entire network. In the future, the NLG aims to connect member-libraries with the services of the Union Catalog and the Electronic Reading Room of the NLG.

The National Library of Greece, as a reference point for libraries, aspires to undertake the responsibility of organizing training programs for the employees of its members', to plan, organize and carry out national and international actions such as campaigns or conferences.

IV. ACTIONS OF THE GREEK LIBRARIES NETWORK AND RESULTS

The GLN was created to offer support to every library that operates locally and to evolve its role from the traditional to a more modern one, following the transition of the National Library into a digital environment. Joint actions and the development of common services and tools at a national level aim at the advancement of libraries into information and knowledge centers and at increasing their visitors/users. Through the network's approach, the users of a member-library of the GLN gain access to all the other libraries.

The Greek Libraries Network now consists of 220 libraries, including Public, Municipal and Private libraries from all over Greece, libraries of private schools and one library in Cyprus. The GLN is gradually expanding to other libraries in Cyprus, while its aim is to include Academic and Research libraries.

From 2015 to the present day, the GLN coordinator has visited 150 libraries, with the aim of building relationships of trust, considering their needs as well as ideas for potential new collaborations. These visits result in the strengthening of relations between Libraries and local government bodies, their staffing with human resources and their logistical support.

The development of their audience is gradually evolving, starting from a young age, with the creation of a culture of library use, through educational programs and workshops formed based on innovative pedagogical method approaches. The Summer Campaign for four consecutive years (2015-2018), the anniversary programs, Workshop of Wishes, Reading Points, A Christmas Story, Heroes, Let's Meet!, and the new program "In the Library, every month, we have a.....theme!" (January 2018 - May 2019) had a great impact on children aged from 4 to 14 years old. The Summer Reading and Creativity Campaign is now an institution for GLN libraries and has been proposed twice to claim the "Astrid Lindgren Memorial Award" (ALMA) [2], the world's largest award for children's and youth literature.

The concept of networking, however, is also presented in the way of communication, information and training of the NLG's libraries' staff. Online meetings, forms of e-participation/evaluation and communication fora are some indicative steps in the transition to the digital age.

V. EDUCATIONAL PROGRAMS

A. Summer Campaign for the Promotion of Reading and Creativity

i. *It is no Library here (2015)*

In 2015, the NLG co-organized with the NPCP Future Library - the Summer Campaign to Promote Reading and Creativity. Its theme was "It is no Library here..." and 110 Municipal and Public Libraries took part in it, hosting 1,966 events with 44,251 children attending. According to the statistics from the evaluation questionnaires on completion of the program, 20,080 children borrowed at least one book while the children of the SC 2015 borrowed 41,718 books in total. In November, a review conference was held, with the

aim of announcing results and the sharing of experience from the program.

ii. Become an explorer of the world (2016)

The Summer Campaign 2016 was organized by the NLG, with exclusive funding from the Stavros Niarchos Foundation, and followed the planning process of previous years, but now without the assistance of the Future Library. A three-day training seminar was held with the participation of Librarians in 7 different interactive workshops and work groups.

The theme of SC 2018 was “Become an explorer of the world”. Every day, all the libraries had a specific mission, which was implemented and presented in a different way. For the first time, the libraries had the opportunity to simultaneously implement actions, on a Pan-Hellenic scale, while the visitors had the opportunity to concurrently follow the SC on their summer destinations. During the program, 62.313 children participated in 3.195 creative workshops that were implemented in 146 libraries of the GLN, 20 of which were participating for the first time. The lending of children’s books surpassed all expectations, reaching 117.217, while 30.698 children borrowed books at least once. For the innovative educational program of the SC 2016, the NLG was selected as a nominee for the international award “Astrid Lindgren Memorial Award” (ALMA 2017) [2], the world’s largest prize for children’s and youth literature. [3]. International distinction for the ALMA prize)

iii. Point-to-Point Adventures (2017)

The theme of the 2017 Summer Reading and Creativity Campaign, “Point-to-Point Adventures”, was based on the relocation of the National Library of Greece, which in 2017 was spanning a geographical, as well as symbolic distance, from one point to another, from the emblematic Valliano building to the Stavros Niarchos Foundation Cultural Center. For about three months, 162 libraries across Greece joined forces and offered 3,319 creative workshops which were attended by 61,991 children. 39.52% of children were enthused by the actions, while the lending of children’s books reached 96.408.

The innovation in this program came from the communication of the persons responsible for the libraries of NLG, where it was proposed to write a story aiming at cross-cultural communication, the joint production of original content and the experiential participation of children in a Pan-Hellenic network that promotes reading and creativity in practice. Thus, starting with four libraries and four photographs, the writing of four different stories began. The stories travelled to 49 libraries of the GLN all over Greece where the children created the “stories from library to library”. Their work was presented on an interactive map on the GLN’s website [4]. Stories from library to library). When the SC 2017 program ended, the NLG was selected as a nominee to claim the “Astrid Lindgren Memorial Award” (ALMA 2018)[2] for a second year.

iv. Favorite Data: Observing and Measuring the World

The theme of the Summer Reading and Creativity Campaign 2018, in which 148 members of the GLN participated, focused on “Favorite Data”. From June 20th to September 7th, children were called on to observe, record, comprehend, and report data through 46 different workshops tailored accordingly to innovative methodological approaches to pedagogy.

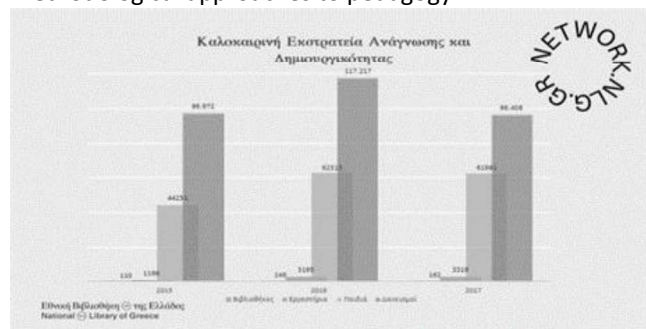


Figure 2. Comparison bar of statistic results SC 2015 – 2017

B. In the Library, every month, we have... a theme!

In January 2018, the National Library launched a pilot program for the GLN by providing the corresponding supporting material to each participating library so that it could organize, each month, four workshops -around a common theme- for children or for school classes. The aim of the program was to transform libraries and their children’s departments into centers of informal education, where knowledge is approached through experimentation, personal experience and many books. The program ended successfully in May 2018 and returned with new themes in October 2018.

C. Anniversary Programs

i. Workshop of Wishes (Christmas, 2016)

In December 2016, 70 member-libraries of the GLN participated in a workshop to create wishes, making use of material and instructions sent by the National Library. The workshop was based on excerpts of books that children converted into a wish for the New Year. The children’s wishes were sent to the NLG and decorated its new home at SNFCC. Adults also took part in the workshop online, writing their own wishes and their favorite quotes from Christmas stories, utilizing social media tools [5]. Workshop of wishes all over Greece).

ii. Reading Points (World Book Day, 2017)

The program that was implemented owing to World Book Day 2017 was organized around six sections that represent the aspects of reading as experience and content, highlighting what, where, how, when, and why we read. It addressed different ages with texts of different difficulty, encouraging young and old to answer specific questions using a text, a drawing, a photo or a video [6]. Take part in “The reading points”!).

iii. Christmas in the Library (Christmas, 2017)

For Christmas 2017, the children who participated in the workshops created an illustrated story titled “Christmas in the Library”, that was starring main characters of Christmas. The stories were created exclusively with symbols and images and were recorded in a specially designed notebook. The notebooks with stories were sent to the NLG and placed on the shelves of the NLG’s Public Library Department at SNFCC, creating an exhibition that allowed each visitor to see and narrate every illustrated Christmas story in his own way [7].

iv. Heroes, let’s meet! (World Book Day, 2018)

On World Book Day in 2018, the National Library of Greece proposed to the members of the GLN to become acquainted with the heroes of children’s literature both worldwide and within their country of origin through the program “Heroes, let’s meet!”. Each library participating in the action chose a hero or heroine from a list of 150-characters from 50 different countries in the world. The children gathered information about the hero or the heroine adopted by the Library of their area, and they created the profile and a model which accompanied them for the rest of the library’s activities [8].

VI. COMMUNICATION AND NETWORKING

In 2016, the website of the Greek Libraries Network (<https://network.nlg.gr/>) [9] was created, and the member-libraries of the GLN were placed on a common map (see Figure 3), through a registration application. The site enables visitors to link to each Library’s profile, to be kept informed of the libraries’ actions by a common calendar, and to follow up on the new programs that are being implemented in their area and the whole GLN.

From 2017, the website has gradually begun to develop into a platform of education, information and communication. The information meetings of the NLG with its members are now on live streaming, live chat and even on live link with the libraries via skype. Sessions on the use of new technologies and the management of social media tools are consistently included in the training of library staff, which takes place online every year.



Figure 3. Network.nlg.gr website - Mapping the Libraries of GLN

In addition, the platform created a user area where each library gains access to the system and can manage its profile, participate in projects through special forms, request the workshops that they would like by date, and have access to a communication forum. As soon as a project is announced, all the member-libraries have the potential to apply for the project in which they wish to participate. Each project includes:

- The actions and the corresponding participation form for the actions, accessible only by the libraries that have requested participation.
- Files and material in order to implement actions with a link to google drive.
- Evaluation form, which libraries need to complete after each workshop.
- Unity in the forum, in which only the participating -in the project- libraries have access to.

To date, 220 libraries have been placed on the common map and have their own separate profile on the site. 10,537 events have been viewed on 40,187 visits to the site. 7,270 of these events have been posted on the platform by the libraries themselves. Library staff communication is evident from the posts on the live forum, which reach 260 in 36 different themes.

VII. GNL POWER - CONCLUSIONS

The library network taken over by the National Library of Greece numbered 110 Libraries, Public and Municipal. Within four years, that number doubled, and private libraries and private school libraries were added. However, the needs have also doubled. These challenges have led to changes and new applications.

Since 2017, financing of the GLN has been included in the state budget. The three-day seminar was replaced by an online informational and educational meeting where employees can watch live streaming via the GLN website and

send their questions to the special live chat or to watch it later on a video.

The idea gradually evolved and led to the transformation of the network.nlg.gr website into a platform that the National Library of Greece's coordination team can use as a synchronous training platform. The communication forum was also integrated into the platform, which replaced Basecamp. From their communication through these media, new ideas are born, common educational programs are being promoted and all libraries are supported by child and adult visits.

It is significantly important that children from across the country, through the SC and all the other educational programs, have come to know the libraries in their area and have learned that reading can be pleasant and entertaining, not compulsive and obligatory. The response was great and there was a need to create a new program covering the participation of libraries in other periods than summer.

Through all the above, one can see the benefits and the power of joining a common network, focusing on connection, cooperation, participation, organization, guidance, education and knowledge.

VIII. NEXT STEPS

The future objectives of NLG for the development and empowerment of the GLN are the following:

- gradual integration of the members of the GLN in the Collective Catalog
- connection, promotion and exploitation of the NLG's Electronic Reader's Library by the libraries' users
- training of the GLN members for the utilization of the NLG's electronic resources
- multi-copy exchange infrastructure from the member libraries of the GLN
- organization of training courses, seminars, conferences and campaigns of a Pan-Hellenic character
- creation of educational programs for all ages
- guidance on the creation of digital collections and their hosting on the NLG platform

The National Library of Greece intends to provide guidance and support to the libraries of the GLN, through informing and training their employees in new services and tools, aiming at the spreading and promotion of information, knowledge and Fillanagnosis, on a Pan-Hellenic range.

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Hellenic Libraries Union Catalogue (HLUC)

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Abstract:

Purpose - This is a descriptive paper highlighting the Hellenic Library Union Catalogue (HLUC) which is an information system that aims to integrate and highlight all the collections from the Greek libraries in one single catalogue.

Design/methodology/approach – The HLUC information system was designed and developed by NTUA-HEAL-Link and the National Library of Greece. The approach used was to organize an open access collection of high-quality bibliographic data and the aim has been to promote, amongst other things, rare, special and other types of bibliographic material. The project is currently in a pilot phase. So far, more than 50 libraries from Greece and Cyprus are participating and the number of participants is increasing.

Originality/value - The project responds to a real contemporary need of the entirety of the libraries, and will offer a service which will promote the history and the treasures of the Greek libraries, independently of their type, being public, or academic. Added value will be the integration of Inter-Library Loan Service with the HLUC.

Index Terms — Union Catalogue, Unified search, Greek Libraries, Cooperation, Bibliographic data

I. INTRODUCTION

One of the many projects developed by the National Library of Greece in the context of upgrading its digital services is the Hellenic Library Union Catalogue (HLUC). It is a federated catalogue which will provide access to the entire bibliographic material of the country's libraries, while offering a host of advanced capabilities and sophisticated services.

II. UNION CATALOGUES IN GREECE – A HISTORICAL REVIEW

The creation of a single Hellenic Library Union Catalogue with emphasis on adopting common standards and cataloguing procedures as well as savings in time and manpower, by avoiding multi-cataloguing has been a vision

for Greek Librarians for long time, as it has been for many other librarians' communities [1,2,3,4]. With this objective in early 2000, the initial attempt to create a Hellenic Academic Libraries Union Catalog¹ began, by the Hellenic Academic Libraries Link². At the same time, Zephyros, a portal for accessing and locating all available books, journals and other materials in Greek Academic libraries, was created. The environment was designed based on the Z39.50 protocol. Zephyros was created by the Information Technology office at the Central Library of the University of Crete³.

The operation of the HALUC and Zephyros continues to this day successfully, even though libraries have not proceeded with the adoption of common standards for cataloguing and thematic classification of their material.

The next effort to achieve convergence began in early 2010 when it was proposed to the Greek Academic libraries, the creation of an Integrated Library Catalogue (ILSaS - Integrated Library System as a Service⁴) where 26 Academic Libraries' catalogues were consolidated [5]. Similar efforts have been made to modernize and converge both Public and Municipal Libraries by changing their library systems or joining the e-ABEKT system.

By the end of 2016, the NLG in response to its coordinating and guiding role, by law and by its position, proceeded with the creation of the HLUC.

III. HELLENIC LIBRARIES UNION CATALOGUE (HLUC)

HLUC was developed and implemented by the HEAL-Link Annex at the National Technical University of Athens, with the collaboration of the employees of the National Library of Greece and with the contribution of the private nonprofit organization Friends and Patrons of the Stavros Niarchos Foundation Cultural Center, which undertook the management of the donation of the Stavros Niarchos Foundation to the NLG as a part of the relocation to its new building. The project was included as a part of Action 2 "Development of Digital Services" which was aiming at reorganizing, modernize and develop the NLG services, so as to re-identify its institutional role and its appeal to the public.

HLUC offers a number of sophisticated capabilities and services, while allowing its further development. Specifically, at a technical level it will:

¹Hellenic Academic Libraries Union Catalog: <http://www.unioncatalog.gr>

²Zephyros: <http://tiny.cc/t8ns8y>

⁴Integrated Library System as a Service: <http://tiny.cc/y7ns8y>

¹Hellenic Academic Libraries Union Catalog:
<http://www.unioncatalog.gr>

- **Self-check:** This is the phase in which every entry initiates an integrity check and runs a deduplication process within the records of a library collection. In addition, in this phase, all necessary fields / collection information in UCMS is being completed.
- **Global-check:** This is the phase in which every entry initiates an integrity check and runs a deduplication process with the records of all library collections. In addition, in this phase, all necessary fields / collection information in UCMS is being completed.

Final phase

- **Erroneous:** this is the situation where a record does not pass the integrity testing procedures due to errors in the raw data of the record (lack of fields, incorrect fields etc.), and it remains in this state until it is corrected or removed in the local catalogue (Deprecated)
- **Deprecated:** This is the state where an entry refers to when it is "removed" by the local library system (withdrawal, lost item, merger, etc.)
- **Duplicate:** This is the state in which a record, within a library collection, is found to be a duplicate. This entry along with the other duplicate records cannot be joined in HLUC and it is necessary to take action to remove the error (correction, merging, etc.)
- **In union:** it is the state where a record has passed successfully the integrity check and participates in HLUC

Record Life Cycle

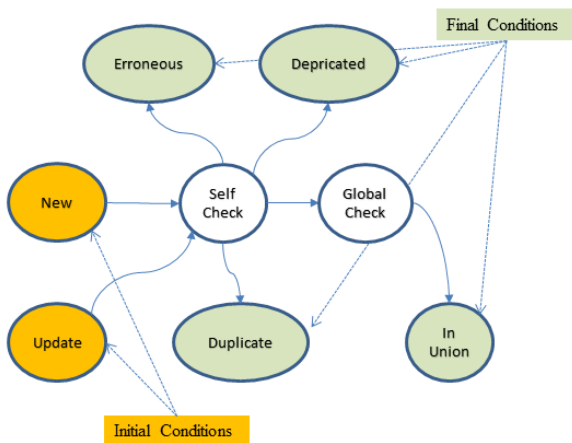


Figure 2. UCMS Bibliographic Record Life Cycle

B. Workflows

Workflow 1 - Eligibility checking - Certification for participation in HLUC

The conditions and requirements for library participation in HLUC are:

- Data Status (format, character set, library system, etc.)
- Collections – Subject Heading for books (book collection evaluation, scarcity, subject areas covered)
- Policies (cataloguing, loaning, authorities, etc.)
- Technical features (connectivity methods for data updates, ease of data extraction, etc.)
- Copyright (contributing metadata, items, etc.)
- Compliance with the terms and conditions for participation in the HLUC (technical requirements, availability, terms, etc.)

In Figure 3 the library eligibility certification procedure is shown.

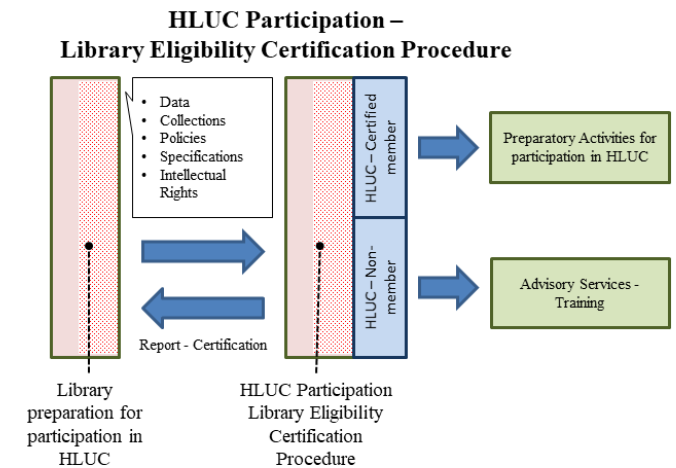


Figure 3 HLUC Participation -- Library Eligibility Certification Procedure

Workflow 2 - Preliminary activities

Once the library has been certified, it can start with the preliminary activities, which are finalized by preparing the bibliographic data of the library's collections. The phases of the preliminary activities are as follows: initial extraction - uploading records to UCMS, data analysis, conversions and integrity checks and the process of de-duplicating / locating duplicate library records.

The phases of the preparatory actions are illustrated in Figure 4.

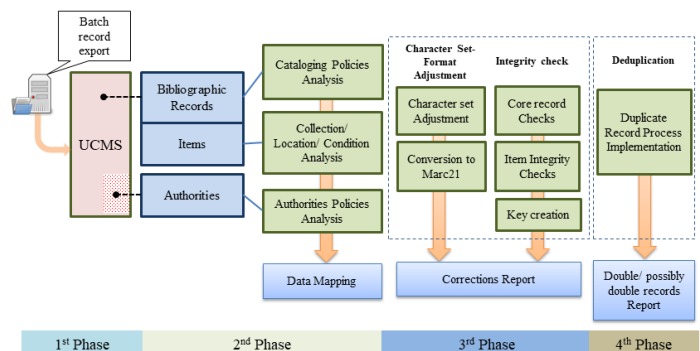


Figure 4 Preliminary Activities Phases

Workflow 3 - Records identification process

Immediately after the completion of the preliminary activities for those records that change to the «In union» state, the matching-records algorithm will be run, which will result in the final records of HLUC (master records and single-entry records).

The way the records will be merged depends on the use for which these records (master and/or single records) are intended, as shown in Figure 5. Specifically, there is a different way that the records will be merged in order to be presented through the Online Public Access Catalogue, or for the Interlibrary Loan System and they will be structured differently for display in the Cataloguing Center. The differences are mainly about the way and the degree of the field merging.

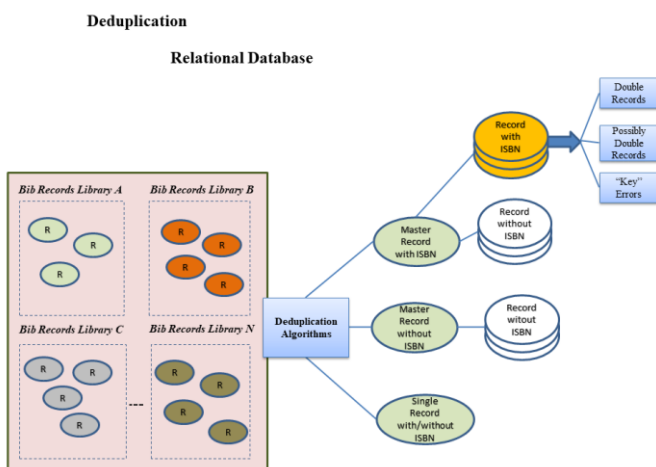


Figure 5 Record Identification Process

VI. TECHNOLOGIES – INTEGRATED DEVELOPMENT ENVIRONMENT AND ARCHITECTURE

A key option for the presentation of the HLUC was the development using open source technologies. This preference has served both the need to maintain costs at low level and, above all, the desired aim for increased parameterization / modification of these applications so as to meet all the specific requirements.

A. Integrated Library Information System

As a management information system for hosting the bibliographic records of HLUC, the Koha platform was selected [5]. Koha is an open source software already used by many Greek libraries. Given that Koha is offered as a comprehensive software with a three-tier architecture (Web Server, Php / SGI Perl Scripts and MySQL Database Level, based on open source technologies), it is relatively easy for modification and parameterization.

B. HLUC Interface for end users

VuFind [7,8] has been selected as the preferred solution to be used for the federated search for the HLUC bibliographic data. Samples of the user interface are presented in Figure 6 and Figure 7.

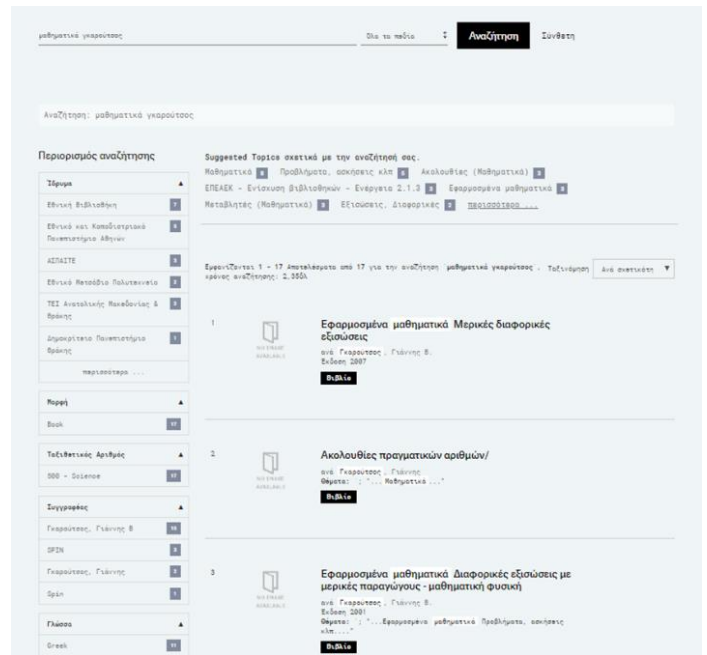


Figure 6 Search Results through the HLUC Interface

The main objective is to allow users to search and browse all library resources by replacing the traditional OPAC. VuFind is a fully scalable system and can be modified by adding modules, so that it can better respond to the HLUC's requirements. It is based on Apache Solr (<http://lucene.apache.org/solr/>), which is an open source enterprise search platform that offers great performance and scalability. It also enables VuFind to respond to search queries in milliseconds. Finally, it has the capability of data sharing and can extend the directory load over multiple servers or in a clustered server environment, thus serving many architectural infrastructures. This feature is very useful, as the HLUC bibliographic records are expected to exceed 5 million, while the number of users that will be accessing it, will range to several thousand per day.

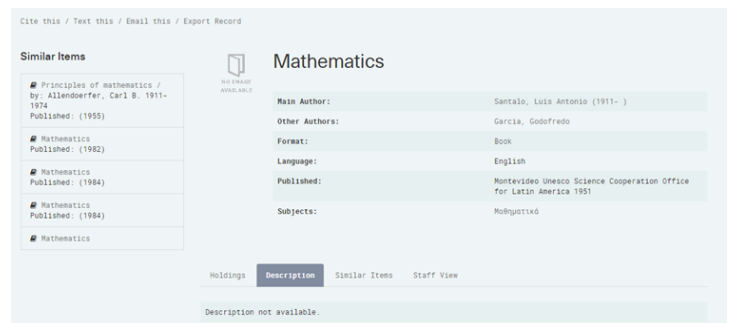


Figure 7 Item in the HLUC Interface

C. HLUC Architecture

In order to develop the tools and implement the systems, a computational infrastructure was required, which hosted the development and will continue to host the system when it will be in full operation. The installation of the systems was

implemented on the existing GRNET infrastructure⁵ physical and virtual machines. The operating system of these servers is one of the freely available Linux distributions. The offered servers have no restrictions on the operating infrastructure they will host and are designed to meet 100% of all Linux distributions.

Fig. 8 below schematically illustrates the physical architecture of the system as it has been designed for the successful implementation of this project. Note that the distinctiveness of the servers and networks of the figure below is intended to better understand its structure alone, and it is not the final infrastructure.

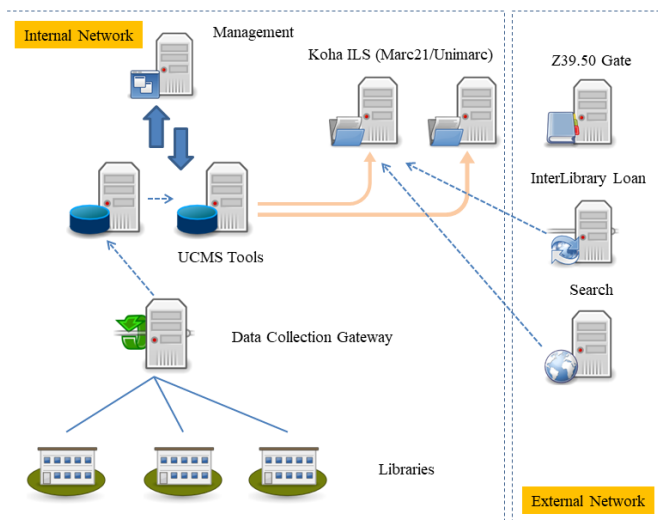


Figure 8 HLUC Architecture

In Fig. 9 the HLUC Management Information System architecture is presented.

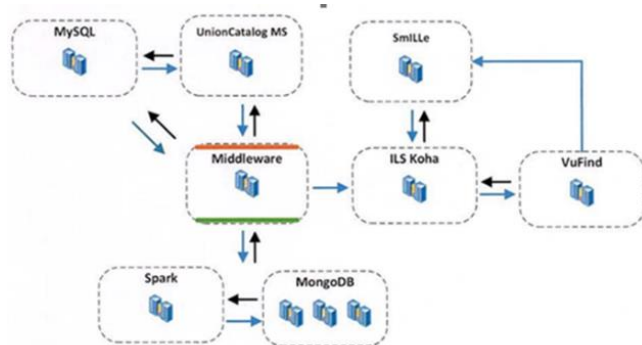


Figure 9 HLUC Management Information System Architecture

D. Interlibrary Loan System

For the development of a National Interlibrary Loan Network, the open source smLLe software will be used, which was developed for the needs of the interlibrary loan (for books and articles) of the Hellenic Academic Libraries (Interlibrary Loan System "IRIS")⁶ -). Among its significant advantages is its unified access to all resources (libraries, e-

commerce suppliers, electronic databases, etc.) through an interface for the librarian in charge of interlibrary loan.

Today, smLLe is used by 46 libraries and has served around 30,000 interlibrary loan requests (about 15-20 per day). Academic users (lecturers, researchers, students, etc.) with personal accounts amount to approximately 3,500, while librarians can serve them directly.

VII. BENEFICIARIES

All types of libraries in Greece (Academic, Public, Municipal, Special, Research, Private, etc.) are entitled to participate in HLUC, in particular the libraries whose collections / catalogues can be used by HLUC to promote and preserve them. HLUC aims to become a reservoir of high-quality bibliographic resources and, on the other hand, to promote, among other things, rare, expert, etc. bibliographic material. Two calls for participation have already been sent during the pilot phase of HLUC, in which 52 member libraries participated by sending their data.

VIII. FUTURE OBJECTIVES OF THE HLUC

As mentioned above, HLUC has a lot of potential, while at the same time it could be further expanded with the aim of meeting the needs and requirements of the new era.

Following are some of the future objectives of the HLUC, which demonstrate the dynamic and the continuity of this national infrastructure.

- Activate Interconnected Data Interface
- Dissemination of HLUC data using the RDF triplets technology for the development of new services
- Interconnection with International Organizations
- Expansion and interconnection of the NLG Greek Libraries Network
- Transformation of the IRIS Interlibrary Loan Network and its conversion into a National Interlibrary Loan Network (for books and printed journals)
- Participation in libraries' committees for the creation of common policies and the use of common standards in cataloguing and subject indexing
- Provision for counseling services and training, whenever possible, to address any problems and weaknesses in the library catalogues in Greece and Cyprus

HLUC is and will be a catalogue with a lot of potential for growth and prospect. A key requirement for achieving its objectives is the continuous investment in resources (human, infrastructure and technical support). The truth is that libraries, regardless of genre, face many common problems, for which solutions must be found mainly through cooperative processes and the application of good practices. All member libraries can play an active role in improving HLUC.

⁵ GRNET: <https://grnet.gr/company/>

⁶ Greek Academic Interlibrary Loan System: <https://iris.seab.gr/admin/login.php>

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He has been involved in numerous projects developing, deploying and enhancing several applications, systems and websites to meet and satisfy objectives. Also is very experienced with interoperability between different applications, because he has developed a middleware based on that and also has participate in other open source projects. Moreover, has developed open source smILLe which is used by National Network of Interlibrary Loan in Greece.

His research interests include knowledge management, could computing, information retrieval, software engineering, semantic web technologies, data mining, bibliometrics and research evaluation methods, library management systems, webservices and middleware systems.

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