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## From the Middle Ages to the Present – Making the Written Heritage available in the Manuscriptorium, Kramerius and eSbirky.cz Digital Libraries<sup>1</sup>

**Abstract:** During the 1990s, experts from the National Library of the Czech Republic, together with their colleagues from the Albertina Icome Praha company, participated in defining the principles and technological procedures for the digitization of historical manuscripts and other types of library documents threatened by paper degradation, as well as in developing formats that enable work with digitized documents, their management, and accessibility. Since these activities were promoted by UNESCO, the results benefited not only Czech libraries but also the international professional community. Today, the Czech Republic is among the countries with exceptionally advanced technology for digitizing library documents and managing digital data. The Manuscriptorium, Kramerius, and eSbirky.cz digital libraries are widely used tools for accessing the digital content of a significant part of Czech cultural heritage. Manuscriptorium also functions as a European digital library for historical collections. This study presents key moments in the development of library digitization in the Czech Republic and characterizes the above-mentioned digital libraries and describes how digital copies are made accessible.

**Keywords:** Protection of cultural heritage – digitization of library collections – Czech Republic – National Library of the Czech Republic – digital libraries – Manuscriptorium – Kramerius – eSbirky.cz – National Museum

**Słowa kluczowe:** ochrona dziedzictwa kulturowego – digitalizacja zbiorów bibliotecznych – Czechy – Biblioteka Narodowa Republiki Czeskiej – biblioteki cyfrowe – Manuscriptorium – Kramerius – eSbirky.cz – Muzeum Narodowe

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## Introduction

The aim of this text is to describe the development of the technological process and methods used for digitizing documents from Czech library collections, and to introduce the National Library of the Czech Republic as the leading institution in this digitization effort.

It wants to highlight the specific features of the approach chosen by the Czech Republic for the digitization of its written and printed heritage. In some respects, the Czech method of digitization and making digital data accessible differs significantly from the practices of other countries. However, there are areas (primarily the digitization of historical documents) in which the Czech methodology has been adopted and used in an international context. The study presents the main digital libraries that make these digitized documents accessible to users – Manuscriptorium, Kramerius, and eSbirky.cz. Archival collections are left aside.

At the same time, the text also aims to provide up-to-date information, as the available materials describing this topic are outdated and do not reflect developments in recent years.

### A look back at history

The topic of digitizing library documents and making them accessible came to the forefront in Czechoslovakia shortly after the social and political changes that took place at the end of 1989. Coincidentally, this was a time when the issue began to be defined on a global scale. Czech librarians were not simply adopting technologies that had already been developed elsewhere. On the contrary, they were directly involved in their development.

The first attempts at systematic digitization of library collections in the Czech Republic date back to 1992. At that time, a presentation CD was created for UNESCO with samples of digitized manuscripts from the National Library of the Czech Republic collection. It was the first UNESCO project implemented under the Memory of the World program. The result was presented in April 1993 at a meeting of the UNESCO General Information Program Council in Paris. Due to its success, the National Library of the Czech Republic prepared several other outputs in the following years, which defined the theoretical and practical foundations of protective digitization of library documents on an international scale. The library's partner was the technology company Albertina Icome Praha. In 1996, the National Library began routine digitization of manuscripts and historical prints, and in 1999, it also began digitizing 19<sup>th</sup> and 20<sup>th</sup> century periodicals<sup>2</sup>.

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2 For the origins of library document digitization in the Czech Republic, see: A. Knoll, *Look back at digitization in czech libraries: how it was*, [in:] *Digitalizace, aneb, Konec oslich uší: sborník*

Other major Czech libraries soon joined in the digitization of their collections. Due to insufficient and irregular funding for the development of digitization technologies and digitization itself (based primarily on an uncertain system of grants and donations), a regular grant program called VISK (Public and Information Services of Libraries) was launched in 2000 for all Czech libraries, coordinated by the Ministry of Culture of the Czech Republic. These focus, among other things, on the digitization of historical manuscripts as well as modern documents (mainly 19<sup>th</sup> and 20<sup>th</sup> century periodicals) threatened by paper decay. In this second case, the priority at the time was so-called hybrid digitization combining simultaneous digitization and production of microfilm copies<sup>3</sup>.

The digitization process accelerated significantly in 2002. At that time, the Czech Republic was hit by extensive floods and many institutions realized the need to protect their collections and to preserve the Czech cultural heritage through digitization<sup>4</sup>. These activities were supported by the state budget as well as by private donors.

From the very beginning it was evident that the National Library of the Czech Republic, including its Slavonic Library, and the Moravian Library in Brno were the most important libraries in the digitization of library collections. The National Library established a separate digitization department in 1995. In parallel with digitization, the library began to develop appropriate tools for managing digital data and making it accessible.

The turning point came in 2012, when a joint project of the National Library and the Moravian Library in Brno called the National Digital Library (Národní digitální knihovna)<sup>5</sup> was approved<sup>6</sup>. This project was funded by the European Union. The project enabled the development of a Digitization Strategy<sup>7</sup>, the creation of relevant digitization standards, the construction of two modern digitization workplaces, the launch of mass digitization of modern

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vydaný u příležitosti stejnojmenné konference konané 14.–16. 6. 2010 v Městské knihovně v Praze, Praha 2010, pp. 181–192.

3 This technology is described in the paper: J. Polišenský, *Zpřístupnění ohrožených fondů pomocí hybridní technologie reformátování*, [in:] *Knihovny současnosti 2000*, Brno 2000, pp. 163–170.

4 For more details on the damage caused to Czech libraries at that time and the rescue efforts, see: J. Polišenský, *Povodně a knihovny*, “Národní knihovna” 2002, vol. 13, no. 4, pp. 301–304.

5 <https://www.ndk.cz>

6 The National Digital Library project is described in detail in the paper: J. Hutař, M. Melichar, B. Stoklasová, *Národní digitální knihovna*, “Knihovna: knihovnická revue” 2009, vol. 20, no. 1, pp. 6–21.

7 M. Bežová, *Ochranná digitalizace z fondů Národní knihovny České republiky*, “Acta Musei nationalis Pragae. Historia litterarum” 2022, vol. 67, no. 3–4, pp. 162–165; M. Bežová, V. Halama, *Národní strategie digitalizace novodobých knihovnických fondů*, “Knihovna plus” 2023, no. 1, [online] <https://knihovnaplus.nkp.cz/archiv/2023-1/informace-a-konference/narodni-strategie-digitalizace-novodobych-knihovnich-fondu> [accessed 11.09. 2025].

Czech book production, and the development of tools for permanent preservation and appropriate access to digital copies of documents. More than 100,000 documents were digitized within the project<sup>8</sup>. Thanks to the processes set up at that time, the gradual digitization of Czech documents published from the end of the 19<sup>th</sup> century to the present day is still underway.

The National Digital Library was not the only digitization program of the National Library. Thanks to a project supported by the so called “Norway Grants”, almost 17,000 Bohemian monographs published during the 19<sup>th</sup> century from the National Library’s collection were digitized and made accessible between 2007 and 2010<sup>9</sup>. This was followed up in 2011–2025 by a joint project of the National Library and Google. This enabled the digitization of approximately 220,000 volumes of historical and 19<sup>th</sup> century prints from the collections of the National Library and the Slavonic Library (department of the National Library of the Czech Republic for Slavic Studies).

The latest large-scale digitization project, which the National Library of the Czech Republic joined in 2024, is the Russian Diaspora Initiative, coordinated by the Hoover Institution<sup>10</sup>. This will allow to digitize the most valuable part of the world’s unique collection of Russian émigré newspapers and journals, which is stored in the Slavonic Library and has been listed in UNESCO’s Memory of the World Register of the world’s written cultural heritage since 2007<sup>11</sup>.

The digitization carried out by the National Library has been appreciated by the government of the Republic of Korea. In 2005, it awarded the library the Jikji – Memory of the World Prize for its approach to the protection and accessibility of world cultural heritage.

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8 The process and results of the project are summarized in a chapter of the National Library of the Czech Republic’s annual report for 2014: *Summary of the Project The Creation of the National Digital Library*, [in:] *National Library of the Czech Republic. Annual Report 2014*, Prague 2015, p. 9, [online] <https://www.nkp.cz/en/file/3f7b455fd2d87a731369e6e00d4684/7140/ar2014.pdf?dl> [accessed 20.09.2025].

9 O. Lehl, J. Polišenský, *CZ0029 – Rescue of non-periodical bohemian documents of the 19<sup>th</sup> century endangered by paper degradation*, [in:] *Digitalizace, aneb, Konec oslích uší: sborník vydaný u příležitosti stejnojmenné konference konané 14.–16. 6. 2010 v Městské knihovně v Praze*, Praha 2010, pp. 207–214; J. Polišenský, *Účast NK ČR v projektu Norské fondy – digitalizace bohemikálních monografií ohrožených degradací papíru*, [in:] *Knihovny současnosti 2009: sborník ze 17. konference, konané ve dnech 23.–25. června 2009 v Seči u Chrudimi*, Brno 2009, pp. 167–172.

10 *Transformative Donation Will Make Global Russian Émigré Newspapers Available Digitally*. 30.03.2023, [online] <https://www.hoover.org/news/transformative-donation-will-make-global-russian-émigré-newspapers-available-digitally> [accessed 11.09.2025].

11 L. Babka, *Emigrantská periodika ze sbírek Slovanské knihovny a jejich zápis do seznamu UNESCO “Paměť světa”*, “Knihovna – knihovnická revue” 2007, vol. 18, no. 2, pp. 15–22.

Currently, approximately 35 libraries in the Czech Republic are involved in digitizing their collections (of varying intensity). According to data provided by the Digitization Registry (Registr digitalizace)<sup>12</sup>, which records documents digitized in the Czech Republic through public sources, more than 580 000 volumes of printed and manuscript documents have already been digitized, including approximately 8800 periodical titles<sup>13</sup>. According to the number of digitized documents, the most successful institutions are the National Library of the Czech Republic, the Moravian Library in Brno, the Map Collection of the Faculty of Science of Charles University and the Slavonic Library.

### Digital Libraries

Two digital libraries are mainly used in the Czech Republic for accessing digital copies of books and periodicals: 1) Manuscriptorium for manuscripts, historical maps and old prints (books published before 1800) and 2) Kramerius for modern production published after 1800.

Another important tool providing access to digital copies of artworks, 3D objects, and visual documents from Czech museums, galleries, and libraries is the eSbirky.cz portal.

### Manuscriptorium

The Manuscriptorium portal<sup>14</sup> integrates several functions. It is:

1. a comprehensive online catalogue of historical collections published before 1800;
2. a digital library of manuscripts, incunabula, old prints and historical maps;
3. a virtual research environment that facilitates studying historical documents, enables various forms of work with texts, comparing different versions of manuscript texts or creating virtual collections and exhibitions. This virtual research environment is being developed in particular for the new, fourth version of Manuscriptorium;

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12 <https://registrdigitalizace.cz>

13 For further details on the tasks and purposes of the Digitalization Registry, see: H. Dvořáková, *Registr digitalizace: evidence dokončené, probíhající i plánované digitalizace v ČR a nástroj k ochraně před duplicitní digitalizací*, "Ikaros: elektronický časopis o informační společnosti" 2014, vol. 18, no. 3, [online] <https://www.ikaros.cz/registr-digitalizace> [accessed 11.09.2025]; T. Foltýn, *Has It Been Already Digitized? How to Find Information about Digitized Documents*, "Review of the National Center for Digitization, Faculty of Mathematics, Belgrade" 2013, issue 22, pp. 7–14, [online] <http://elib.mi.sanu.ac.rs/files/journals/ncd/22/ncd22007.pdf> [accessed 11.09.2025].

14 <https://manuscriptorium.com>

#### 4. a Europeana sub-aggregator for the historical resources.

The first version of Manuscriptorium was launched in 2003, and in 2025, its completely new, fourth version was put into full service. Manuscriptorium is the product of a cooperation between the National Library and the technology company AiP Beroun (one of the successors to the above-mentioned Albertina Icome Praha). This partner is also the most important company in the Czech Republic focusing on the digitization of historical (especially manuscript) documents.

Thanks to its architecture, Manuscriptorium enables the aggregation of data from different partner institutions in one place, using a specially developed protocol for communication with other linked databases<sup>15</sup>. It currently makes metadata or digital copies available from more than 226 partner institutions in 29 countries. In the case of the Czech Republic, there are 72 participating institutions (libraries, museums, archives) that are digitizing their historical collections in some way. Thanks to this rich cooperation, Manuscriptorium integrates approximately 413,000 catalogue records and more than 175,000 digitized documents containing more than 62,000,000 images. The entire content of the Manuscriptorium is freely available to the public. Basic work (searching the catalogue, viewing digital copies) can be done without registration, for more advanced activities, such as storing processed data, creating virtual exhibitions and other, free registration is required.

### Kramérius and the Czech Digital Library

The Kramérius system<sup>16</sup> has been developed as an open-source software to provide Czech libraries with easy access to digitized books and periodicals<sup>17</sup>. The first version of the system, developed by the National Library of the Czech Republic and the Library of the Czech Academy of Sciences, was fully launched in 2003<sup>18</sup>. The Moravian Library in Brno and the Olomouc Research

15 The technical solution for the functioning of this type of union catalog and digital library is described in the paper: A. Knoll, Z. Uhlíř, S. Psohlavec, T. Psohlavec, *Creation of an International Digital Library of Manuscripts: Seamless Access to Data from Heterogeneous Resources (ENRICH Project)*, [in:] *Rethinking Electronic Publishing: Innovation in Communication Paradigms and Technologies. Proceedings of the 13th International Conference on Electronic Publishing, ELPUB 2009. Milan, June 10–12 2009*, Roma 2009, pp. 335–348.

16 <https://system-kramerius.cz>

17 T. Foltýn, *The Kramérius System – Open Source Solution for Digital Libraries*, [in:] *Proceedings of the Third Workshop on Very Large Digital Libraries*, Pisa 2010, [online] [https://iris.cnr.it/retrieve/b0fa10e9-fd96-4236-b1d2-3a69c96d1181/prod\\_139082-doc\\_132358.pdf](https://iris.cnr.it/retrieve/b0fa10e9-fd96-4236-b1d2-3a69c96d1181/prod_139082-doc_132358.pdf) [accessed 11.09.2025].

18 For more details on the beginnings of the Kramérius library, see: I. Ljubka, *Kramérius – vývoj aplikace pro zpřístupnění*, [in:] *Knihovny současnosti 2008*, Brno 2008, pp. 91–94; J. Polišenský,

Library were also involved in the further development of the software. Currently, the version 5 of *Kramerius* is most widely used, which is gradually being replaced by version 7. The new version is designed to meet the current user requirements in terms of functionality and design, to cope with the huge number of digitized documents, to provide the possibility of creating virtual collections, and at the same time to deal with the issue of accessibility of documents in accordance with the copyright law. It is also integrally involved (at least in the case of the largest Czech libraries) in a complex digitization workflow that starts with the selection of the document to be digitized and ends with the storage of comprehensive data packages in the LTP repository.

The disadvantage of *Kramerius* is the fact that every library digitizing its documents has its own *Kramerius* installation. It therefore only makes available documents digitized by that library. There are currently around seventy of these individual installations. The biggest one *Kramerius* library is the National Digital Library created by the National Library of the Czech Republic and Moravian Library on Brno, which contains about 267 000 documents. It is possible to find out whether the document you are looking for has been digitized by using the above-mentioned Digitization Registry, which contains data on all library documents digitized thanks to public sources, as well as by randomly searching in the Union Catalogue of the Czech Republic (*Souborný katalog České republiky*)<sup>19</sup> or by browsing the catalogues of individual libraries.

This problem is solved by a tool called the Czech Digital Library (*Česká digitální knihovna*).<sup>20</sup> The Library of the Czech Academy of Sciences started its development in 2015. Since 2022, the National Library of the Czech Republic and the Moravian Library in Brno have joined the project. The aim of the Czech Digital Library is to make digital copies of all individual installations of the *Kramerius* system and other digital libraries used in the Czech Republic available in one central interface. The Czech Digital Library regularly indexes the catalogues of the individual *Kramerius* digital libraries of the participating institutions and then dynamically downloads the required digital copies to the unified interface. The digital copies themselves remain stored in the repositories of the institutions that digitized the document. The Czech Digital Library is a Europeana sub-aggregator for the modern digitized documents published after 1800<sup>21</sup>.

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*Systém Kramerius[.] nový nástroj pro zpřístupňování digitálních dokumentů*, [in:] *Sbírkový počítač: muzea, archivy a knihovny v éře digitálních informací*, Praha 2004, pp. 88–92.

19 <https://aleph.nkp.cz/cze/skc>

20 <https://ceskadigitalniknihovna.cz>

21 M. Lhoták, *Česká digitální knihovna*, “Duha: informace o knihách a knihovnách z Moravy” 2016, vol. 30, no. 3, pp. 7–11.

Currently, the Czech Digital Library displays documents from 14 Czech institutions, several more will join in the near future. It offers access to approximately 362,000 digitized titles.

#### List of works unavailable on the market

The Czech Digital Library can also reflect the parameters of copyright protection of digitized titles and make them available to users in accordance with the specific settings. In the Czech Republic, in general, titles of periodicals that have been published more than 110 years ago and monographs whose authors have been dead more than 70 years ago are freely available. Of all digitized titles available in the Czech Digital Library, only 17% are freely available; all remaining are copyrighted and must be studied directly in libraries.

However, since 2020, a project called “List of works unavailable on the market” (*Díla nedostupná na trhu*)<sup>22</sup> has been implemented in cooperation with the National Library of the Czech Republic, the Ministry of Culture of the Czech Republic and the relevant associations of authors and other copyright holders. This allows to make available to the readers of the libraries connected to the project documents that are unavailable on the book market (they cannot be purchased in bookshops) and which were published in the territory of the today’s Czech Republic more than 10 years ago in the case of periodicals and more than 20 years ago in the case of monographs. All titles falling into this category are available via remote access, while a smaller number outside the list can only be accessed from the premises of the participating libraries.<sup>23</sup> Annually, the Ministry of Culture pays a fee to the associations providing copyright protection, which they redistribute to specific authors. Thanks to this project, the number of digitized documents available in the Czech Digital Library that can be studied via remote access has increased to approximately 80%.

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22 <https://dnnt.cz>

23 For more about the program “List of works unavailable on the market” see: V. Richter, *Zpřístupnění plných textů digitalizovaných knih a periodik prostřednictvím Národní digitální knihovny*, “Informace: zpravodaj Knihovny AV ČR” 2020, no. 2, [online] <https://lib.cas.cz/casopis-informace/zpristupneni-plnych-textu-digitalizovanych-knih-a-periodik-prostrednictvim-narodni-digitalni-knihovny-recenzovany-clanek> [accessed 11.09.2025].

## eSbirky.cz

The last digital library presented in this paper is the eSbirky.cz project<sup>24</sup>. It has been operated and developed by the National Museum since 2010<sup>25</sup>. The portal is intended primarily for the presentation of digitized copies of artworks and 3D objects held in Czech museums and galleries, but it also enables effective access to visual documents managed by Czech libraries. Currently, the portal provides access to more than 281,000 documents from 220 Czech institutions. In its focus area, eSbirky.cz operates as a content aggregator for the Europeana. For the author of this text, the portal is important because the Slavonic Library uses it to present the rich visual collections which it manages. The library joined the portal in 2021. It currently provides access to copies of 6,400 documents from 10 collections housed in the Slavonic Library.

## Conclusion

The digitization of manuscripts, historical prints, modern books and periodicals as well as visual collections in the Czech Republic has been in process for more than 30 years, and due to the scope of this cultural heritage, it is uncertain whether it will ever be fully completed. The faster digitization process is mainly hindered by the financial demands of digitizing certain types of documents, their often-poor physical condition, which requires restoration before digitization, and the limited personnel capacity of digitization workplaces.

To get an idea of the situation of digitization of written and printed heritage in the Czech Republic, it would be useful to compare it with other countries, whether ethnically Slavic or members of the European Union. This comparison could reveal both the strengths and weaknesses of the situation in the Czech Republic. At the same time, it could serve as inspiration for remedying problems and following suitable examples. However, this was not the aim of the text; preparing such a comparison would require separate research of the topic. Despite the absence of an international comparison, it is evident that the Czech Republic is an advanced country in the field of digitization of library collections, not only in terms of the number of digitized documents and the way they are made available, but also in terms of storage and management of digital data.

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24 <https://www.esbirky.cz>

25 V. Botová, K. Musílková, *Portál eSbirky – prezentace muzejních a galerijních sbírek nejen z fondu Národního muzea*, “Ikaros: elektronický časopis o informační společnosti” 2011, vol. 15, no. 3, [online] <https://www.ikaros.cz/portal-esbirky-prezentace-muzejnich-a-galerijnich-sbirek-njen-z-fondu-narodniho-muzea> [accessed 11.09.2025].

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