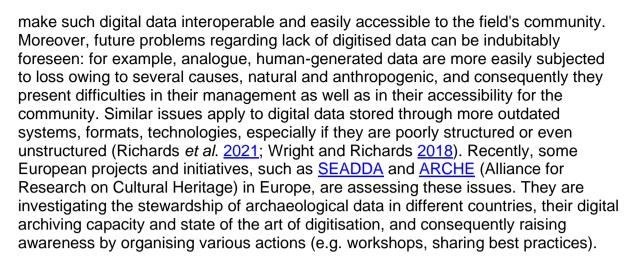# The State of the Art of Digital Archiving for Archaeology in Cyprus

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This article presents the current state of the art regarding digital archiving for archaeology in Cyprus. The analysis of the current European situation shows that various countries have reached diverse levels of digitisation concerning archaeology and have different ways of dealing with digital archiving. These differences depend on several factors, such as the presence or lack of expertise, information regarding the procedure, and availability of funding, as well as the history of archaeology of the country. The current contribution analyses the Cypriot state of the art of digital archiving for archaeology in the broader context of the digital transformation era, which drives all major changes and strategies in various sectors of society at both national and international level. This article describes the archaeological background of Cyprus, its peculiarity and challenges and how these elements shape the digital management of the field. The article also presents the main actors involved in archival digitisation and the most relevant digital archaeological repositories, underlining innovative approaches and current gaps. Finally, it addresses the future directions of digital archiving for archaeology in Cyprus.

1. Introduction

European countries have reached different levels of digitisation and have multiple ways of dealing with digital archiving. On the one hand, some countries lead with massive activities, either due to the digitisation of their national archives or to an increasing use of technologies that generated the production of new born-digital data. On the other hand, some countries are slightly behind others concerning the archaeology and cultural heritage digitisation process. This is primarily the result of a lack of expertise, information, and organisation at a national level regarding the procedure and availability of funding. Both situations are not exempt from issues. For instance, the massive generation of digital data creates the need for sustainable management to avoid the future risk of obsolescence, as well as the necessity to

make such digital data interoperable and easily accessible to the field's community. Moreover, future problems regarding lack of digitised data can be indubitably foreseen: for example, analogue, human-generated data are more easily subjected to loss owing to several causes, natural and anthropogenic, and consequently they present difficulties in their management as well as in their accessibility for the community. Similar issues apply to digital data stored through more outdated systems, formats, technologies, especially if they are poorly structured or even unstructured (Richards *et al.* 2021; Wright and Richards 2018). Recently, some European projects and initiatives, such as SEADDA and ARCHE (Alliance for Research on Cultural Heritage) in Europe, are assessing these issues. They are investigating the stewardship of archaeological data in different countries, their digital archiving capacity and state of the art of digitisation, and consequently raising awareness by organising various actions (e.g. workshops, sharing best practices).

Within this framework, this article presents the current situation regarding digital archiving for archaeology in Cyprus. It provides information about the archives and digital infrastructures available at the national level, as well as the contribution of research centres and universities in collaboration with national institutions, to the digitisation and archiving of Cypriot archaeology. Firstly, it introduces the archaeological background of Cyprus, its peculiarity and challenges, legislation and management-wise, through the years. Secondly, it shows how digital archiving is employed in the country by applying standards and guidelines. It then presents the main actors involved in the archival digitisation process and the major data repositories. Finally, this contribution opens up a discussion about what has been done, the gaps and the future directions for the Cypriot archaeological reality. This article contributes to filling the knowledge about European trends in the field.

1.1. Archaeology in Cyprus

The differences in digitisation are also connected with the history of archaeology of each country, the way heritage was managed in the past and how it is currently organised, the institutions involved (e.g., public, private, internal, or external to the country) and the historical events that occurred. Cyprus, a country particularly rich in archaeology because of its long and varied history from 11,000 BC and its geographical position, situated at the crossroads of three continents - Europe, Asia and Africa - has an unusual situation resulting from the historical events occurring on the island, the different types of successive governments, and the legislation regulating the field. Indeed, during the 20th century, Cypriot archaeological heritage was administered by the colonial government of the United Kingdom. For twenty years after their arrival on the island in 1878, the British maintained the Ottoman Law on Antiquities promulgated in 1874 (Given 2004 73). That was also the period of the foundation of the Cyprus Museum, in 1882, with construction occurring 26 years later, in 1908. According to the Ottoman Law, the Government, the owner of the land, and the excavators were allowed to have a share of one-third each of the objects found and in some cases the excavators, having also acquired the land, thus managed to procure two-thirds of the finds (Stanley-Price 2001). Moreover, such a law regulated the export of archaeological materials outside the country (Stanley-Price 2001 271; Kersel 2010).

In 1905, the British Government promulgated the first legislation on antiquities, but it could not effectively regulate the exports and the trafficking of finds from illicit excavations. The enactment of the 1935 Antiquities Law replaced the Law of 1905, and in the same year the Department of Antiquities (DoA) was established: from that date onwards, surveys and scientific excavations were carried out to shed light on the archaeology of the island and to enrich the Cyprus Museum collections (Pilides 2012 23). Nevertheless, although the British government published an amendment to the law on exports, the export of antiquities still continued. Only in 1964, some years after Cypriot independence, did the competent national authorities amend the Antiquities Law, therefore permitting foreign archaeological missions to conduct archaeological research on the island but entirely abolishing the division and export of finds.

After the Turkish invasion of 1974 and the island's subsequent division, other challenges impacted the island's archaeology: the plundering of hundreds of archaeological sites, monuments, museums, private archaeological collections, and storerooms of foreign archaeological missions that were excavating in northern Cyprus at that time took place, as well as illicit trafficking and looting.

All of these elements are fundamental considerations in the drive for digital archiving of Cypriot archaeology that, due both to the 19th-century legislation and the illicit exports of antiquities, has long been subjected to the division of artefacts in museums all around the world or even their dispersion (Stanley-Price 2001).

The Department of Antiquities of the then Ministry of Transport, Communications and Works of the Republic of Cyprus is the main organisation in charge of the cultural heritage and archaeology of the country. The DoA was established in 1935 as a result of the enactment of the Antiquities Law. It is a governmental organisation now under the newly established Deputy Ministry of Culture since July 2023. The Department of Antiquities, as a governmental department, has an annual budget from state resources. Additional funds received by the Department include contributions by local authorities, ecclesiastical and private donations as well as European funds designated for specific projects. The Department is headed by a Director and two Curators of Antiquities, one responsible for the Museums, the Surveys Sector and Underwater Archaeology and one responsible for the Ancient Monuments Sector. The Department has under its jurisdiction the management of the archaeological heritage of Cyprus. Its main responsibilities include: (i) conducting excavations and archaeological surveys, (ii) the foundation, maintenance, operation and organisation of archaeological and ethnographic museums, (iii) the conservation, restoration, rehabilitation, protection and promotion of the Ancient Monuments of the First and Second Schedule and of other monuments of traditional architecture, (iv) the protection and promotion of all other archaeological sites ranging from the pre-Neolithic period to the 20th century as defined by the Antiquities Law, and (v) the monitoring of research conducted by the University of Cyprus and other foreign archaeological missions and universities carrying out archaeological excavations, surveys or periods of study of excavated material.

Beyond the DoA, other institutions, including foreign archaeological missions, local universities, and research centres, produce data from archaeological excavations, surveys and research activities on the island. Specifically, after authorisation for

conducting any archaeological activities, those institutions must provide the DoA with a preliminary or final report and their succeeding data, whether digital or in print format (Antiquities Law, Chapter 31). However, providing the DoA with unpublished material remains a sensitive topic for foreign archaeological missions. Consequently, in some cases, the DoA faces the critical issue of receiving limited data.

2. State of the Art of Digital Archiving for Archaeology in Cyprus

Within the broader context of the country's digital transformation, in June 2020, the Deputy Ministry of Research, Innovation and Digital Policy of Cyprus adopted a 'Digital Strategy for Cyprus 2020-2025' to accelerate this process. It represents the most important policy document regarding the digital vision and mission in Cyprus, together with the 'Cyprus Research and Innovation Strategy Framework 2019-2023' (Innovate Cyprus). Such key policy documents involve several public sector organisations, local businesses, the academic sector, the scientific community and social partners. That strategy is fuelled by three main important funding tools: EU Recovery and Resilience Fund (RRF), Digital Europe, and National digitisation funds allotted via the National budget. It has four strategic objectives: technology for people, a sustainable and resilient digital economy, an inclusive digital society, and a green and digital transition for Cyprus. Within the digital government portfolio, some initiatives are particularly relevant to the transformation of the national infrastructures. Within this vision, a relevant place has been given to the cultural sector and its digital implementation strategy, mainly towards a more aware and feasible digitisation process of the cultural goods of the island.

2.1. Cypriot national initiatives: towards a digital management

In this respect, the Department of Antiquities of the Republic of Cyprus, as the appropriate management body of the archaeological heritage of Cyprus and framer of national cultural policies, recognises the significance of digital archiving for safeguarding and preserving the archaeological research legacy. To achieve this aim, the plethora of archaeological data has seen two major digitisation processes: one in the early 2000s relating to the Cyprus Museum's Photographic Archive, and a second in the 2010s with the pilot programme CADiP. Afterwards, in the late 2010s, additional initiatives started to create and digitise spatial datasets of the island's Ancient Monuments, Museums, World Heritage Sites, Controlled Areas, Surveyed and Excavated Areas, and include them into a GIS platform for better decision making and management purposes (Pilides 2011).

Until 2009, data recording was mainly conducted manually based on a systematic paper description and documentation. The data were organised in administrative files, logs, catalogues, site records, inventory books, topographic and cadastral maps, surveyed field documentation, site plans, drawings and rubbings, foreign archaeological missions' reports, and photos (Pilides 2011). Some of these data

were located in the photographic archive, specifically relating to the numerous ancient monuments that included archaeological sites, movable antiquities, and museums of the island. Consequently, for a long time, the data have been difficult to manage, find, retrieve, and could easily be lost or destroyed. Moreover, most of the material has long remained unpublished, stored in drawers and shelves, thus prohibiting further research. For that reason, in the early 2000s, the DoA began tackling the digitisation of the archives, still ongoing, thanks to the Republic of Cyprus government funding. Table 1 provides information on their digitisation.

Table 1: The digitisation of the photographic and drawings archives

Archive	Content	Period	No. of Items Digitised	Access
The photographic archive	It consists of various photos and negatives (both glass and plastic mounted) of ancient monuments and archaeological sites, and images of artefacts dating from the 1930s until the introduction of the digital camera in the early 2000s. The data are catalogued mostly in relation to their archaeological site, ancient monument, archaeological museum or storeroom.	December 2003-ongoing.	*c.* 50,000	Access to both archives is granted at no cost to researchers, after written consent by the Director, located within the DoA premises since the data are managed and preserved on a local server. For each ancient monument and movable antiquity there is an indicative designated photo or scanned site plan.
The drawings archive	Consists of archaeological site plans, ancient monuments, drawings of artefacts and rubbings digitised from previously published/excavated material.	December 2003-2021	35,000 digitised plans/drawings; 6,000 digitised topographic maps containing the spatial location of the declared ancient monuments.	

In October 2009, the Department of Antiquities started digitising archaeological data through the 'Cyprus Archaeological Digitization Programme' (CADiP), a European programme co-financed by the Norwegian Financial Mechanism and the Republic of

Cyprus (Pilides 2011). The funding was allocated between October 2009 and April 2011, and the project is still running with the financial support of the government of the Republic of Cyprus, the European Economic Area Financial Mechanisms and Norway Grants as well as other European and international grants.

The CADiP database is based on MySQL and ArcGIS software (Kydonakis *et al.* 2012) and offers the user the possibility to search and retrieve information through the use of a Simple and an Advanced user-friendly Search Engine. Indeed, it aimed to increase efficiency and effectiveness in the retrieval and management of large amounts of archaeological data through the application of a Geographical Information System (GIS), resulting in the improvement of its protection as well as documentation, analysis, and publication. To fulfil those objectives, CADiP is divided into five thematic databases corresponding to the material digitised, as summarised in Table 2, which also provides information on the number of data digitised, the descriptive metadata fields and the access. In each thematic database, data forms are created for each entry, where archaeological, historical, technical, and administrative information is recorded and associated with digitised pictures, maps, graphics, and bibliography. Each entry is filled in, either in a free text or by choosing a term from a pre-created glossary (controlled vocabularies). The data from new excavations, research or any restoration work on the monument, movable antiquity or surveyed area is updated accordingly.

Currently, CADiP is only accessible to the officers of the Department of Antiquities within the Department's premises. Full records are made available to external researchers after written authorisation.

Table 2: The Cyprus Archaeological Digitization Programme (CADiP)
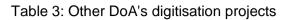
Thematic Database	Focus	No. of Items Digitised	Descriptive Metadata	Access
Ancient Monuments	The declared Ancient Monuments of the First Schedule (Ancient Monuments on State Land) and the Second Schedule (Ancient Monuments on Privately Owned	1,641	(i) Core Data Form[1] including the following fields: Monument's Declaration/Expropriation name, Alternative Name, Analytical Description, Brief Description, Image of the Monument, Monument number, Record complete (Yes/No). [A View Map button connects the user to a GIS map]. (ii) Location Form, (iii) Use/Function Form, (iv)	Access with editing privileges for the DoA personnel from the premises of the Department. Full records access to external researchers after DoA

	Land), according to the [Antiquities Law of Cyprus](#)		Manufacturing Form, (v) Physical condition Form, (vi) Description Form, (vii) Setting Form, (viii) Associations Form, (ix) Protection/Legal Status Form, (x) Documentation Form, (xi) Recording Details Form.[2]	authorisation.
Movable Antiquities	The Movable Antiquities that are exhibited and stored in the Cyprus Museum, the Districts' Museums, the Local Museums and the Folk Art Museums, which belong to the Cyprus government.	76,932	(i) Core Data Form including the following fields: Inventory Number, Provenance Security, Inventory Provenance, Comments, Data Registered, Record complete (Yes/No), Image of the Antiquity. [A View Map button connects the user to a GIS map]. (ii) Recovery Location Form, (iii) Description Form, (iv) Preservation State Form, (v) Present Location Form, (vi) Documentation Form, (vii) Recording Details Form.	
Controlled Areas	The Controlled Areas, the areas surrounding Ancient Monuments and by Law are protected by limiting the erection of any building in close distance to the Monument	45 (cadastral maps)	(i) Core Data Form including the following fields: Name, Alternative Name, Current Use, District/Town/Village/Quarter, Toponym Name, Record complete (Yes/No). [A View Map button connects the user to a GIS map]. (ii) Supplementary Data Form, (iii) Protection/Legal Status Form, (iv) Documentation Form, (v) Recording Details Form.	

	or controlling modern interventions to the surrounding landscape.		
Area under temporary requisition	The areas which the DoA required by Law from its owners for a short period of time, in order to conduct archaeological research	13	(i) Core Data Form including the following fields: Name, Alternative Name, Purpose of Requisition, Chronology, District/Town/Village/Quarter, Toponym Name, Record complete (Yes/No). [A View Map button connects the user to a GIS map]. (ii) Supplementary Data Form, (iii) Protection/Legal Status Form, (iv) Documentation Form, (v) Recording Details Form.
Surveyed areas	Surveyed areas	(i) Core Data Form including the following fields: Name, Alternative Name, District/Town/Village/Quarter, Toponym Name, CS (Cyprus Survey) Number, Record complete (Yes/No). [A View Map button connects the user to a GIS map].	(ii) Supplementary Data Form, (iii) Disposition Form, (iv) Documentation Form, (v) Recording Details Form.

Beyond the completion of the aforementioned European-funded programme, the Department of Antiquities, considering the importance of digitisation and the current country's digital strategies, has been continuing the process with various projects funded by national, European and international grants.[3] Table 3 summarises the digitisation projects that, from 2009 until the present, have been implemented by the Department of Antiquities.

Table 3: Other DoA's digitisation projects

Project	Funding Scheme	Period	Focus	CADiP
The Cyprus Coastal Assessment Project	Honor Frost Foundation	September 2019- March 2021	To map and document the underwater and coastal archaeological sites of Cyprus. The project's database is connected to a Geographical Information System (GIS) platform. The material digitised consists of: • data from the archives of the DoA, government departments and public institutes. • archaeological bibliographical resources • analysis and evaluation of satellite imagery, topographical and bathymetric data, and spatial patterns of archaeological sites • interviews with the coastal communities.	No
The digitisation of five archaeological sites and 4,000 movable antiquities programme	DoA	November 2016 - November 2017	To digitise five archaeological sites and 4,000 movable antiquities, of which 3,000 from the inventory of the Cyprus Museum and 1,000 declared missing as a result of the 1974 Turkish invasion.	Yes

The 'Enkomi Tombs (British Excavations) in the Cyprus Museum: Digitisation Programme'	Research Promotion Foundation of the Republic of Cyprus	January 2009-December 2010	To study and digitise the artefacts discovered during the British excavations and unify a pre-existing online database with other objects from the same excavations, currently at the British Museum. The programme consisted of: • archival research concerning the excavations of 100 tombs of the Late Bronze Age excavated in 1896 and published in 1900 (two-thirds of the objects that were transferred to the British Museum as per the terms of the Antiquities Law at the time, and one-third of the objects that are conserved at the Cyprus Museum since 1909, when they received a new inventory number). • Creation of an online digital catalogue (descriptions, drawings and photographs) of the contents of the tombs, all reunified.	Yes
Saving Prehistoric Antiquities under Threat (SPAUT)	Co-financed by the Swiss Government within the framework of the Bilateral Agreement between the	2014-2016	To conserve, record, digitise, and study the archaeological material from twelve prehistoric sites in the occupied areas of Cyprus. The sites were excavated prior to the 1974 Turkish	Yes

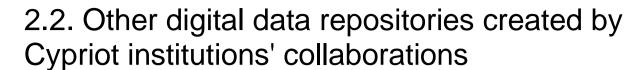|				
	Government of the Republic of Cyprus and the Government of Switzerland on the imposition of restrictions on the illegal import of cultural goods, came into force on 15 April 2014.		invasion of the island in areas that are currently not under the effective control of the government of the Republic of Cyprus and the material is stored in the Cyprus Museum in Nicosia.	
DigiArc	The European Union programme Interreg VA Greece-Cyprus	July 2018-ongoing	To document with terrestrial and aerial digital technologies selected medieval fortifications and castles in Cyprus (the Castles of Lemesos, Larnaca, Paphos and Kolossi, the towers of Alaminos, Pervolia, Pyla and Xylofagou) and their surroundings for the production of 3D point-clouds.	No
Digitising the Museums of Cyprus	The European Economic Area Financial Mechanism (EEA) and Norway Grants (Programming Period 2014 - 2021).	From May 2021-ongoing	To digitise 96,000 movable antiquities stored or displayed in the Cyprus Museum in Nicosia and in other national state museums.[4] The project is an implementation of the pre-existing infrastructure. The digitisation process includes: • The archaeological identification, dating, physical description, dimensions and photographing of each antiquity. • Research and input all existing or newly produced	Yes (at the end of March 2023, 56,688 Movable Antiquities[5] were digitised in the CADiP database)

			descriptive information concerning each movable antiquity in the specific fields of the CADiP database. • The digitisation of any archival material.	
DoA GIS GeoData base		March 2017-ongoing	To digitally map all the declared Ancient Monuments (Schedule A and B), UNESCO World Heritage Sites, expropriated plots, controlled areas, surveyed and excavated areas in Cyprus into a standardised geodatabase with homogeneous data (shapefiles) and related metadata in a GIS environment. A Web-GIS portal will be created and made available to the DoA's staff. So far more than 12,900 entries have been recorded for declared Ancient Monuments, as a monument might have more land parcels assigned to it when it is declared an Ancient Monument.	To be integrated into CADiP

Moreover, along with the national programs of digitisation previously cited, the Department of Antiquities actively participates in various projects, in collaboration with other local stakeholders, universities and research centres, for the digitisation, archiving and aggregation of Cypriot archaeological data. The following are some of the initiatives developed by other Cypriot institutions in collaboration with the Department of Antiquities.

2.2. Other digital data repositories created by Cypriot institutions' collaborations

Around a decade ago, the Science and Technology in Archaeology and Culture Research Center (STARC) of the Cyprus Institute, in collaboration with the Department of Antiquities, started several digitisation activities relating to Cypriot archaeological and cultural heritage collections, monuments and excavations. These actions also involved the Church of Cyprus, and particularly the Archbishop Makarios III Foundation, another Cypriot stakeholder dealing with the conservation and management of the country's archaeology and religious cultural heritage. Further collaborations involved other cultural institutions, such as those with foreign archaeological museums, for the digital archiving of dispersed Cypriot collections.[6] The initiatives led to the development of a digital library dedicated to the digital archiving of Cypriot archaeological and cultural data and made possible thanks to European-funded projects focused on the digitisation and online publication of the national heritage and the successive aggregation into cultural portals, such as Europeana. Indeed, Europeana, a web-portal giving access to millions of items from digitised cultural heritage collections held in thousands of institutions across Europe, was born under the aegis of the European Union following the need to create a digital European library able to make Europe's cultural heritage accessible to everyone. The STARC digitisation activities dedicated to Cypriot archaeology and cultural heritage from 2010 onward perfectly fit the European Commission's 'Digital Agenda for Europe' on the digitisation and accessibility of Europe's common cultural heritage online and the successive recommendations (European Commission 2010 30; Comité des Sages 2011).

The STARC Repository represents a valuable example of a digital library that uniquely gathers, describes and manages digital archaeological data focusing on the aforementioned actions. The data are digitised through various procedures such as photogrammetry, 2D and 3D scanning, 3D modelling, and photography. Every item is described using a metadata schema, selected according to the type of data and the related users' community or sub-field needs.[7] In the repository, the data are organised by collections; there are searchable and browsing options and dedicated windows showing the associated metadata and visual interaction with the digital object, either in 2D or 3D format (Hermon and Vassallo 2019; Vassallo *et al.* 2022). The STARC Repository aggregates those data into various digital libraries projects (e.g. Athena, CARARE, 3D ICONS, Linked Heritage, Athena Plus, Ariadne Plus, EAGLE) and feeds two important cultural and archaeological portals, Europeana and also ARIADNE, another gateway that provides the main point of access for searching and browsing datasets and services for processing and publishing archaeological datasets online. The STARC Repository enables an easy transfer of data from any available data end-point, thus facilitating the migration of data from heterogeneous sources, as well as data interoperability. Moreover, beyond the data visualisation of the front-end, the repository back-end provides different access levels for different user groups and allows personal users space to add their information to the repository and access it when exploring the data (Damnjanovic and Hermon 2012; Vassallo *et al.* 2016; Damnjanovic *et al.* 2017).

More recently, another digital library has been developed by the STARC in collaboration with various cultural heritage stakeholders in Cyprus (e.g., the DoA, the Bank of Cyprus Cultural Foundation)[8] following the updated directions of the European Commission on data digitisation, aggregation and reuse. DIOPTRA, the Edmee Leventis Digital Library for Cypriot Culture, builds on the STARC repository and extends its functionality and scope by providing access to data and expanding their interaction. DIOPTRA makes it possible to archive and publish datasets through metadata-based description, and visualise them thanks to the integration of visualisation features. The deployment and integration of dedicated 2D and 3D browser-based tools allow the visualisation and analysis of the digital archaeological data (Avgousti *et al.* 2017). Table 4 shows selected archaeological collections digitised, archived and published after the collaborative work of some Cypriot institutions.

Table 4: Selected digital archaeological collections archived and published in the STARC Repository and in DIOPTRA

Collection	Collaboration	Funding Project	Period	Focus	Digital Library	Portal
Collection of digital resources of the Paphos Theatre	The Cyprus Institute, Department of Antiquities, the University of Sydney	CARARE	2010-2013	To create digital content for archaeology and architectural heritage.	STARC Repository	Europeana
Collection of digital resources of the Sanctuary of Apollo Hylates at Kourion, Cyprus	The Cyprus Institute, Department of Antiquities	3D ICONS	2012-2015	To digitise architectural and archaeological monuments and buildings in 3D.	STARC Repository	Europeana
Collection of Digital Resources of Salamis Terracotta	The Cyprus Institute, Department of Antiquities, The Fitzwilliam Museum, The British Museum,	3D ICONS	2012-2015	To digitise archaeological collections dispersed in several museums	STARC Repository	Europeana

	The Ashmolean Museum					
Collection of Cypriot Medieval coins	The Cyprus Institute, Bank of Cyprus Cultural Foundation	ARIADNE Plus	2019-2022	To aggregate online archaeological datasets, including unpublished reports, images, maps, and databases.	DIOPTRA	Ariadne
Digital Collection of the Archaia Kypriaki Grammateia corpus	The Cyprus Institute, The A.G. Leventis Foundation	ARIADNE Plus	2019-2022	To aggregate online archaeological datasets, including unpublished reports, images, maps, and databases	STARC Repository	Ariadne

Another initiative focusing on digitising and archiving cultural material is the one developed by the [Library of the Cyprus University of Technology and the Digital Cultural Heritage Laboratory](#) (CUT) in collaboration with small and medium-sized local institutions, such as the Cyprus Tourism Organization, the Cyprus Post Office and various local Municipalities. Specifically, the repository 'Apsida' aims at the digitisation of a selection of Cypriot collections belonging to the Library and aggregated into Europeana through European-funded projects (e.g., [LoCloud](#), [Mnemosyne](#)), archived according to an item-level metadata-based description and freely accessible online (Dini Kounoudes *et al.* [2014](#)). The platform follows metadata standards and principles for digital archiving and access to the material. Nevertheless, only some items are specifically dedicated to archaeology, the majority being devoted to other cultural heritage-related fields (e.g. philately, books, newspapers, photography, and sport).

3. Conclusions

Nowadays, the cultural heritage sector is building its resilience and sustainability in the framework of the [Digital Strategy 2020-2025](#), which envisions a future society and a knowledge-based economy enabled by digital technologies. Nevertheless, despite the last decade's effort and positive results, at a national level, the digital revolution process in Cyprus has only recently begun with more awareness, planning and a systematic digital archiving strategy for cultural goods. Also, considering the climate crisis and recent conflicts, the digital documentation of cultural heritage and

archaeology represents a powerful means of protection, preservation, reconstruction, and rehabilitation for those affected by natural or anthropogenic hazards (e.g. decay, illicit traffic, development). Especially in the case of Cyprus, digitisation of cultural goods is considered highly necessary in all future efforts of the DoA, for instance, to repatriate illicitly trafficked material stolen from the country after the 1974 Turkish invasion or to monitor and manage hundreds of items of archaeological material dispersed abroad as a consequence of the 19th-century legislation. In this regard, the future goal of the DoA is to complete the digitisation process of all the movable antiquities stored in the public district, local and folk art museums, the surveyed areas, to digitise the ancient monuments and controlled areas, the areas under temporary requisition and all the movable antiquities that are in private collections, the antiquities that were illegally exported and repatriated, and those that are still missing.

Moreover, beyond the digitisation of legacy data, the DoA also started to focus on born-digital data (data created and stored digitally from its inception), leading to 3D documentation campaigns of archaeological sites/ancient monuments and excavations for conservation and management purposes. All these digitisation and digital archiving activities will bring a significant shift in the storage, management and disclosure of information, allowing for faster and more efficient access to information, improved decision-making and, hopefully, increased interoperability with other local and international repositories and digital libraries.

So far, CADiP represents the most important result within the Cypriot national digitisation effort relating to archaeology and cultural heritage, providing the DoA's personnel with easy access to all kinds of information with respect to ancient monuments, movable antiquities, surveys, controlled areas, and areas under temporary requisition, and fast and accurate retrieval of data. However, because of logistics, sensitive information and security reasons, the numerous cultural goods digitally archived in CADiP can be consulted by external users only via local access and with appropriate authorisation. Therefore, the possibility of partial public access online is currently under discussion and will probably be made available in the future.

At a technical level, such a national initiative needs further enhancement, especially regarding digital skills and training to be provided to the existing staff so as to apply international standards and practices in proper digital archiving procedures and data curation as well as to implement a digital repository that is in line with the principles of Findability, Accessibility, Interoperability and Reuse (FAIR principles) (Wilkinson *et al.* [2016]). Despite the incredible effort and the several projects already accomplished by the various cultural stakeholders, owing to the vastness and variety of cultural goods, a lot of work still needs to be done to reach a holistic and interoperable archaeological and cultural heritage digital archiving at the disposal of the community.[9] Optimistically, the general approach of all the Cypriot institutions seems to aim in the same direction and have a common digitally orientated vision for the documentation, preservation and archiving of the island's archaeology and cultural heritage. That will guarantee better and easier management, retrieval and reuse as well as wider accessibility and preservation in the long term for Cypriot archaeological and cultural heritage data.

Footnotes

1. A Core Data Form is composed of tables with basic information for each entry. Dataform core is an open source meta-language to create SQL tables and workflows. ←

2. The Recording Details form is automatically created by the database for the five databases of CADiP for security reasons. Each time a licensed user makes an entry, his/her details and the date are recorded automatically. ←

3. Moreover, DoA is involved in other projects that use technologies for tourism experiences using digitised data (e.g., visual and audio guidance). For instance, since May 2019, DoA collaborates as a partner in the project EnterCY -Enhancing Tourism ExpeRience in Cyprus that develop an integrated virtual and augmented reality platform utilising cutting-edge Information and Communication Technologies for promoting Cyprus as an attractive destination. ←

4. A large number of movable antiquities from the storerooms of the Cyprus Museum, the Archaeological Museums of Lemesos and Paphos Districts and the Local Archaeological Kourion Museum at Episkopi were digitised. ←

5. These objects are exhibited in the following museums: Cyprus Museum, the Archaeological Museums of Lemesos, Larnaca and Paphos Districts, the Local Archaeological Kourion Museum at Episkopi, the Local Archaeological Museum of Palaipafos at Kouklia, the Local Archaeological Museum of Marion-Arsinoe at Polis Chrysochous, the Ethnological Museum at Lefkosia (The House of Hadjigeorgakis Kornesios), the Local Museum of Traditional Embroidery and Silversmith-work at Lefkara, the Local Ethnographic Museum of Geroskipou and the Local Rural Museum at Kato Drys. ←

6. Among others, for the repository, collaborations have been set up with the University of Sydney, the Mediterranean Archaeological Research Institute-Vrije Universiteit Brussel, the Cyprus Folk Art Museum, the A.G. Leventis Foundation, the Soprintendenza per i Beni Archeologici per le province di Cagliari e Oristano, the Israel Antiquities Authority, the Fitzwilliam Museum, the British Museum, and the Ashmolean Museum. ←

7. Most of the data are described with the STARC metadata schema and its extensions, an in-house schema developed for describing various aspects of the data creation process (Ronzino *et al*. 2012; Vassallo *et al*. 2013). The metadata schema considers real objects and 3D models' descriptive features, their digital provenance and other related information. For instance, it is possible to describe the digital provenance of the 3D model of the archaeological asset and to provide information about the acquisition phase (e.g., the technique and the tool used), the post-processing (e.g., the file specifications) and the digital output (e.g., software), according to the digital resource obtained. ←

8. Other collaborations with international institutions helped to enhance the archaeological and cultural data digitised and archived. ←

9. Together with preventive and conservation gains, the digitisation of movable antiquities will also be of great value in the creation of the new Cyprus Museum and for the ongoing reorganisation and upgrading of existing museums. ←
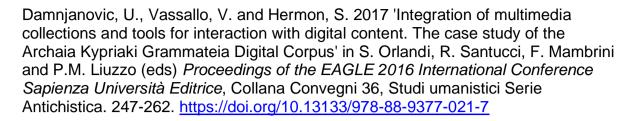
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