Establishment of
Multimedia Historic and Cultural Resource
of Multipurpose Electronic Library

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Abstract
The technology aspects of creating the multipurpose electronic library are examined. The historic and cultural resources of V. Vernadsky National Library of Ukraine and experience of creation of digital objects are described. Digital presentation of the objects of cultural heritage becomes topical under technological changes in nature of information and forms of its presentation, and contributes to solve problems of long-term storage and easy use of information about these objects, their visual images and digital multimedia copies or analogies. Directions for development of technologies for creating the electronic multimedia resources are defined.

The scientific assignment of this research has the aim to develop information technology and digitizing methods for the objects of Ukrainian historic and cultural heritage. Digital presentation of the objects of cultural heritage becomes topical under technological changes in nature of information and forms of its presentation, and contributes to solve problems of long-term storage and easy use of information about these objects, their visual images and digital multimedia copies or analogies.

Much of what was accumulated by the society in history is kept in libraries and archives. Historic and cultural heritage of the Ukrainian people is an important component of the world cultural heritage. Ukrainian libraries have in their reserves unique collections of ancient Slavonic books, incunabula, paleotypes, ancient imprints, collections of printed fine arts materials, music editions, recordings of musical compositions on various mediums, archives of historic documents etc.
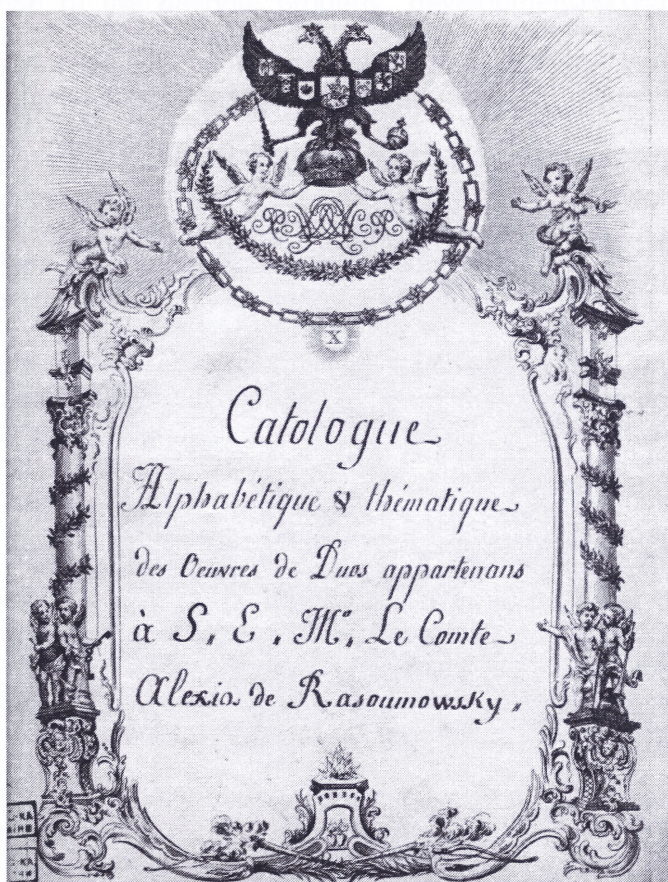
The music department of the V. Vernadsky National Library of Ukraine contains some unique collections such as a collection assembled by the Counts Rosumovsky, a collection of early printed music of the 18th century assembled by the Ukrainian amateur Oster I. Gavrush-kevich, a collection of Jewish Sheet Music; and a collection of unprinted manuscripts of contemporary Ukrainian composers.

The National Library of Ukraine keeps uncommon materials connected with German music. The large collection of German documents is based on the library of the Counts Rosumovsky. Rosumovsky music library posseses a wide assortment of German symphonic and chamber music, printed and MS, of the 18th century. Among the German composers are C.F.Abel, J.Ch.Bach, J.Braun, J.Ch.Cannabich, W.Cramer, E.Eichner, J.Ch.Fischer, I.Franzl, S.George, K.W.Glosch, Ch.E.Graf, C.H.Graun, J.F.Grenser, F.Grosse, Ch.K.Hartman, J.A.Hasse, J.F.Kloffler, G.A.Kreusser, J.Kuchler, L.Lebrun, J.G.Mezger, J.Quantz, F.X.Richter, V.Roeser, J.A.Schmitbaur, J.Schmitt, F.Schwindl, M.Stabinger, C.J.Toeschi, J.Ch.Vogel, C.F.Weideman, J.B.Wendling, E.W.Wolf, B.F.Zinch.

The collection assembled by the Counts Rosumovsky comprises 1703 works of the 18th and early 19th century: operas, oratories, cantatas, symphonic and chamber music and includes music books, printed music (first and early editions), manuscripts and autographs. There are many early manuscript copies of Italian and German composers who lived in Russia in the 18th century such as Astaritta, Anfossi, Paisiello, George, Georg Sebastian and others. Some of their works were not printed at all.

The collection was assembled by Alehsey Rosumovsky, the son of Ukrainian peasant (kozak) Rosum, the Empress Elizabeth's favourite; by the last Ukrainian governor Kiril Rasumovsky (1728-1803); by his son's minister of education Alehsey Rosumovsky (1748-1822) and the diplomat, Russian ambassador in Naples, Stockholm and Vienna, Andrey Rosumovsky (1752-1836), who played the violin, was an music educated amateur and made the acquaintance of Haydn, Mozart, Beethoven. Great Beethoven dedicated some of his works (Fourth op. 59,. The 5th and 6th symponies) to Andrey Rosumovsky.

Eight catalogues of instrumental music of the 18th century are in excellent state of preservation. These 8 catalogues present the music library of Alehsev Rosumovsky II (Pic.1). Each of these catalogues represents a definite genre: duet, sonata, trio, quartet, quintet, sextet, concert, concert symphony, symphony. The date of the first catalogue is after 1776. These catalogues (manuscripts) are unique as the first Ukrainian domestic bibliographical books of music.The catalogues were constructed according to type, music, incipit with tempo and dynamics, composition of ensemble, author, opus number, printed edition of manuscript and tonality. A total of 678 music editions and manuscripts have been catalogued representing music of the 70s and 80s of the 18th century and more than 230 west european composers.

Picture 1. Rosumovsky's Catalogue

The Rosumovsky music collection shows us the high level of the culture of the Ukrainian noble society in the 18th century. Some works of the collection, performed at first in Kyiev, were well received by numerous amateurs. It is necessary to continue to examine the music library which belonged to the counts Rosumovsky.

The research is aimed to develop technological bases and methods to transform the objects of cultural heritage into digital formats taking into account their further migration to mediums appearing with technical achievements, and to establish technologic conditions of their use.

Theoretic importance of the research consists in development of digitizing methods and multimedia presentation of the objects from historic and cultural library reserves bearing in mind specific features of different types of documents.

Practical significance of the research lies in development of technologies and methods, which reproduce informational contents and visual images of the objects of historic and cultural library reserves in electronic environment in order to be used in multiple aspects by the library specialists, researchers in various activities, students, pupils, and all who want to get the access to spiritual heritage of the mankind. Digitizing of documents, which face the danger of physical loss, has a great importance for preservation of historic document collections.

One of the ways to achieve the objective is formation of historic and cultural informational resources within multipurpose electronic libraries. The term "electronic" generalizes the features like digital presentation of information, computer hardware, local or network use.

It is expected to create collections of digital copies or analogues of diversity types of textual and non-textual material (objects), which kept in traditional libraries. There are book, article from periodic publishing, dissertations, normative documents, cards, music, art collections, audio and video material and so on.

The research is carried out within the scope of scientific assignments from the National Library of Ukraine named after V.I. Vernadsky. The work resulted in establishment of scientific electronic library (www.nbuv.gov.ua/ep/) and development of technology forming its informational resources.

The digital analogies of scientific texts, which created by authors or publishers, are placing into electronic library now. There are more then 19 thousands of texts in on-line accesses. It is necessary the digitization for creating collection non-textual objects and rarity paper collections.

The digital formats used in Internet are preferable for presentation the electronic library objects. The are PDF and HTML for textual material, JPEG for non-textual objects, MP3 and MPEG4 for multimedia.

It is necessary to take into account the purposes of using the digital analogues when the parameters of digitization of non-textual material are choosing. Sometimes it is necessary to create several digital images with different parameters of digitization for one object. For example, it is reasonably to state the small scanning resolution when image for presentation in Internet is creating. The big scanning resolution and TIFF-format must be selected when the digital image with best parameters necessary for detailed study is creating. The digital images with large sizes must be recording on CD.

In 1999 was created an electronic copy of first Ukrainian printed book Lvivsky Apostle, 1574 (Pic.2). It is on-line book with general information of this rarity and images of all its pages (www.nbuv.gov.ua/books/rarity/apostol/index.html).

In 2000 Handwritten scores of concertoes by Vedel were published (Pic.3). Digitization of scores of Vedel's concerto № 6 and concerto № 11 is made in 2001 year (Pic.4). Numerical analogues of scores are presented in the electronic library (www.nbuv.gov.ua/articles/2000/00va6jne.pdf; www.nbuv.gov.ua/articles/2000/00va11nm.pdf). Audio-record Vedel's concerto № 11 was converted from the musical format into the format MP3, which used for the presentation of music in Internet. The digitization of the incepit of work was maked too. It is planned to use incepits as searching elements for music objects of electronic library.

For the presentation of any object at the multipurpose electronic library it is offered the universal model of electronic library object. This model is a combination of various digital formats and consists of the search model, visual image and/or multimedia analogues of objects or their parts.

Search model is the textual descriptor of object. It is requiring for organizing the effective searching in multipurpose electronic library collections. The bibliographic description format UNIMARC is using for creating objects search models. The search model include catalogued and subscripted metadata such as information on the author, title, data of creation or publications of work, index determined, systems to categorization, abstract (a short contents of textual work or description non-textual object).

Further development of electronic library informational resources should be connected to establishment of multimedia exhibits to certain types of electronic documents, with creating the multimedia appendices and multimedia analogues of key fragments of the works to bibliographic databases, which will introduce new quality into resources of the electronic library and provide the most complete ideas about each separate work or object.

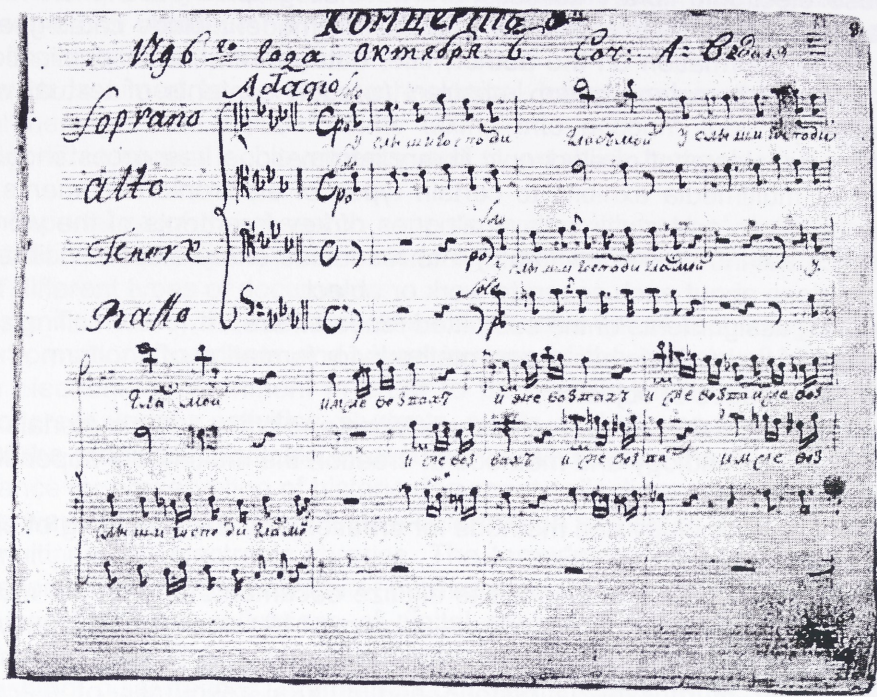The main assignments of the submitted research are:

1. Development of technologic bases and methods for formation of:
   - multimedia images of objects;
   - multimedia fragments of musical compositions and other audio materials.
2. Development of technology and methods of creation the multimedia appendices for documents and bibliographic databases.
3. Development of technology and methods for creation and CD recording of electronic document collections with multimedia exhibits.

During the research it is planned to digitize documents and create multimedia fragments of works from special reserves of the National Library of Ukraine named after V.I. Vernadsky, and then to transfer them to reserve of the electronic library and to CDs as collections of topics.
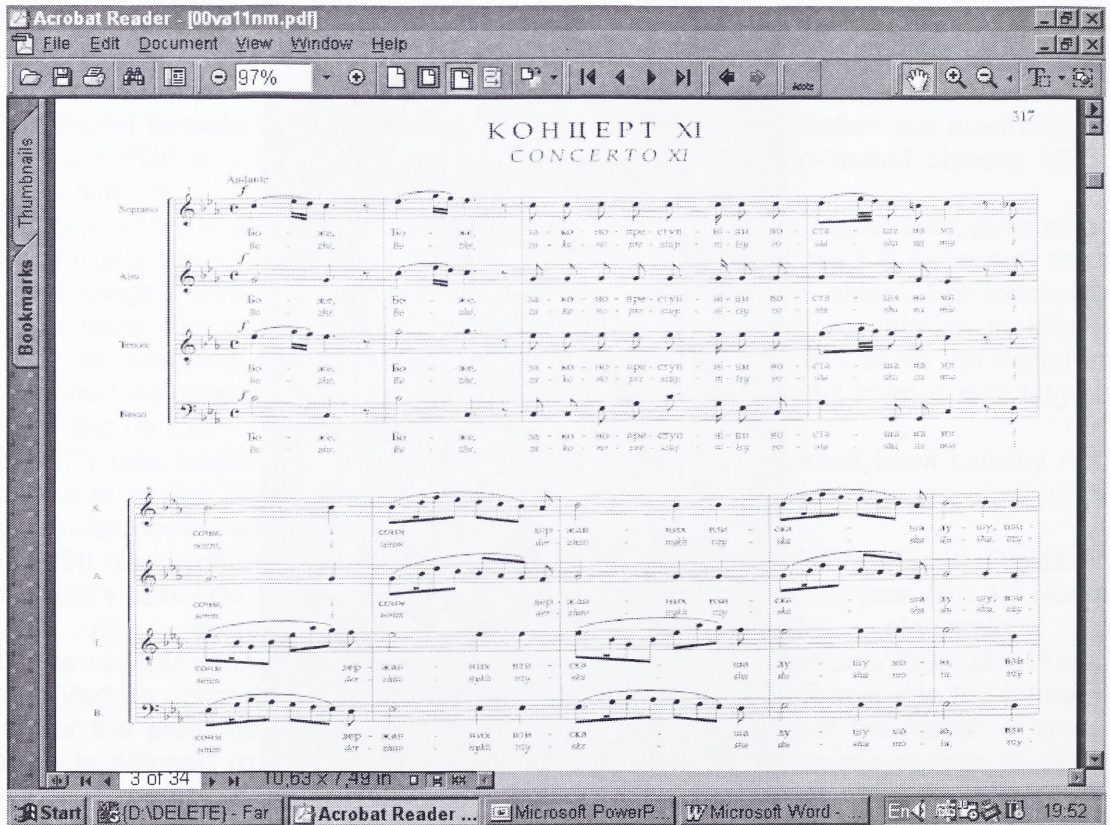
Establishment of multimedia historic and cultural resources of electronic libraries will contribute to preservation of the national property, development of national culture, science, modern levels of educational processes and the worthy presentation of the Ukrainian people's heritage to the world community.

Picture 2. Page 16 from Lvivsky Apostle

Picture 3. A. Vedel's autograph

Picture 4. Digital Copy of Vedel's Score (first page)