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Managing digital archival collections by integrating Archivematica, AtoM and VuFind software: the University of Thessaly Historical Archive case

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Managing digital archival collections by integrating Archivematica, AtoM and VuFind software: *the University of Thessaly Historical Archive case*

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Abstract:

Purpose *– The great number of documents and records produced by universities leads to large archival collections within these Institutions. As a result, libraries and archival units apply new and innovative information systems to manage and exploit their archival collections for education and research purposes.*

Design/methodology/approach *– The current research took place under the THE.ME.DO.COM EPAnEK (2014-2020) project, which mainly aimed to develop two web platforms for the preservation, documentation, management, and dissemination of the University of Thessaly archival collections, which constituted its Historical Archive. For this purpose, the Archivematica, AtoM and VuFind open-source information systems were configured and integrated, while innovative metadata creation coding was created for the project.*

Findings *– Digital archival items were preserved and enriched with high-quality metadata in Archivematica, uploaded and described according to international standards in AtoM and distributed with smart search routines with VuFind. The integrated platform implementation resulted in an efficient automated approach to managing the University of Thessaly archives and archival collections, which comprised different digital object formats and included a high volume of digital items, making THE.ME.DO.COM a very successful project example.*

Originality/value *– The University of Thessaly Historical Archive was used as a paradigm for implementing a new way to deal with complex archival collections. Other University Libraries or Archival Services could efficiently utilise the project results.*

Index Terms — Archives, Open-Source Systems, Digital Preservation, Documentation, Text and Data Mining, Thessaly

I. Introduction

The rapid developments in digital technologies, which took place during the last few decades, have profoundly affected how digital collections are managed by the library and archive services worldwide. These changes have renewed the interest in how archival collections are used for practice, research and education in many scientific fields, including historical, cultural, and literary studies leading to an "archival turn in various disciplines" **[1,2,3,4,5]**.

Universities produce a vast number of documents (administrative, research, event, cultural and other) during their daily operation, resulting respectively in large, constantly augmented archival collections. Furthermore, they may acquire additional, either personal or organisational, archives by various processes (purchasing, donations etc.). These collections are managed by University Libraries or by separate archival administrational units to be preserved and made available for education and research **[5,6]**.

In 2018 the University of Thessaly Senate established the University's Historical Archive (HA) as a Central Library Department with a mandate of collecting, recording, preserving, organising, digitising, disseminating and managing the archival collections already owned or to be obtained by the University. For this purpose, the University Research Committee provided the funds for the lease and renovation of a building for housing the HA in the Tsalapata complex in Volos (Fig. 1), while the University purchased the initial technical infrastructure and equipment.

Within the same year, a research project titled "THESSALY MEMORY DOCUMENTATION AND COMMUNICATION (THE.ME.DO.COM)" was approved for funding under the

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single State Aid Action "RESEARCH - CREATE - INNOVATE" support measure of the Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK). THE.ME.DO.COM was co-funded by the European Regional Development Fund of the European Union, and the research results presented in the current paper were a part of the project's implementation. The project partners were the University of Thessaly and DataScouting (a software research and development company). Three University units were involved in the project: the Library and Information Centre, the Department of History, Archaeology and Social Anthropology and the Department of Architecture. The primary aim of THE.ME.DO.COM was to create two new innovative integrated web-based platforms: one for preservation-management-dissemination of digital documents belonging to the University's archives and a second one for text and data mining of these documents.

Fig. 1. The University of Thessaly Historical Archive building (Central Library branch) in the Tsalapata complex in Volos

II. Methodology

The University of Thessaly archives are comprised of:

- records from its administrative and academic units (Governing Committee, Senate, Rector's Office, Public Relations, Research Committee, Academic Departments, Administrative Divisions etc.),
- records from individual collections donated by external scholars or former academic staff (i.e. former rectors, professors emeriti, etc.),
- industrial records (brought in with respectively acquired local industry buildings) and
- records from previous higher education institutions, which either acceded to new academic departments or merged with the University of Thessaly.

These archival collections included documents in both physical and digital (already digitised or born-digital) formats.

The first step of the research process was to review the University's archival collections and decide which would be included in the THE.ME.DO.COM project collections. This selection was based on the fact that the relevant groups of documents were part of distinct archival collections or archives, which in turn belonged to the University of Thessaly Historical Archive. Twelve archives from other University Institutions were comparatively studied to make that decision. These archives were selected according to the following guidelines:

- they represented typical cases coming from different continents (Europe, America, Australia)
- they were related to universities of different periods ('historic'/old and newer)

Based on the comparative study and the precondition that the respective documents should be directly or indirectly connected with the founding and operation of the University of Thessaly and the cultural heritage of the Thessaly region, the criteria for the selection of the material that would constitute the primary project collections were:

- representativeness of categories and material type or format
- emphasis on the operation and the historical evolution of the University of Thessaly
- physical document preservation condition
- the relative ease of access to the respective documents

Taking into account the criteria mentioned above, the following archival collections were selected for digitisation, archival documentation and description:

- **Kitsos Makris Personal Archive** (personal archive of the renowned Greek folklorist K. Markis).
- **Professor Pandelis Lazaridis Personal Archive** (archival collection of the first president of the Governing Committee and first elected rector of the University of Thessaly).
- **Matsaggos Tobacco Industry Archive** (archive of one of the largest Greek tobacco industries, founded in the late 19th century and operating in Volos until 1971).
- **University of Thessaly Governing Committee Archive** (initial University governing body which operated from 1984 to 1999).

Additionally, during the second phase of the project's implementation, and following the merging of the University of Thessaly with the TEI of Thessaly and the TEI of Lamia, it was also decided to include the **Archive of the Pedagogical Academy of Lamia** to expand the Historical Archive coverage to the region of Central Greece, following the University's recent geographical and academic expansion.

The next steps of the initial research process included the formulation of detailed specifications for:

- *Digitisation and production of Optical Character Recognition (OCR) text files by document type.*
- *Archival classification and definition of levels of archival description for each collection, including instructions for the levels, extent and process of the archival description.*

Due to the large volume of the respective archival items, digitization that was carried out to representative documents of each collection has provided a sufficient number of digital documents to be utilised by the project platforms.

III. Technologies and Software Architecture

A. Digital Content Preservation Information System

The digital content preservation information system that has been chosen to meet the needs of the Historical Archive of the University of Thessaly was **Archivematica** (https://www.archivematica.org). This software is a free, open-source digital preservation system designed to maintain long-term access to digital memory objects. The software supports the Dublin Core and PREMIS (Preservation Metadata Maintenance Activity) metadata standards and is compatible with the ISO-OAIS (Open Archival Information System) functional model (Fig. 2). Additionally, it can be integrated with various software platforms and tools which manage digital objects, often used for archival collection management, including Access to Memory (AtoM), DSpace, CONTENTdm and ArchivesSpace **[7]**.

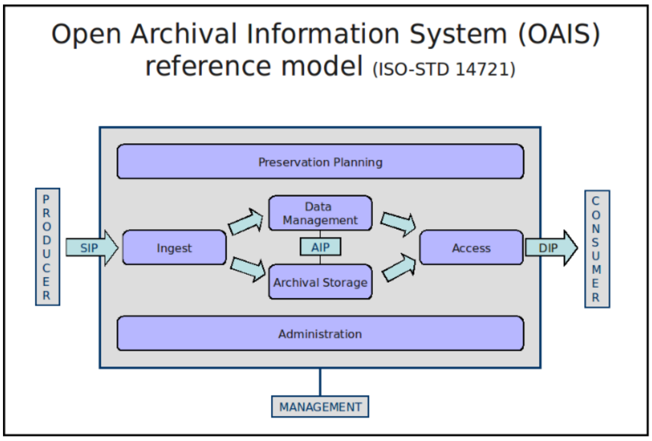


Fig. 2. The OAIS reference model (*SIP = Submission Information Package, AIP = Archival Information Package, DIP = Dissemination Information Package*)

It can be seen in Fig. 2 that within the OAIS reference model, three kinds of information packages exist: the Submission Information Package (SIP), which is the information sent from the producer to the archive, the Archival Information Package (AIP); which is the information stored by the archive, and the Dissemination Information Package (DIP), which is the information sent to a user when requested. Archivematica is a software platform that realises the OAIS reference model.

Archivematica processes digital objects, which it transforms into Submission Information Packages (SIPs), then applies format policies and creates repository-independent Archival Information Packages (AIPs) and finally uploads Dissemination Information Packages (DIPs), containing descriptive metadata and access copies, to the selected access system of the installation (e.g., AtoM) **[8].**

Submission Information Packages (SIPs) always contain the digital object to be preserved and the necessary metadata about it and its content. The requirements and restrictions applied to the SIP content for each type of digital object are described in the preservation plan of each type in the Preservation Planning menu of Archivematica (Fig.3).

The Archivematica system aims to create Archive Information Packages (AIPs) based on international standards containing all the necessary information. The relative AIPs include a METS XML file with an implementation of the PREMIS retention metadata. It is pointed out that the "METS schema is a standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library, expressed using the XML schema language of the World Wide Web Consortium **[9]**". METS focuses on relating the content of an item to the content and metadata of other digital items included in a digital library. These correlations constitute a process that takes place within repositories or between repositories. METS is a content and metadata management scheme that creates meta-metadata extracting and associating the semantic content of digital documents **[10]**.

The Dissemination Information Packages (DIPs) do not have a clear structure, and one or more AIPs can produce them. A DIP is a collection of digital content consisting of one or more digital files related to each other. These files may contain metadata and/or files that "bind" the individual pieces.

The process of storing a digital object in the Archivematica system to its final conversion involves multiple steps, which include:

- the conversion of the digital object into a SIP
- the subsequent conversion of SIP into AIP and DIP
- the storage of the AIP
- steps related to finding and retrieving DIPs from storage

The workflow within the system is visually shown in Fig.3. From the end-user perspective, all Archivematica functions (steps) take place within a web-based dashboard (Graphical User Interface: GUI), which can be accessed by logging in through a web browser.

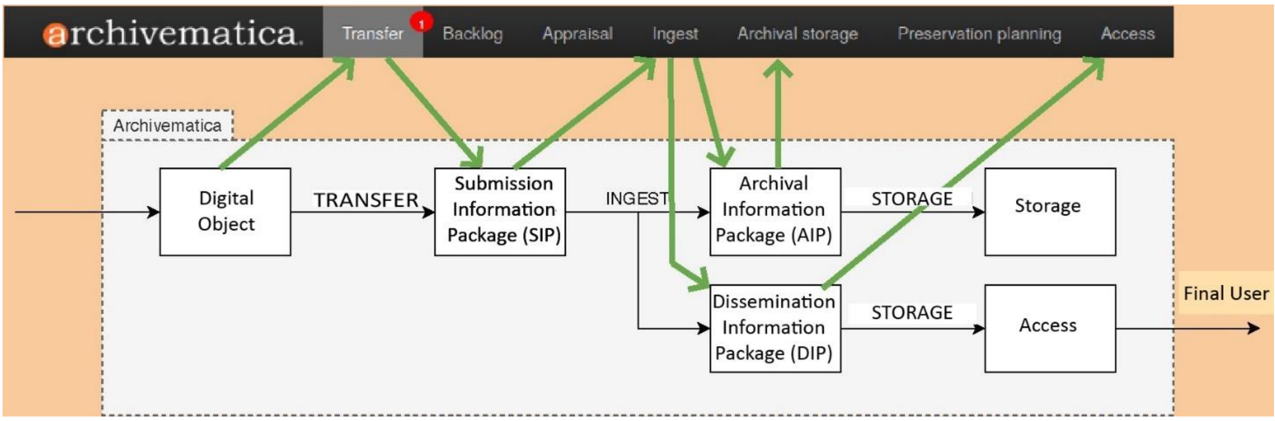
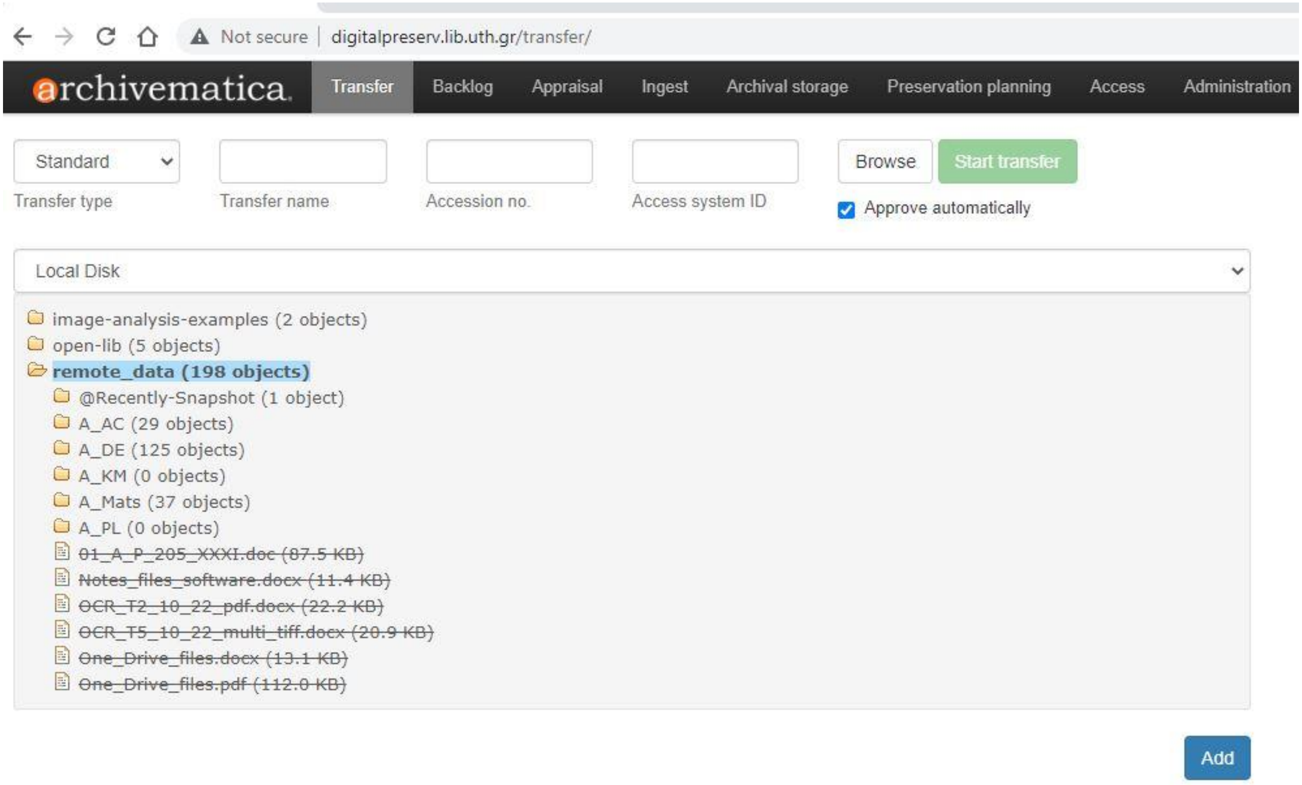


Fig. 3. Archivematica workflow

The steps listed above are directly related to the dashboard GUI. More specifically, the tabs which were used in the University of Thessaly Archivematica implementation (digitalpreserv.lib.uth.gr) included:



Standard
Transfer type

Transfer name

Accession no.

Access system ID

☑ Approve automatically

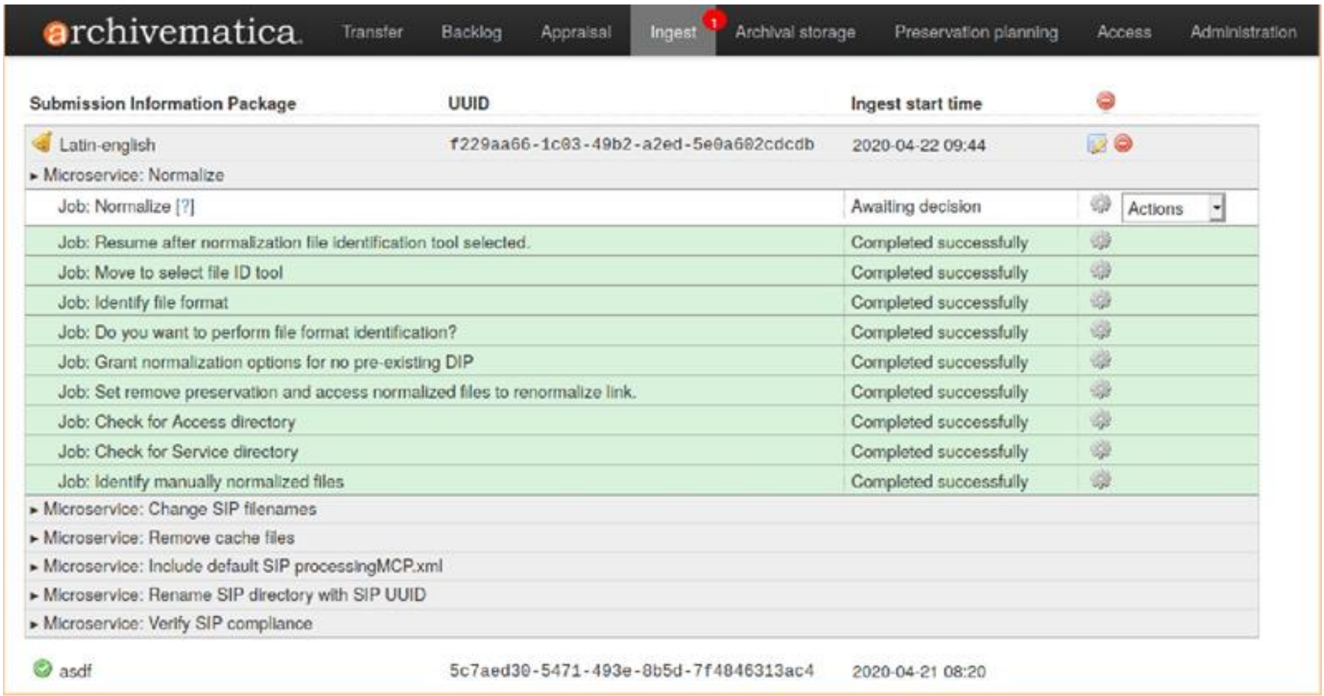
Local Disk

- image-analysis-examples (2 objects)
- open-lib (5 objects)
- remote_data (198 objects)
  - @Recently-Snapshot (1 object)
  - A_AC (29 objects)
  - A_DE (125 objects)
  - A_KM (0 objects)
  - A_Mats (37 objects)
  - A_PL (0 objects)
  - ~~01_A_P_205_XXXI.doc (87.5 KB)~~
  - ~~Notes_files_software.docx (11.4 KB)~~
  - ~~OCR_T2_10_22_pdf.docx (22.2 KB)~~
  - ~~OCR_T5_10_22_multi_tiff.docx (20.9 KB)~~
  - ~~One_Drive_files.docx (13.1 KB)~~
  - ~~One_Drive_files.pdf (112.0 KB)~~

Fig.4. The Transfer tab in the University of Thessaly Archivematica implementation

- The **Transfer tab:** where users import digital objects into the system and convert them into SIPs. For the current project, digital items could be uploaded to a virtual server hard disk (remote_data), allowing the end-users to upload as many items they wish per archival collection at any given period on their own without the need for intervention by system administrators. This has significantly accelerated the uploading process (Fig. 4).

- The **Ingest** tab (processing): where the results of the transport (SIP) become a package on which microservices run to convert them to AIP and generate the DIP (Fig. 5).
- The **Archival Storage** tab: where users can browse the board with archival material and perform searches
- The **Preservation planning** tab: where users can define preservation requirements for each type of digital object. The file types supported in the system (Preservation planning tab) include groups of common file types like Audio, Database, Dataset, Image (Raster), Portable Document Format, Text (Plain), Text (Source Code), Video etc.
- The **Access** tab: during Ingest, the system can create access copies of the digital objects and package them into DIPs which will be uploaded to some access system (in this project, it was the AtoM system). In the Access tab, authorised users can see the DIPs that have been created and uploaded to the access system.



Submission Information Package	UUID	Ingest start time	
Latin-english	f229aa66-1c03-49b2-a2ed-5e0a602cdcdb	2020-04-22 09:44	
▸ Microservice: Normalize			
Job: Normalize [?]		Awaiting decision	Actions
Job: Resume after normalization file identification tool selected.		Completed successfully	
Job: Move to select file ID tool		Completed successfully	
Job: Identify file format		Completed successfully	
Job: Do you want to perform file format identification?		Completed successfully	
Job: Grant normalization options for no pre-existing DIP		Completed successfully	
Job: Set remove preservation and access normalized files to renormalize link.		Completed successfully	
Job: Check for Access directory		Completed successfully	
Job: Check for Service directory		Completed successfully	
Job: Identify manually normalized files		Completed successfully	
▸ Microservice: Change SIP filenames			
▸ Microservice: Remove cache files			
▸ Microservice: Include default SIP processingMCP.xml			
▸ Microservice: Rename SIP directory with SIP UUID			
▸ Microservice: Verify SIP compliance			
asdf	5c7aed30-5471-493e-8b5d-7f4846313ac4	2020-04-21 08:20	

Fig.5. The Ingest tab in the University of Thessaly Archivematica implementation

DataScouting Microservices

One of the main objectives of the current project was to develop software that would mine a text passage and extract some metadata about it. DataScouting developed specific microservices for that purpose which comprised:

- Language detection
- Semantic Analysis
- Automatic speech recognition
- Image analysis

The above microservices were added in the "Characterise and extract metadata" Archivematica microservice that runs on the Transfer step (Fig. 4). The results are saved in a metadata.csv file.

The Language detection microservice recognises the language of a text. It is used in text files (PDF) and in-text transcriptions (OCR) from images (PNG, TIF, JPG etc.). The result is the language identified as most likely for the text.

The Semantic Analysis microservice performs semantic analysis of text and is employed in text files (PDF), in-text transcriptions (OCR) from images (PNG, TIF, JPG etc.), and in audio transcripts from sound (MP3, WAV) or video (AVI, MP4, MKV, MOV) digital files. The result is a list of words that have a special meaning, such as persons, places, etc.

By combining the language detection and the semantic analysis microservices, the developed software finds the passage's language when it is not known (most texts are in the Greek language with some variations in English), the part of speech of each word and the nominal entities in the passage.

The automatic speech recognition microservice extracts text from sound files (MP3, WAV) or audio tracks of video files (AVI, MP4, MKV, MOV). The result is the transcribed text from the audio part of the video. For this purpose, a new tool was created at Archivematica, named ASR, while a new command named "Extract speech with ASR", which uses the above tool and defines a bash script, was added. The implemented script extracts the sound from files - video type - and executes a request to the endpoint of the previously described program, sending the sound file. Provided that the export is successful, the script saves the text in XML format inside the METS file of the DIP. Otherwise, the script displays an error message.

The Archivematica system is hosted in the University of Thessaly Central Library infrastructure, while the installation of all the necessary applications (operating system, web servers, database servers and application servers and the OS) have been included.

The metadata produced by the DataScouting Microservices was thoroughly reviewed for different types of digital items uploaded to the Achivematica. The review showed that the microservices produced many subject terms (persons, places etc.) with a variation in success depending on the quality of the digitised item. However, it was noted that metadata terms should be reduced and subjected to quality control procedures to be fully exploited. In either case, it was concluded that they could be utilised as input in the archival management and text and data mining systems of THE.ME.DO.COM.

B. Archival Management and Description Information System

The archival management and description information system that has been chosen to support the documentation of the collections of the University of Thessaly Historical Archive was **Access to Memory (AtoM)** (https://www.accesstomemory.org/). The specific software is free and open source and supports the international standards of archival science, such as the standards of the International Council on Archives (ICA). The system is intended for online use with the aim of the archival description of digital objects based on international standards and access through a multilingual environment. AtoM is hosted in the University of Thessaly Central Library infrastructure, including installing all the necessary applications (operating system, web servers, database servers and application servers and the OS). The University of Thessaly installation is bilingual: the main interface is in the Greek language, in which the detailed archival descriptions are made, while selected description entries were translated into English (all the menus and field names are presented in both languages).

As in all modern information systems, AtoM consists of three levels: presentation, application, and data.

Presentation Layer

This level has direct contact with the users, regardless of their role. Access to the system was implemented via the world wide web (web) for all users.

Application Layer

This is the level at which all system services are performed and all its operating rules are implemented. The primary role of this layer is to interact with the data layer and feed the presentation layer with the appropriate information. The application layer is entirely modular (supporting different sub-systems), discretely implementing the basic functions of the system, such as importing and exporting content, indexing and storing it, searching and navigating it., as well as the essential management functions, such as defining access rights, managing users, exporting statistics, etc.

Data Layer

This level includes the functional units that undertake the storage, organisation, classification, conversion, backup and, in general, the management of the system's content.

Users

AtoM users are classified according to their access and editing rights. In general, there are anonymous users, authenticated users and administrators. More specifically, anonymous users visit the system intending to locate archival material of interest to them and have access to the digital objects, if they exist, without the need to authenticate. Certified users are authenticated through a username and password and have various rights such as import/export, editing, etc. Finally, there is the administrator, who has almost all rights. The administrator can install/uninstall the system, import/export data, have full access to all data (read, modify, delete, import), change system preferences and appearance, and define new users and user groups.

Metadata

The AtoM archival description system supports international archival standards as it aims to standardise archival work. For the description of archival collections and the creation of finding aids, it supports the following international standards:

- ISAD(G): General International Standard Archival Description - 2nd edition.
- ISAAR (CPF): International Standard Archival Authority Record for Corporate Bodies, Persons and Families, 2nd Edition.
- ISDIAH: International Standard for Describing Institutions with Archival Holdings.

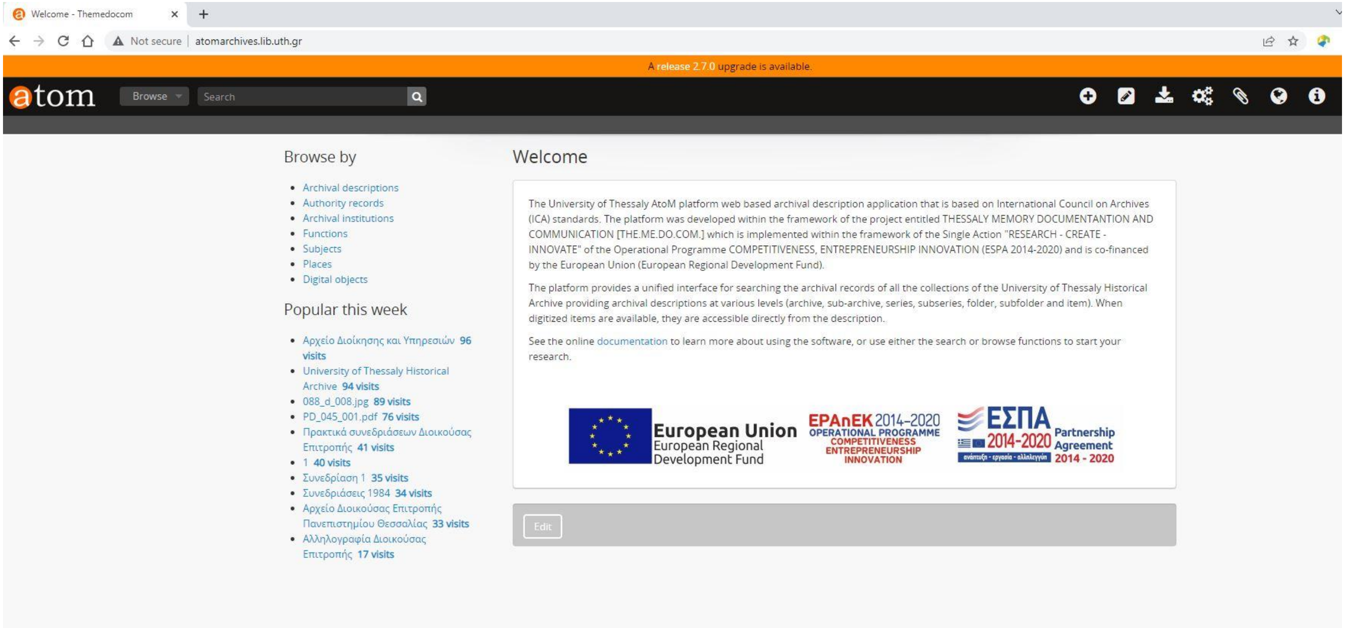
Apart from the above International Council on Archives (ICA) standards, the system is flexible in using standards utilised by libraries, archives, etc. In addition, it supports the Dublin Core and MODS (Metadata Object Description Schema) metadata schemes.

Finally, the archival description system implements the Open Archives Initiative Protocol for Harvesting (OAI-PMH) to make it accessible to aggregators and increase its visibility and traffic.

Submitting content to AtoM

All users can log in to AtoM via its home page (atomarchives.lib.uth.gr), which includes the header bar that provides access to a search box, the browse menu, the log-in button, the language menu, and the quick links menu (Fig. 6).

For users to be able to add or edit content and access the main menu in AtoM, they need to log in using the credentials supplied by the system administrator.


Welcome - Themedocom
Not secure | atomarchives.lib.uth.gr
A release 2.7.0 upgrade is available.
atom
Browse
Search
Edit

Browse by

- Archival descriptions
- Authority records
- Archival institutions
- Functions
- Subjects
- Places
- Digital objects

Popular this week

- Αρχείο Διοίκησης και Υπηρεσιών **96 visits**
- University of Thessaly Historical Archive **94 visits**
- 088_d_008.jpg **89 visits**
- PD_045_001.pdf **76 visits**
- Πρακτικά συνεδριάσεων Διοικούσας Επιτροπής **41 visits**
- 1 **40 visits**
- Συνεδρίαση 1 **35 visits**
- Συνεδριάσεις 1984 **34 visits**
- Αρχείο Διοικούσας Επιτροπής Πανεπιστημίου Θεσσαλίας **33 visits**
- Αλληλογραφία Διοικούσας Επιτροπής **17 visits**

Welcome

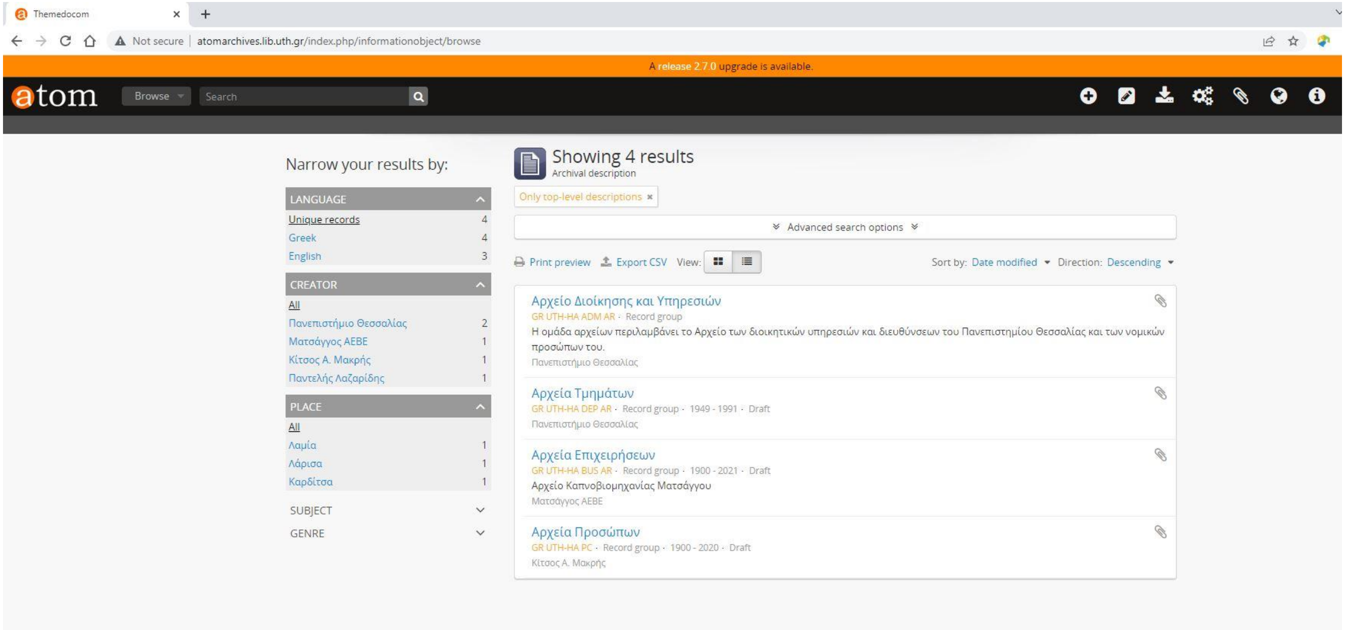
The University of Thessaly AtoM platform web based archival description application that is based on International Council on Archives (ICA) standards. The platform was developed within the framework of the project entitled THESSALY MEMORY DOCUMENTANTION AND COMMUNICATION [THE.ME.DO.COM.] which is implemented within the framework of the Single Action "RESEARCH - CREATE - INNOVATE" of the Operational Programme COMPETITIVENESS, ENTREPRENEURSHIP INNOVATION (ESPA 2014-2020) and is co-financed by the European Union (European Regional Development Fund).

The platform provides a unified interface for searching the archival records of all the collections of the University of Thessaly Historical Archive providing archival descriptions at various levels (archive, sub-archive, series, subseries, folder, subfolder and item). When digitized items are available, they are accessible directly from the description.

See the online documentation to learn more about using the software, or use either the search or browse functions to start your research.

European Union
European Regional Development Fund
EPAnEK 2014-2020
OPERATIONAL PROGRAMME
COMPETITIVENESS
ENTREPRENEURSHIP
INNOVATION
ΕΣΠΑ 2014-2020
ανάπτυξη - εργασία - αλληλεγγύη
Partnership Agreement 2014 - 2020

Fig.6. University of Thessaly AtoM home page (administrator view)


Themedocom
Not secure | atomarchives.lib.uth.gr/index.php/informationobject/browse
A release 2.7.0 upgrade is available.
atom
Browse
Search

Narrow your results by:

LANGUAGE	
Unique records	4
Greek	4
English	3

CREATOR	
All	
Πανεπιστήμιο Θεσσαλίας	2
Ματσάγγος ΑΕΒΕ	1
Κίτσος Α. Μακρής	1
Παντελής Λαζαρίδης	1

PLACE	
All	
Λαμία	1
Λάρισα	1
Καρδίτσα	1

SUBJECT

GENRE

Showing 4 results
Archival description

Only top-level descriptions ×

Advanced search options

Print preview Export CSV View: Sort by: Date modified Direction: Descending

Αρχείο Διοίκησης και Υπηρεσιών
GR UTH-HA ADM AR · Record group
Η ομάδα αρχείων περιλαμβάνει το Αρχείο των διοικητικών υπηρεσιών και διευθύνσεων του Πανεπιστημίου Θεσσαλίας και των νομικών προσώπων του.
Πανεπιστήμιο Θεσσαλίας

Αρχεία Τμημάτων
GR UTH-HA DEP AR · Record group · 1949 - 1991 · Draft
Πανεπιστήμιο Θεσσαλίας

Αρχεία Επιχειρήσεων
GR UTH-HA BUS AR · Record group · 1900 - 2021 · Draft
Αρχείο Καπνοβιομηχανίας Ματσάγγου
Ματσάγγος ΑΕΒΕ

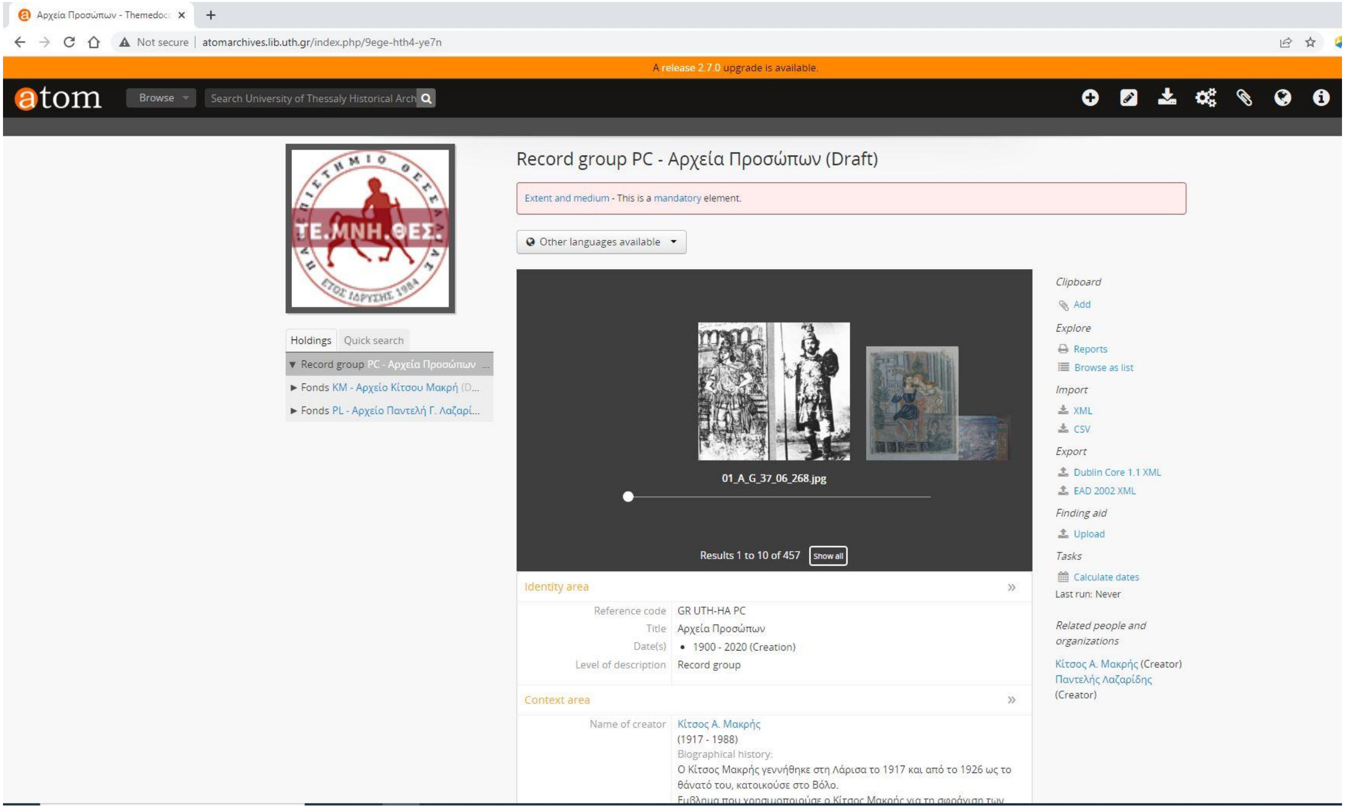
Αρχεία Προσώπων
GR UTH-HA PC · Record group · 1900 - 2020 · Draft
Κίτσος Α. Μακρής

Fig.7. University of Thessaly AtoM Archives Group page

Entry of documents into the information system is done only by authorised users. Content is entered into the information system using forms based on international archival standards (ISAD (G), ISAAR (CPF), ISDIAH).

As already stated, the University of Thessaly Historical Archive (HA) comprises several archival collections. In order for the AtoM system to be able to accommodate all the archives or archival collections that may be later included in HA, the archives have been arranged in four distinct groups which are (Fig. 7):

- Archives of Administrative University Bodies and Units (*currently, it contains the University of Thessaly Governing Committee Archive*)
- Archives of University (academic) Departments (*currently, it contains the Archive of the Pedagogical Academy of Lamia*)
- Business Archives (*currently it contains the Matsaggos Tobacco Industry Archive*)
- Personal Archives (Fig. 8) (*currently it contains the Kitsos Makris and the Pandelis Lazaridis Archives*)



Αρχεία Προσώπων - Themedoc

Not secure | atomarchives.lib.uth.gr/index.php/9ege-hth4-ye7n

A release 2.7.0 upgrade is available.

atom | Browse | Search University of Thessaly Historical Arch

Record group PC - Αρχεία Προσώπων (Draft)

Extent and medium - This is a mandatory element.

Other languages available

Holdings | Quick search

- Record group PC - Αρχεία Προσώπων ...
- Fonds KM - Αρχείο Κίτσου Μακρή (D...
- Fonds PL - Αρχείο Παντελή Γ. Λαζαρί...

01_A_G_37_06_268.jpg

Results 1 to 10 of 457 | Show all

Identity area

Reference code	GR UTH-HA PC
Title	Αρχεία Προσώπων
Date(s)	• 1900 - 2020 (Creation)
Level of description	Record group

Context area

Name of creator: Κίτσος Α. Μακρής
(1917 - 1988)
Biographical history:
Ο Κίτσος Μακρής γεννήθηκε στη Λάρισα το 1917 και από το 1926 ως το θάνατό του, κατοικούσε στο Βόλο.
Εμβλημα που χρησιμοποιούσε ο Κίτσος Μακρής για τη σφράγιση των

Clipboard
- Add

Explore
- Reports
- Browse as list

Import
- XML
- CSV

Export
- Dublin Core 1.1 XML
- EAD 2002 XML

Finding aid
- Upload

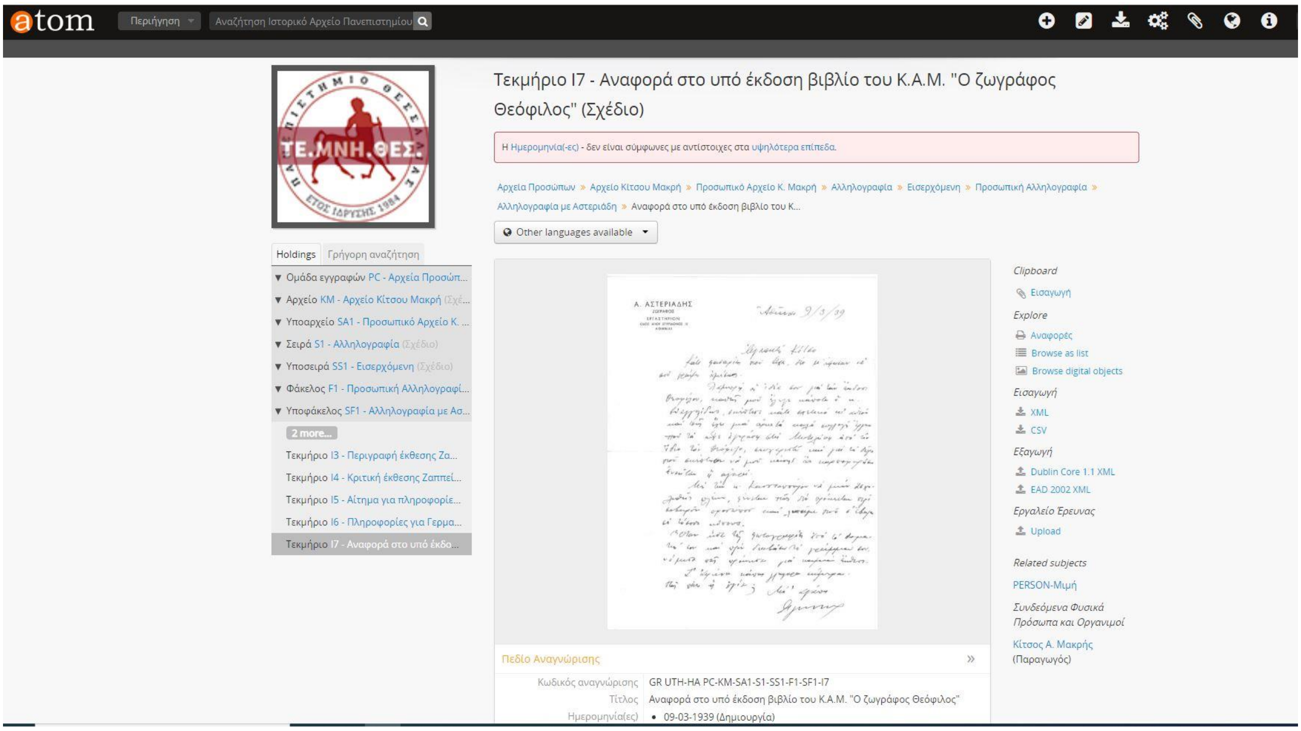
Tasks
- Calculate dates

Last run: Never

Related people and organizations

Κίτσος Α. Μακρής (Creator)
Παντελής Λαζαρίδης (Creator)

Fig.8. University of Thessaly AtoM Personal Archives Group page



atom | Περιήγηση | Αναζήτηση Ιστορικό Αρχείο Πανεπιστημίου

Τεκμήριο I7 - Αναφορά στο υπό έκδοση βιβλίο του Κ.Α.Μ. "Ο ζωγράφος Θεόφιλος" (Σχέδιο)

Η Ημερομηνία(-ες) - δεν είναι σύμφωνες με αντίστοιχες στα υψηλότερα επίπεδα.

Αρχεια Προσώπων » Αρχείο Κίτσου Μακρή » Προσωπικό Αρχείο Κ. Μακρή » Αλληλογραφία » Εισερχόμενη » Προσωπική Αλληλογραφία » Αλληλογραφία με Αστεριάδη » Αναφορά στο υπό έκδοση βιβλίο του Κ...

Other languages available

Holdings | Γρήγορη αναζήτηση

- Ομάδα εγγραφών PC - Αρχεία Προσώπ...
- Αρχείο KM - Αρχείο Κίτσου Μακρή (Σχέ...
- Υποαρχείο SA1 - Προσωπικό Αρχείο Κ. ...
- Σειρά S1 - Αλληλογραφία (Σχέδιο)
- Υποσειρά SS1 - Εισερχόμενη (Σχέδιο)
- Φάκελος F1 - Προσωπική Αλληλογραφί...
- Υποφάκελος SF1 - Αλληλογραφία με Ασ...
- 2 more...
- Τεκμήριο I3 - Περιγραφή έκθεσης Ζα...
- Τεκμήριο I4 - Κριτική έκθεσης Ζαππεί...
- Τεκμήριο I5 - Αίτημα για πληροφορίε...
- Τεκμήριο I6 - Πληροφορίες για Γερμα...
- Τεκμήριο I7 - Αναφορά στο υπό έκδο...

Πεδίο Αναγνώρισης

Κωδικός αναγνώρισης	GR UTH-HA PC-KM-SA1-S1-SS1-F1-SF1-I7
Τίτλος	Αναφορά στο υπό έκδοση βιβλίο του Κ.Α.Μ. "Ο ζωγράφος Θεόφιλος"
Ημερομηνία(ες)	• 09-03-1939 (Δημιουργία)

Clipboard
- Εισαγωγή

Explore
- Αναφορές
- Browse as list
- Browse digital objects

Εισαγωγή
- XML
- CSV

Εξαγωγή
- Dublin Core 1.1 XML
- EAD 2002 XML

Εργαλείο Έρευνας
- Upload

Related subjects

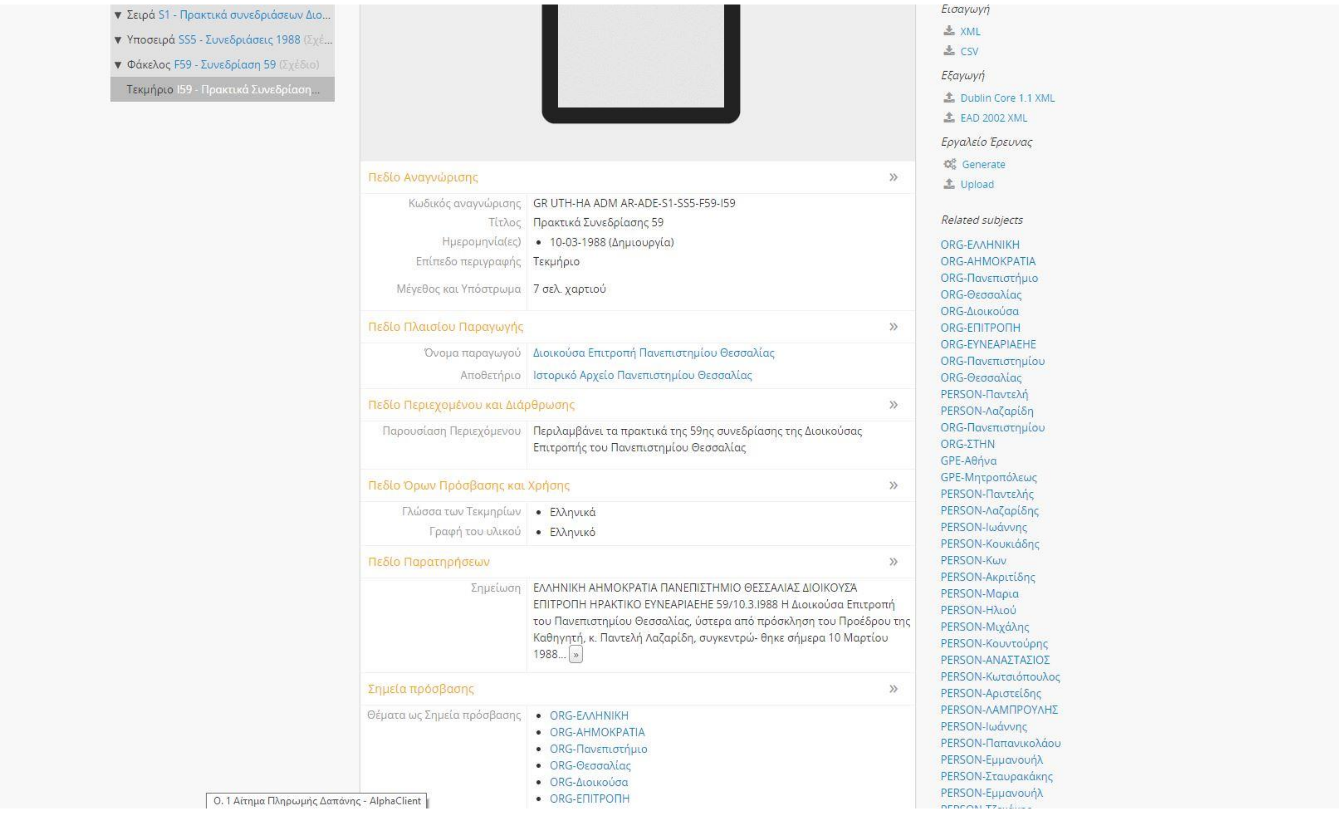
PERSON-Μιμή

Συνδεόμενα Φυσικά Πρόσωπα και Οργανισμοί

Κίτσος Α. Μακρής (Παραγωγός)

Fig. 9. University of Thessaly AtoM item description page (Greek interface)

Filling in all description fields was not mandatory. As already stated in the Methodology section, detailed instructions for the levels, extent and process of the archival description were created for the HA archives included in the AtoM platform. Description levels for the HA archives may include Fond, Subfond, Series, Subseries, File, Subfile and Item (Fig. 9). In all levels fields that were required to be filled in by the archivists were: Title and Date (Identity Area), Name of Creator and Repository (Context area), Scope and Content (Content and structure area), and Language of the Material (Conditions of access and use area). On the item level, OCR and automatic speech recognition text produced by the DataScouting Microservices is copied in the Notes Area, while in the Access Points Area, the semantic analysis and image analysis metadata are entered automatically during the uploading process from Archivematica to AtoM (Fig. 10).



▼ Σειρά S1 - Πρακτικά συνεδριάσεων Διο...
▼ Υποσειρά SS5 - Συνεδριάσεις 1988 (Σχέ...
▼ Φάκελος F59 - Συνεδρίαση 59 (Σχέδιο)
Τεκμήριο I59 - Πρακτικά Συνεδρίαση...

Πεδίο Αναγνώρισης »

Κωδικός αναγνώρισης	GR UTH-HA ADM AR-ADE-S1-SS5-F59-I59
Τίτλος	Πρακτικά Συνεδρίασης 59
Ημερομηνία(ες)	• 10-03-1988 (Δημιουργία)
Επίπεδο περιγραφής	Τεκμήριο
Μέγεθος και Υπόστρωμα	7 σελ. χαρτιού

Πεδίο Πλαισίου Παραγωγής »

Όνομα παραγωγού	Διοικούσα Επιτροπή Πανεπιστημίου Θεσσαλίας
Αποθετήριο	Ιστορικό Αρχείο Πανεπιστημίου Θεσσαλίας

Πεδίο Περιεχομένου και Διάρθρωσης »

Παρουσίαση Περιεχόμενου	Περιλαμβάνει τα πρακτικά της 59ης συνεδρίασης της Διοικούσας Επιτροπής του Πανεπιστημίου Θεσσαλίας

Πεδίο Όρων Πρόσβασης και Χρήσης »

Γλώσσα των Τεκμηρίων	• Ελληνικά
Γραφή του υλικού	• Ελληνικό

Πεδίο Παρατηρήσεων »

Σημείωση	ΕΛΛΗΝΙΚΗ ΑΗΜΟΚΡΑΤΙΑ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ ΔΙΟΙΚΟΥΣΆ ΕΠΙΤΡΟΠΗ ΗΡΑΚΤΙΚΟ ΕΥΝΕΑΡΙΑΕΗΕ 59/10.3.I988 Η Διοικούσα Επιτροπή του Πανεπιστημίου Θεσσαλίας, ύστερα από πρόσκληση του Προέδρου της Καθηγητή, κ. Παντελή Λαζαρίδη, συγκεντρώ- θηκε σήμερα 10 Μαρτίου 1988... »

Σημεία πρόσβασης »

Θέματα ως Σημεία πρόσβασης	• ORG-ΕΛΛΗΝΙΚΗ • ORG-ΑΗΜΟΚΡΑΤΙΑ • ORG-Πανεπιστήμιο • ORG-Θεσσαλίας • ORG-Διοικούσα • ORG-ΕΠΙΤΡΟΠΗ

Εισαγωγή
XML
CSV

Εξαγωγή
Dublin Core 1.1 XML
EAD 2002 XML

Εργαλείο Έρευνας
Generate
Upload

Related subjects

ORG-ΕΛΛΗΝΙΚΗ
ORG-ΑΗΜΟΚΡΑΤΙΑ
ORG-Πανεπιστήμιο
ORG-Θεσσαλίας
ORG-Διοικούσα
ORG-ΕΠΙΤΡΟΠΗ
ORG-ΕΥΝΕΑΡΙΑΕΗΕ
ORG-Πανεπιστημίου
ORG-Θεσσαλίας
PERSON-Παντελή
PERSON-Λαζαρίδη
ORG-Πανεπιστημίου
ORG-ΣΤΗΝ
GPE-Αθήνα
GPE-Μητροπόλεως
PERSON-Παντελής
PERSON-Λαζαρίδης
PERSON-Ιωάννης
PERSON-Κουκιάδης
PERSON-Κων
PERSON-Ακριτίδης
PERSON-Μαρια
PERSON-Ηλιού
PERSON-Μιχάλης
PERSON-Κουντούρης
PERSON-ΑΝΑΣΤΑΣΙΟΣ
PERSON-Κωτσιόπουλος
PERSON-Αριστείδης
PERSON-ΛΑΜΠΡΟΥΛΗΣ
PERSON-Ιωάννης
PERSON-Παπανικολάου
PERSON-Εμμανουήλ
PERSON-Σταυρακάκης
PERSON-Εμμανουήλ

Fig. 10. University of Thessaly AtoM item Access points

In addition, editing and/or deleting an existing description is possible.

At the same time, it is possible to automate the process of producing single indices of research tools per selected access point, such as natural persons, collective bodies, thematic headings etc.

Regarding bulk content import, the AtoM archive management system has import mechanisms which support widely used formats such as CSV and XML (EAD, EAC, Dublin Core XML, MODS XML) depending on the type (archive descriptions, established types, etc). It is also possible to import files in SKOS format.

The AtoM Archival Description System can extract archival descriptions, established terms, archival organisations and terms. Export can be done in widely used formats such as EAD 2002 XML, Dublin Core 1.1. XML, MODS XML (Fig. 8-10).

The export of the archival record with the respective standards is also accompanied by information about the associated established terms, the descriptions of the archival organizations and all its child records. Conventional terms are exported with EAC XML and SKOS files but through restricted access to authorised users.

The AtoM Archival Description System, in order to appeal to the general public, even to people who may not be familiar with the new technologies, employed a relatively simple graphical interface.

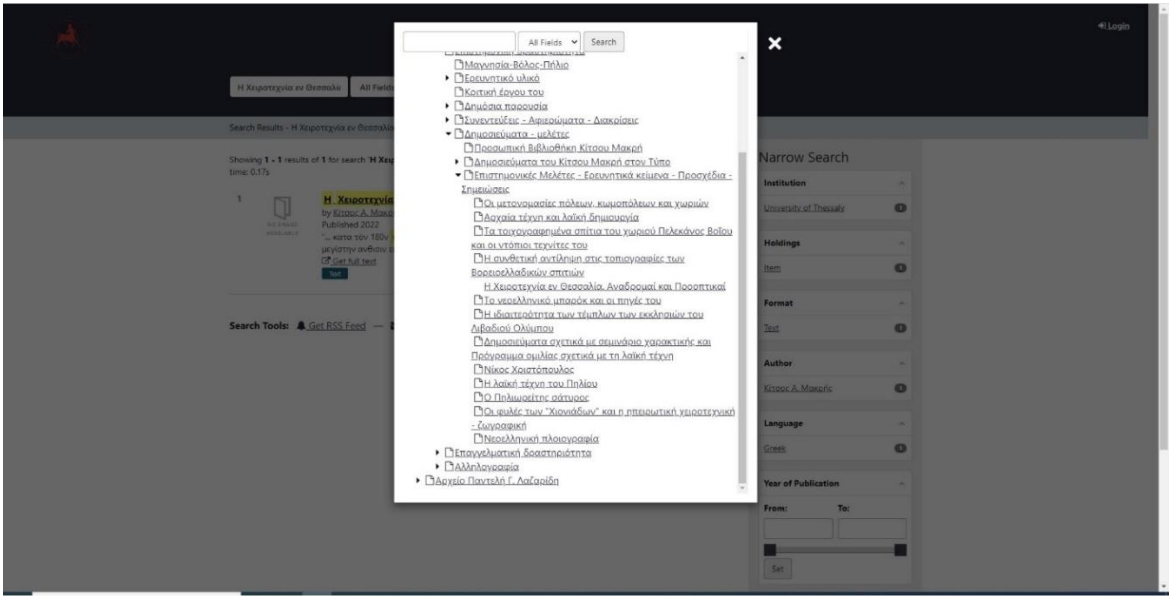
At the same time, the system is accessible to people with disabilities as the relevant internationally recognised accessibility rules and guidelines concerning the development of accessible applications and services in a global web environment have been applied, in particular, the Web Content Accessibility Guidelines (WCAG) standard in order to meet at least level AA conformance.

The integration of Archivematica with AtoM serves as the platform for the preservation-management-dissemination of archival digital documents belonging to the University's archives as described in the THE.ME.DO.COM project. A similar approach of integrating Archivematica with AtoM was implemented in 2018 to organise and manage digitised materials from the Personal Fonds Rista Odavic kept by the Archives of Serbia **[11]**. However, this implementation utilised only the standard capabilities of Archivematica without creating additional microservices like the ones developed in the current project, and only one type of personal fond was tested and used.

C. Text, data mining and dissemination platform

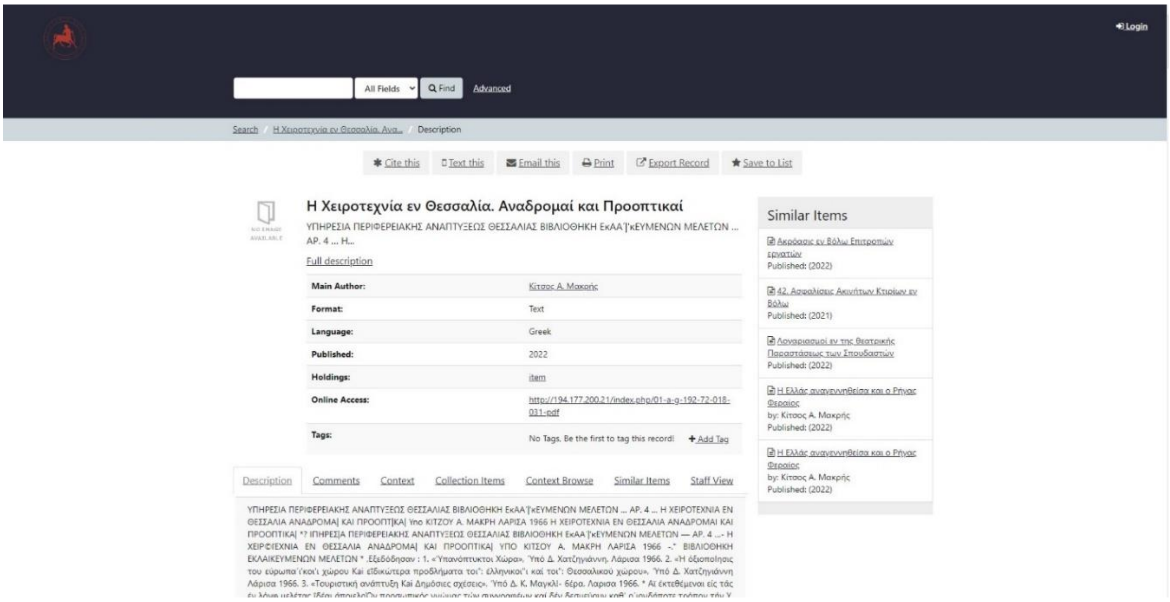
The process involved the design and implementation of an integrated software package through which textual and audiovisual documents would be enriched with machine learning and natural language processing techniques. These modules were built and incorporated as Archivematica microservices, which generate metadata from both the textual and audio-visual parts of the documents that are included in the DIP package uploaded from Archivematica to AtoM.

The second project platform (archives.lib.uth.gr) is integrated with AtoM and is used for text and data mining purposes of digital documents (items) belonging to the University of Thessaly Historical Archive collections. The software consists of a content indexing and retrieval platform based on the open-source platform VuFind (https://vufind.org/vufind/), but also utilises a set of modules that will allow the retrieval of additional metadata from the digital items. A special routine was created for the daily export of the metadata from all AtoM description levels (Fond, Subfond, Series, Subseries, File, Subfile and Item) in an XML file which is automatically imported into VuFind (Fig. 11-12).



- Μαγνησία-Βόλος-Πήλιο
- Ερευνητικό υλικό
- Κριτική έργου του
- Δημόσια παρουσία
- Συνεντεύξεις - Αφιερώματα - Διακρίσεις
- Δημοσιεύματα - μελέτες
  - Προσωπική Βιβλιοθήκη Κίτσου Μακρή
  - Δημοσιεύματα του Κίτσου Μακρή στον Τύπο
  - Επιστημονικές Μελέτες - Ερευνητικά κείμενα - Προσχέδια - Σημειώσεις
    - Οι μετονομασίες πόλεων, κωμοπόλεων και χωριών
    - Αρχαία τέχνη και λαϊκή δημιουργία
    - Τα τοιχογραφημένα σπίτια του χωριού Πελεκάνος Βοΐου και οι ντόπιοι τεχνίτες του
    - Η συνθετική αντίληψη στις τοπιογραφίες των Βορειοελλαδικών σπιτιών
    - Η Χειροτεχνία εν Θεσσαλία. Αναδρομαί και Προοπτικαί
    - Το νεοελληνικό μπαρόκ και οι πηγές του
    - Η ιδιαιτερότητα των τέμπλων των εκκλησιών του Λιβαδιού Ολύμπου
    - Δημοσιεύματα σχετικά με σεμινάριο χαρακτικής και Πρόγραμμα ομιλίας σχετικά με τη λαϊκή τέχνη
    - Νίκος Χριστόπουλος
    - Η λαϊκή τέχνη του Πηλίου
    - Ο Πηλιωρείτης σάτυρος
    - Οι φυλές των "Χιονιάδων" και η ηπειρωτική χειροτεχνική - ζωγραφική
    - Νεοελληνική πλοιογραφία
- Επαγγελματική δραστηριότητα
- Αλληλογραφία
- Αρχείο Παντελή Γ. Λαζαρίδη

Fig. 11. Archival tree view following a thematic search on the VuFind University of Thessaly HA platform



Η Χειροτεχνία εν Θεσσαλία. Αναδρομαί και Προοπτικαί

ΥΠΗΡΕΣΙΑ ΠΕΡΙΦΕΡΕΙΑΚΗΣ ΑΝΑΠΤΥΞΕΩΣ ΘΕΣΣΑΛΙΑΣ ΒΙΒΛΙΟΘΗΚΗ ΕκΑΑ Ί'κΕΥΜΕΝΩΝ ΜΕΛΕΤΩΝ ... ΑΡ. 4 ... Η...

Full description

Main Author:	Κίτσος Α. Μακρής
Format:	Text
Language:	Greek
Published:	2022
Holdings:	item
Online Access:	http://194.177.200.21/index.php/01-a-g-192-72-018-031-pdf
Tags:	No Tags, Be the first to tag this record!

ΥΠΗΡΕΣΙΑ ΠΕΡΙΦΕΡΕΙΑΚΗΣ ΑΝΑΠΤΥΞΕΩΣ ΘΕΣΣΑΛΙΑΣ ΒΙΒΛΙΟΘΗΚΗ ΕκΑΑ Ί'κΕΥΜΕΝΩΝ ΜΕΛΕΤΩΝ ... ΑΡ. 4 ... Η ΧΕΙΡΟΤΕΧΝΙΑ ΕΝ ΘΕΣΣΑΛΙΑ ΑΝΑΔΡΟΜΑ| ΚΑΙ ΠΡΟΟΠΤ|ΚΑ| Υno ΚΙΤΖΟΥ Α. ΜΑΚΡΗ ΛΑΡΙΣΑ 1966 Η ΧΕΙΡΟΤΕΧΝΙΑ ΕΝ ΘΕΣΣΑΛΙΑ ΑΝΑΔΡΟΜΑΙ ΚΑΙ ΠΡΟΟΠΤΙΚΑ| *? ΙΠΗΡΕΣ|Α ΠΕΡΙΦΕΡΕΙΑΚΗΣ ΑΝΑΠΤΥΞΕΩΣ ΘΕΣΣΑΛΙΑΣ ΒΙΒΛΙΟΘΗΚΗ ΕκΑΑ Ί'κΕΥΜΕΝΩΝ ΜΕΛΕΤΩΝ — ΑΡ. 4 ...- Η ΧΕΙΡΘΙΕΧΝΙΑ ΕΝ ΘΕΣΣΑΛΙΑ ΑΝΑΔΡΟΜΑ| ΚΑΙ ΠΡΟΟΠΤΙΚΑ| ΥΠΟ ΚΙΤΣΟΥ Α. ΜΑΚΡΗ ΛΑΡΙΣΑ 1966 -." ΒΙΒΛΙΟΘΗΚΗ ΕΚΛΑΙΚΕΥΜΕΝΩΝ ΜΕΛΕΤΩΝ * .Εξεδόθησαν : 1. «'Υπανάπτυκτοι Χώρα», Ύπό Δ. Χατζηγιάννη. Λάρισα 1966. 2. «Ή όξιοποlησις του εύρωπα'ί'κοι'ι χώρου Kai είδικώτερα προβλήματα τοι": έλληνικοι"ι καί τοι": Θεσσαλικού χώρου», Ύπό Δ. Χατζηγιάννη Λάρισα 1966. 3. «Τουριστική ανάπτυξη Kai Δημόσιες σχέσεις». Ύπό Δ. Κ. Μαγκλ!- 6έρα. Λαρισα 1966. * Αί έκτεθέμεναι είς τάς

Similar Items

- Ακρόασις εν Βόλω Επιτροπών εργατών
  Published: (2022)
- 42. Ασφαλίσεις Ακινήτων Κτιρίων εν Βόλω
  Published: (2021)
- Λογαριασμοί εν της Θεατρικής Παραστάσεως των Σπουδαστών
  Published: (2022)
- Η Ελλάς αναγεννηθείσα και ο Ρήγας Φεραίος
  by: Κίτσος Α. Μακρής
  Published: (2022)
- Η Ελλάς αναγεννηθείσα και ο Ρήγας Φεραίος
  by: Κίτσος Α. Μακρής
  Published: (2022)

Fig. 12. Detailed item view on the VuFind University of Thessaly HA platform

The final platform will be accessible to the general public, and will be searchable through any metadata. Particular emphasis was placed on the visualisation of results through navigation tools. Additionally, the system is implementing the Open Archives Initiative Protocol for Harvesting (OAI-PMH) to make it accessible to suitable aggregators.

From the previous analysis of the University of Thessaly HA platforms, it seems more probable to utilise AtoM as an internal archival finding aid operated by specialised library staff, while the VuFind platform can be used as the primary search portal for researchers and the general public. The relative decision will me made by the University Library after the completion of the THE.ME.DO.COM. research project.

IV. Conclusions

The main conclusions of developing two web platforms to preserve, manage, disseminate and analyse archival digital documents are summarised as follows:

The three open-source software applications used

(Archivematica-AtoM-VuFind) proved very successful in realising the main project goal of implementing the two above-mentioned platforms.

Archivematica was employed not only for creating preservation metadata of uploaded digital objects but also as a means of producing textual (OCR), speech-to-text and image-related metadata, and this was an innovative use of the software.

Integration between the three software applications was performed successfully and without significant problems.

The selected implementation showed that it was very effective for dealing with several archives and archival collections having divergent characteristics. The systems could also accommodate all major formats and large quantities of digital documents.

Future developments could include the production of additional digital objects metadata and the realisation of more efficient automated quality control mechanisms on descriptive metadata production.

In conclusion, the presented implementation is particularly effective for managing the diverse and voluminous University archives and archival collections.

V. References

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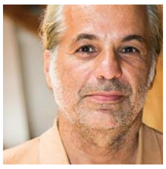
VI. Authors

Ioannis Clapsopoulos holds a BSc in Geology from the University of Athens (Greece), a PhD from the University of Manchester (UK) and an MSc in Information & Library Management from Northumbria University (UK). His research interests include Information Literacy, Open Access to Documents and Data and the Development of Information Systems and Services relating to Libraries, Archives, and other cultural heritage organisations. He has been involved in more than 20 national and European projects and has published several articles in journals and conferences. He is the Director of the University of Thessaly Library and Information Centre, while he has also worked as adjunct lecturer at the same University.

Ioanna Laliotou studied History at the Department of History and Archeology of the University of Athens and holds an M.Soc. Sc. in Cultural Studies from the University of Birmingham (UK) and a PhD in History and Civilization from the European Institute in Florence. Her research interests include cultural history, subjectivity, mobility, migration, refugeeness, visions of the future, and utopia in contemporary society. At the same time, she has published books, several articles in journals, conferences and book chapters. She has participated in or coordinated several European and national projects and has published articles in journals and conferences. Currently, she is an Associate Professor in Contemporary History at the Department of History, Archaeology and Social Anthropology of the University of Thessaly.

Stavros Doropoulos is a graduate of the Computer Engineering Department of TEI of Central Macedonia and holds a Master’s degree from the School of Informatics of the Aristotle University of Thessaloniki. He has many years of experience in both implementation and management of European and national IT R&D projects in the field of digital libraries, speech and video recognition, machine learning, big data analytics, software integration, media analysis, and he has published relevant articles in scientific journals. Currently, he is the Chief Information Officer & Software Engineer at the DataScouting software research and development company.

Apostolos Fanakis has participated in several R&D projects and was involved in installing and configuring the Archivematica, AtoM and VuFind platforms of the THE.ME.DO.COM EPAnEK (2014-2020) project. Currently, he works as a software engineer at the DataScouting software research and development company.



Vassilis Bourdakis studied Achitecture at the National Technical University of Athens and completed his PhD at the University of Bath (UK) on the subject of building evaluation and performance. His research interests include Virtual Reality focusing on the communication of ideas /designs, the development of interactive virtual environments and their use as a visualisation tool for urban planning and policy-making and intelligent environments and their implications/application in real-life studies. He has participated in various European and national research projects and published over 50 articles in scientific journals and conference proceedings. Currently, he is a Professor at the Department of Architecture of the University of Thessaly.

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