

# KYRILLOMETHODIKON – an Innovative Research Environment for Shared Access to Scientific Content

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**Abstract.** The Cyrillo-Methodian heritage is a common phenomenon of European value, promoting religious tolerance, cultural equality, and understanding of European cultural history and identity. The virtual cluster KYRILLOMETHODIKON developed at the Cyrillo-Methodian Research Centre (CMRC) at BAS is part of the Centre of Excellence "Heritage BG" (BG05M2OP001-1.001-0001 Project), aiming to provide structured knowledge on this phenomenon and its manifestations. The digital repository offers resources for research on the first stage of Slavic Christian culture with an accent on its Old Bulgarian part, reflecting the multidisciplinary research paradigm of the Centre: studies in medieval literature, linguistics, history, theology, art history, and anthropology. To ensure the educational socialisation of the research in these disciplines, a Scientific and Educational Interdisciplinary Centre for Cyrillo-Methodian studies was created within the framework of KYRILLOMETHODIKON, sharing educational tools for a wide range of audiences, including children, school students, undergraduates, and doctoral candidates.

**Keywords:** Cyril and Methodius, Socialisation of Cultural-Historical Heritage, Digital Repository.

## 1 Introduction

Synergy, sustainability, smart growth, and social impact were the guiding principles with which the Bulgarian Ministry of Education and Science defined the construction and development of new research infrastructures in 2019 (Angelieva, 2019). Developed within the framework of the Operational Program "Science and Education for Smart Growth" 2014 -2020 and the Program "Education" 2021-2027, the "Heritage BG" Centre of Excellence was supported under the thematic area of Capacity Building for Research and Development (R&D) in the Innovation Strategy for Smart Specialization (IS3), specifically component 4, New technologies in the creative and recreational industries. The main goal of this new scientific infrastructure was to create conditions for the development of new technologies and products for the creative and recreational industries, as well as for other economic sectors, education, public relations, and governmental and non-governmental organisations (Harizanova, 2022). These objectives

were achieved through effective management of scientific potential via an integrated approach to both the environment and cultural heritage, leveraging the resources of 12 partners united in a research and development network. This included newly built modules, laboratories and mobile capacities for shared use by different teams (Harizanova, 2022).

KYRILLOMETHODIKON is one of the 20 new structures of the "Heritage BG" Centre of Excellence created at CMNC-BAS to present the Cyrillo-Methodian tradition as an element of the European cultural heritage and its function within the thematic area "New technologies in the creative and recreational industries." The cluster addresses several elements of the defined thematic area: archival work and librarianship, audio-visual forms, cultural heritage and publishing, educational applications, and more. It also encompasses the broader definition of cultural and creative industries, including digitisation, digital repositories, socialisation of cultural-historical heritage, metadata, and search systems.

As there are primary two types of digital repositories (institutional and disciplinary) we may typologise the KYRILLOMETHODIKON as disciplinary or subject-based (Macgregor, 2023) The archives contain works or data associated with the Cyrillo-Methodian studies presenting the multidisciplinary profile of the Cyrillo-Methodian Research Centre as it conducts complex research on Cyrillo-Methodian sources and tradition from different perspectives - literary, art, palaeographic, theological, cultural-historical, etc. The portal provides worldwide free access to a broad spectrum of assets including digitised medieval Slavic, Greek, and Latin manuscripts, articles, printed books and e-books, periodic, bibliographic references, personal archives of prominent researchers, other research archives and artefacts related to Cyrillo-Methodian cultural heritage and its Bulgarian and European dimensions, etc. The institutional commitment to building and maintaining the portal is indicated by linkage to the CMRC-BAS institutional website (<https://www.kmnc.bg>).

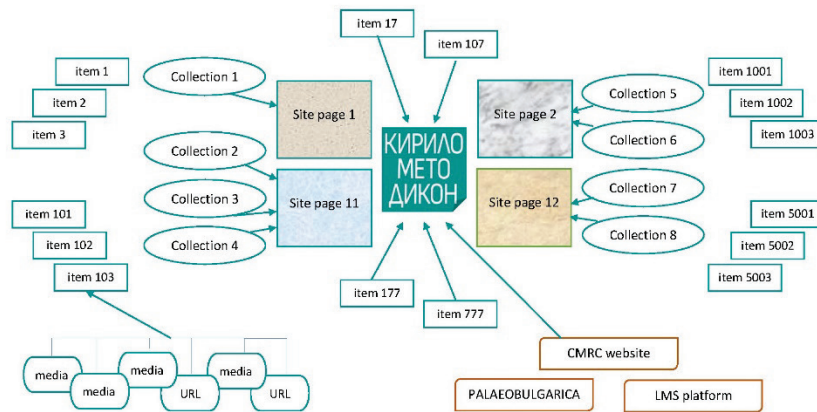
## **2 Architecture, Infrastructure and Maintenance**

KYRILLOMETHODIKON is based on OMEKA S – an open-source content management system for online digital collections. This software was initially developed by the Roy Rosenzweig Center for History and New Media at the George Mason University in Virginia in 2006 as a web publication system for universities, galleries, libraries, archives, and museums and still remains linked to the presentation and preservation of cultural and scientific heritage. It is a non-profit project with main funding from the variety of US agencies and foundations. The software has two main versions: Omeka Classic and Omeka S. Its code is publicly available and each user may install and adapt it to meet his or her own needs or institutional goals.

Omeka Classic is a web publishing platform for sharing digital collections and creating media-rich online exhibits, launched in 2008 as a digital humanities software solution for metadata management and is still in use. The second core version Omeka S is launched in 2015 with the ambitious goal to become “a next-generation web publishing platform for institutions interested in connecting digital cultural heritage collections

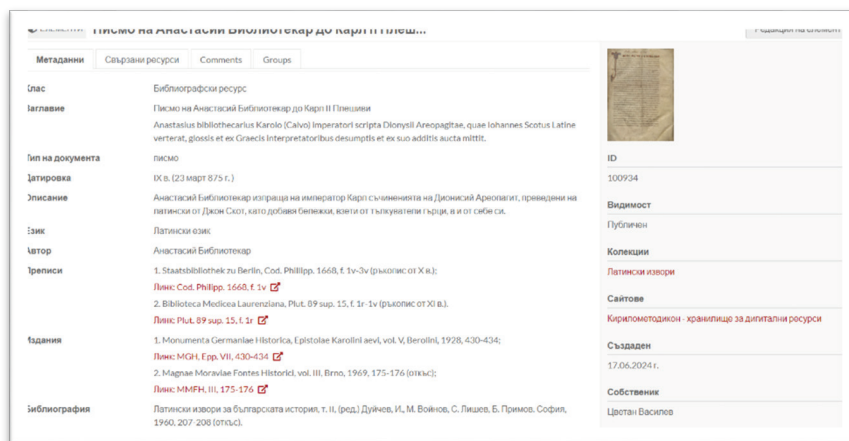
with other resources online” (Omeka, n.d.). Both product versions are very flexible and user-friendly, the installation and the upgrade are quite simple and do not require proficiency in information science. They are not designed for IT experts and all users can build the infrastructure and maintain the metadata following the tutorials available on the Omeka website and in the forums. Furthermore, on the platform are integrated functions for catalogisation and presentation of the content digital items, based on standardised sets for description and categorisation such as Dublin Core Standard but not only (<https://www.dublincore.org>).

The listed advantages justify the selection of this software for the needs of the Cyrillo-Methodian Research Centre. The current version of the repository is Omeka S 3.1.0 and its functionalities are extended with additional modules and plugins. In terms of infrastructure, the portal has two sections - site admin and public site and we will focus on each of them below.



**Fig. 1.** Architecture of KYRILLOMETHODIKON.

The building blocks of the Omeka system are the items. Currently, there are approx. 6000 items in the KYRILLOMETHODIKON database. The items can represent physical objects (such as manuscripts, maps, books, etc.) but they can also be used as separate types of nodes with different purposes. Omeka S allows each item to be classified at the moment of its creation by using the available metadata templates. A set of 13 predefined resource templates is designed for item description in KYRILLOMETHODIKON. Some of the templates are general: annotation template, manuscript template, periodic template, bibliography template, scientific journal template, while others are specific for the particular collection of archive elements: Bibliotheca Homiletica Balcano-slavica template, Collection X: Slavonic Manuscripts template etc. The resource templates allow structuring the metadata for each item, linking the item with other items or grouping.



**Fig. 2.** Item example: Letter of Anastasius the Librarian to Charles II the Bald, ID 100934, Collection Latin sources.

Once created, the items can be linked to other items or contained within item sets, to represent complex relationships. These aggregations of items are called collections. Each item may belong to any number of collections, and an item set can have any number of items. Similar to museum collections, the items in our digital repository are organized based on shared characteristics, origins or donors. Such grouping of items by certain criteria not only contributes to a better data organisation but also facilitates searching through it. The item sets tree of KYRILLOMETHODIKON is assembled from 29 collections – 5 mother collections that contain 24 sub-collections:

#### **Archive of the Cyril and Methodius Research Centre (CMRC)**

- Varia Manuscripta
- Archive of Palaeobulgarica journal (1977-2002)
- Cyrillo-Methodian studies (series) Archive (1984-2003)
- Archive books, series, magazines
- Library of CMRC-BAS
- Manuscripts Vilnius
- Hludov manuscripts

#### **Digital Sourcebook**

- Bibliotheca Homiletica
- Archive Bollandists
- Archive Bonyu Angelov. Scientific archive of BAS. Fund 93
- Archive Yordan Ivanov - Fund 52k, op.1-2
- Archive Klimentina Ivanova
- Archive Petar Dinekov

#### **Cyrillo-Methodian Studies Bibliography**

- Bibliography - CDS ISIS
- Bibliography 1516-1934
- General Cyril and Methodius Bibliography (1940–)
- Thematic bibliographies

#### **Cyril and Methodius Historical Sources**

- Cyrillomethodiana Germanica
- Greek sources
- Latin sources
- Slavic sources

#### **Scientific Archive of BAS**

- Archival materials from the Fund of the Bulgarian Learned Society in the Scientific Archive of the Bulgarian Academy of Sciences (Fund 1K, Op. 1-2)
- Collection V: Microfilms and photocopies of Slavic medieval manuscripts
- Collection X: Slavic manuscripts

Media files can be added to the items in the digital repository. Omeka S accepts most files and file types and can be customised to accept or reject particular file types. There is no file size limitation, however, some server or hosting restrictions may occur. Media files cannot exist independently and are only created by adding them to an item. Any unattached files to items, such as logos and banners, can be uploaded to the Assets page. Regarding the permissions, if a user of the admin site creates a single item or a single collection, they become its owner. The owner can edit and delete their items but only higher user levels can delete items or item sets that others own. As of May 2024, there are approx. 53 000 media files in KYRILLOMETHODIKON and they are predominantly in “jpg” and “pdf” format. Files in different formats for images (jpeg, tiff, ping) and video and audio files (mp3, mp4) may also be encountered.

Each individual item is created in the database, each media file attached to it and each collection of items can be set by the authors as private or public (visible or invisible) by using the eye icon for each property. However, the properties set to private are still visible to Global Admins, Supervisors, and Editors. Authors are able to see all properties on items they own, but cannot see private properties created by other users. Furthermore, items from multiple collections may be combined and contextualised in a digital exhibition. These functionalities are to be developed in the coming year and thematic digital exhibits will be organised on the occasion of various anniversaries and academic events that Cyrillo-Methodian Research Centre regularly conducts.

### **3 User Interactions – Site Admin and Public Site**

As mentioned above, the KYRILLOMETHODIKON repository has two main pillars – site admin (<https://repo.kmnc.bg/admin/site>) and public site (<https://repo.kmnc.bg>). Only registered users can access the administrative site and interact with the metadata

according to their role permissions. The user portal consists of many site pages which are the public-facing sites of the database. Each page displays the content of one or many collections in the repository and is organised differently to the other pages according to the specificity of the metadata it contains. Besides the site pages, some external resources are directly linked to the title page like the website of Palaeobulgarika journal, the Kopisti XIV project, the e-learning platform of the Cyrillo-Methodian Centre and its educational channel on YouTube:



Fig. 3. The site of the digital repository KYRILLOMETHODIKON.

Six user roles in KYRILLOMETHODIKON admin site coincides with the user roles of Omeka S: Global Administrator with full installation privileges, Supervisor with robust site and content privileges, Editor with full privileges for content creation, Reviewer with robust content privileges, Author, who can create own content and Researcher who can search and read privileges only. These roles are separate from site-specific user roles which are: Viewer, with reading privileges only, Creator, with editing privileges of all site's properties, that is, everything available from the site-specific submenu and Manager with full administrative privileges for the site, including adding/removing users and deleting the site. Each registered user can have a different role on the administrative and user portal of the repository using the same profile.

An important part of user interaction with the repository is the ability to search for resources. KYRILLOMETHODIKON offers full-text search on both the administrative and public sites, but also search in a single collection, search by resource templates (for example manuscripts), search by storage location (for example items stored in Vilnius, Library of the Lithuanian Academy of Sciences), search by document type (for example article, protocol, etc.), search by publishing year, search by date, signature etc. Omeka's search capabilities empower users to easily find and access the desired digital assets within the repository following different logic and different searching paths.

## 4 Conclusions

KYRILLOMETHODIKON went online in 2023 and is updated monthly with new content. Its potential as an innovative research environment for shared access to scientific content will grow and will be further upgraded with new collections, plugins and other technological solutions in order to reach target groups with different profiles.

KYRILLOMETHODIKON also enhances the training capacity of the CMRC and offers opportunities for the educational socialisation of scientific achievements in the individual research areas of its collaborators, within the digital space. The modernised educational infrastructure and the effective use of information and communication technologies (ICT) for the development and dissemination of digital educational content on Cyrillo-Methodian studies ensure universal access to knowledge, aligning with modern pedagogical trends<sup>1</sup>.

These resources contain knowledge and act as a "security fund" for the earliest Cyrillo-Methodian period of Bulgarian written culture and its impacts on the pre-modern, modern, and contemporary eras. Transforming literary heritage into a cultural resource for diverse audiences and elevating it beyond the role of symbolic resource for identity identification. We aim to present this heritage to specialists, learners, state and public institutions, organizations, communities, and business players. The portal also facilitates connectivity to similar European platforms and identifies market niches, and market demand expectations at the national and European levels. The cluster provides information on potential resources for cultural tourism and can serve as an aggregator in this regard.

We hope that the new infrastructure will generate activities leading to effective collaborations between science and business, providing resources for the educational, publishing and tourism businesses, also for the leisure industries: creating platforms that make it possible to use cultural resources for commercial purposes.

The creation of a free portal for research in the field of Cyrillic Methodology for different levels of users is a prerequisite for increasing the quality of human resources. In this sense, the prerequisites that the platform provides for training and the creation of educational modules that increase the training of teachers, professors, pupils and

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<sup>1</sup> Universal access to education encourages the use of diverse pedagogical approaches, providing equal opportunities for access to knowledge in different social, cultural, and economic contexts. See: A New Social Contract for Education. UNESCO Courier, 2021. ISSN 2220-2285, e-ISSN 2220-2293.

students and help build research teams in the field of Cyrillic studies are of particular importance.

Thus, KYRILLOMETHODIKON introduces new research and teaching methods leading to an adequate environment and infrastructure for innovation, including digital growth and e-governance.

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