

# Digital Library “The Great War” – development and results

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**ABSTRACT:** While working on the project *Europeana collections 1914–1918*, the expert team of the National Library of Serbia made a decision to create a separate, thematic digital library, which would contain materials from the period of the World War I related to Serbia and the Serbian people. The paper gives an overview of the process and all the stages involved in the development of the portal and digital library *The Great War*. With the help of Google Analytics service, conclusions and basic statistics on the use and users of this digital library were presented.

**KEYWORDS:** digital library, The Great War, the First World War, National Library of Serbia, development, users, statistics.

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## 1 Introduction

On the occasion of marking the centennial since the beginning of the First World War, the International Foundation *Europeana*<sup>1</sup> launched several projects in 2012: *Europeana collections 1914–1918*,<sup>2</sup> *Europeana 1914–1918*<sup>3</sup> and *EFG1914*.<sup>4</sup> All of these projects had a common goal – to digitize publications and objects from the 1914–1918 period and make them available to public, as well as materials from a later period that are thematically related to the First World War (Калезић, 2014).

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<sup>1</sup> [International Foundation Europeana](#) (accessed on 27/03/2019)

<sup>2</sup> [Europeana collections](#) (accessed on 27/03/2019)

<sup>3</sup> [Europeana](#) (accessed on 27/03/2019)

<sup>4</sup> [European Film Gateway 1914](#) (accessed on 27/03/2019)

The basic idea of the *Europeana collections 1914-1918* project was to digitize and make available online materials from the collections of nine national libraries of the countries that participated in this historical conflict on different sides. The library material from this period, until this moment available for use only in reading rooms of these libraries, is often in very poor physical condition concerning its age and quality of production, so their digitization greatly contributed to preservation and protection of this sensitive material. In this way, over 400,000 publications have been digitized and preserved for the future, and have been given free access at the website of the project. The National Library of Serbia is one of the twelve equal partners in this project. The creation of the portal *The Great War*,<sup>5</sup> with the digital library being its most significant part, was one of the results of participation of the NLS in the project. According to the project guidelines, all of the materials originating from the First World War period related to the Kingdom of Serbia and the Serbian people were included in this digital library. Development of the portal began in November 2012, and the first version was installed on January 5, 2013. The public promotion was held on the Day of the National Library of Serbia, February 28, 2013.

## 2 The Great War Digital Library – selection of material

The types of material included in the digital library *The Great War* are defined by the *Europeana collections 1914-1918* project guidelines: books, periodicals, war diaries, printed music, children's literature, photographs, posters, propaganda materials and everything else that can be found in the collections of national libraries and their digital counterparts. However, the selection of material to be digitized and included in the digital library *The Great War* was largely conditioned by the specific position of the Kingdom of Serbia and the Serbian people in the First World War.

At the beginning, the 20<sup>th</sup> century publishing in Serbia was largely undeveloped, with the majority of the material, nearly 80% of it, being published in Belgrade. During the First World War, at the time when Belgrade became a front line and remained so for more than a year, Serbian publishing had suffered an additional blow because of the general scarcity. However, the occupation of Serbia in 1915, the retreat of the army and state apparatus through Albania to Greece, and later the dispersal of refugees across

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<sup>5</sup> [The Great War](#) (accessed on 10/04/2019)

Western Europe and the world led to the opening of new centers of publishing activity of the Serbian people. Serbian printing offices in Corfu and Thessaloniki were established, while the printing office of Serbian military invalids in Bizerte in Tunisia was especially active. Scientific editions and school leaflets in Serbian or languages of the host countries appeared at university centers of Western European countries (France, Great Britain, Italy, Switzerland), while pro-Yugoslav emigration in South and North America published a number of publications devoted to the war and ideas of the establishment of the Yugoslav territory after the war. At the same time, , the Austro-Hungarian and Bulgarian authorities were publishing their newspapers, proclamations to the public, etc. in occupied Serbia. A large number of propaganda brochures were published in the Austro-Hungarian Monarchy with a purpose of strengthening loyalty of the Slavs, and especially the Serbian population to the Monarchy (Калезић, 2014).

Bearing all historical circumstances in mind, for the selection of materials and creating this digital library, it was necessary to form a multidisciplinary team composed of librarians, historians, IT professionals, history teachers and professors. The set goals were to make the material as comprehensive as possible, but also to present it in such a way that the search and use of the material is easy, whether for a beginner or more advanced digital library users. The comprehensiveness of the material could not be achieved if there was no cooperation with other institutions from the country and worldwide, which by digitizing the material from their own collections significantly enriched this digital collection. Some of the institutions with which the National Library of Serbia had cooperated are: the Archives of Serbia, the National and University Library of the Republic of Srpska, the Military Museum, the National Assembly of the Republic of Serbia and many others (Калезић, 2014).

In the possession of the Special Collections Department of the National Library of Serbia, apart from the mentioned material, a large number of diaries, letters, photographs and other materials are kept, which provide insight into the daily life of the occupied population, as well as soldiers at the front, wounded in hospitals and prisoners. By incorporating these materials into the digital library *The Great War* the goal set by the expert team of the project was fulfilled – to give users an opportunity to comprehend and understand many social processes in given period, that significantly changed the image of Serbia, Europe, and even the world. Accordingly, and taking into account the needs of future users, it was decided that the material

important for the study of this period which was published after the First World War until 1941, should also be included.

### 3 Creating the collection

After the selection of materials was done, the work on its digitization has started. Employees from the Department of Digitization of the National Library of Serbia started this task. As the scope of work and the pressure to finish digitization in a certain period of time grew, it became clear that help from the outside was necessary. Shortly thereafter, a contract was signed with the *Ebart Media Archive*, which as the subcontractor continued the digitization process. It was agreed that the resolution of the scanned material should be 300 dpi. Apart from material from the National Library of Serbia, materials from partner institutions that were not eligible for digitization were also scanned by *Ebart*. Certain institutions that were able to do so according to the guidelines they received from the National Library of Serbia, delivered finished digital copies. Work on digitization lasted for about two years. Today, the digital collection of *The Great War* contains 9,698 documents of all categories of material, on 96,473 pages.

For the entry and display of digitized material, the open access platform of Omeka v. 1.5.3<sup>6</sup> was chosen. The applied metadata scheme is Dublin Core Extended.<sup>7</sup> Each entered item has an appropriate description, which is linked to the bibliographic description in the local database of the National Library of Serbia via the COBISS ID number. Metadata is partially downloaded to the system, and partially manually entered. The advantage of this method is that the automatically downloaded descriptions and data already passed bibliographic control, which reduced the possibility of incorrect and unverified information. The material that was added to the digital library on the basis of cooperation with other institutions was also described in accordance with the current standards (Калезић и Михаиловић, 2014). The entry of the material that consists of a large number of connected digital objects, such as books or periodicals, was facilitated with the installation of Dropbox app. Namely the technical capabilities of the installed version of Omeka did not allow the simultaneous entry of multiple digitized pages, but they had to be entered separately. By installing the Dropbox it became possible to enter a

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<sup>6</sup> Omeka (accessed on 23/05/2019)

<sup>7</sup> Dublin Core Extended (accessed on 23/05/2019)

complete folder – with all the digitized pages of a single document to Omeka at the same time.

For periodical publications, the metadata scheme was specifically developed. The basic description for the individual title was taken from the COBISS system, but for a description of individual issues, additional information had to be entered. So in this case, the date of the individual issue was entered next to the title, and by filling in additional fields in the metadata scheme, more detailed identification and connection with the basic description for the entire title was enabled. Thus, the following fields were filled in: *Description* – with a year and an issue number, *Date* – with a date, and the field *Is part of* – with a link that leads to a description of the entire title, i.e. collection.

Due to the fact that the calendar application could not be installed, and with the aim of further simplifying the later search, the Omeka *Tags* were used for a month and a year of a publication, using the following structure: the Roman numerals were entered for a month, and the Arabics for a year. With these tags, it became possible to form a segment *Available material* next to a description of an individual title, which will be discussed later.

Metadata for cartographic materials is additionally enriched (Glišović and Gardašević, 2015). In order to overcome the language barrier and provide users with additional information about digitized maps, it was decided to enter a URI (Uniform Resource Identifier) in the field named Spatial Coverage. In this case, as a URI, a link to the geographic database GeoNames<sup>8</sup> is used. By clicking on a link, you get information about particular geographic location, e.g. population, region, geographic coordinates, different versions of names, etc. Due to various limitations, it is not possible to use all versions of geographic location names from the GeoNames database in a search of cartographic materials, but for most toponyms, the *Alternative Title* field has been filled in with English version, thus facilitating a search for users who do not know the Serbian language (Glišović and Gardašević, 2015).

At the time of writing the project, which was the end of 2012, the technical capabilities of the Omeka program did not allow the full-text search of the documents. Having these deficiencies in mind, the expert team had made efforts in these ways to overcome this shortcoming of Omeka.

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<sup>8</sup> GeoNames (accessed on 10/04/2019)

## 4 Search and display of results

All of the items in the digital library *The Great War* have been sorted into collections for easier navigation and more transparent data display. Formal and content principles were used to form collections. The formal one followed the basic division of materials according to their type, but the content one proved to be necessary. In this way, the material is divided into the following collections: books, periodicals, manuscripts, posters, paintings, cartographic materials, and various items. However, members of the expert team, based on their experience in working with other digital libraries, and also through research of historical material, considered it useful to form sub-collections, because the collections would be more difficult to search if the formal principle of material distribution remained the only one applied. So, for example, in the collection Books, there is a division into several sub-collections, some of which are: *Literature*, *Legal Regulations*, *The Great War of Serbia*, *The Progress Library*. This has been done with the intention of grouping related publications in one place and providing users with easier navigation and comparative analysis of individual titles.

The title screen contains the keyword search. Also, users can independently navigate through specific collections. Next to the individual titles of periodicals, on the right side of the screen there is a segment *Available material*, where users can browse through the years and months, and the material from the specific period of time can be directly accessed.

However, thanks to the advanced search capabilities, users can significantly narrow search criteria, practically by all elements of a description of a digitized object, such as year of publication, author, type of material, etc. Further narrowing of a search can be done using collection filters or the aforementioned *Tags*. To search using the *Tag*, one should take into account that query format must match the structure of these tags, so when searching, the month mark must be entered in Roman numerals, the year in Arabic and they must be separated by comma, for example: II, 1915.

As a result of a search, a page with results that match the set parameters is shown, with a small image, a title and a year of publication of an item. By clicking on any of these two, a page with a detailed description of the requested publication and a reduced display of the first page of digitized material opens. By clicking on a picture, a digital object opens further and, depending on a type of material, it is possible to continue to scroll through with the arrows, but also to skip to the desired page. The material can be zoomed in, and the right click allows a page to be saved as an image on the

user's computer. General conditions for usage of files downloaded from *The Great War digital library*<sup>9</sup> are defined in the *Terms of Use* section.

## 5 Additional content

Since the very beginning, there was a plan for *The Great War* to be used as an auxiliary tool in schools. The idea to form a section *Learning*, along with the digital library, was born thanks to some members of the expert team who had a long-standing experience in education. Through this segment, teachers and students are able to find and use materials related to the First World War as a teaching tool. Teachers can find pedagogical advice, educational standards for the primary education in the field of history, recommended materials on selected topics, and preparation for classes with links to material on the portals *The Great War* and *Europeana*. Although it is closely related to the First World War, this digital library can, in addition to its apparent application in the teaching of history, have its application in the teaching of Serbian language and literature, religious education, fine arts, and other topics (Ковачевић и др., 2016).

In order to further promote this segment of *The Great War* portal, the seminar "Digital Libraries dedicated to the First World War as a teaching tool" was devised. The seminar was accredited by the Institute for the Advancement of Education and was held on five occasions during 2014 and 2015. Attendees of the seminar were mostly teachers and professors of history at primary and secondary schools. During the seminar, they got acquainted with the collections and search capabilities of the most important digital libraries dedicated to the First World War, with a special focus on *The Great War*, and as well as with ways to bring these contents closer to students and encourage their curiosity and further research.

Virtual exhibitions are yet another segment through which the materials from the digital library are presented to users. It provides them an opportunity to get acquainted with events, themes and people that have left their marks during this period. The current exhibition *Crnjanski in the War*, for the time being, has been the only one.

There is also a section *Timeline* on the home page, in which the material is automatically and randomly displayed on the appropriate date.

The interactive map is another valuable segment of the portal. On this world map users can, through geo-visualization, find a place of publication

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<sup>9</sup> General conditions of use (accessed on 27.3.2019)

of specific materials published during and immediately after the war. An interactive map was created on the Google platform. By selecting a region or a city, direct links to the publications are shown. Using the filters for a year of publication, the type of material and the language of a publication, search through the map can be further narrowed (Калезић и Михаиловић, 2014).

## 6 Results

After just over six years of existence and operation of the digital library *The Great War*, it is possible to analyze the statistics on users and usage, as well as achieved results, thanks to the Google Analytics<sup>10</sup> tool. Google Analytics allows you to track the number of users, their geographic location, length of each visit, number of pages that users viewed in one visit, and various other parameters.

So, from the beginning of *The Great War* promotion until December 31, 2018, the total number of visits was 102,550. The total number of individual users was 58,588, out of which 17,7% were returning users. During this period, a total of 2,081,557 pages were viewed, i.e. just over 20 pages per visit. The average duration of one visit was about six minutes.

Table 1 gives an overview of these data by year, since 28<sup>th</sup> February 2013, to the end of 2018.

Year	Number of Users	Number of Visits	Number of Pages viewed (per visit)	Average Duration of Visit (minutes)
2013	7.169	14.571	295.229	6,01
2014	11.797	24.465	657.023	8,09
2015	10.792	18.222	348.851	5,37
2016	10.338	15.605	274.453	5,07
2017	7.635	12.921	222.684	5,04
2018	10.854	16.766	283.317	4,46

**Table 1.** Data on the usage of the digital library *The Great War*

<sup>10</sup> Google Analytics (accessed on 10.4.2019)



In the first three months of 2019, 2,238 users (17.9% of them returning) made 3,332 individual visits and viewed 58,763 pages, with an average length per visit of 5.16 minutes.



**Figure 1.** Geographic location of the users (28/03/2013 - 31/03/2019)

According to the geographic location of the users, as expected, most of them were from Serbia and countries in the region. But among the top 10 countries by the number of users, other countries that were the main participants in the First World War on both sides were also present, according to Google Analytics data.

Other demographic data that can be analyzed is the age and gender of users. Out of the total number of users, 54.15% were male and 45.85% female. As for the age, most of them, 33.5%, belong to a group of people between 25 and 34 years old, followed by users aged 18 to 24 - 27.5%. The share of users aged 35-44 is 15.5%, those from 45-54 was 12.5%, from 55 to 64 was and 5.5%, and the same for those over 65 years of age.

Google Analytics is also tracking device data used to access The Great War. Most visits were from desktop computers, i.e. about 75% of all visits, about 22% were from a mobile phone and about 3% of the visitors used a tablet.

According to Google Analytics, the data on the use of materials in the period 28/03/2013 – 31/03/2019, showed that the most visited document was the monograph *War Album 1914–1918* by Andra Popović, published in 1926 with 10,087 individual visits. The next were the first and the fourth

Country	Number of Users	Number of Visits	Number of Pages viewed (per visit)	Average Duration of Visit (minutes)
<b>Serbia</b>	41.524	79.551	21,36	6,12
<b>BiH</b>	3.017	4.075	21,08	6,32
<b>USA</b>	1.552	1.954	8,16	2,20
<b>Montenegro</b>	1.103	1.752	21,43	6,33
<b>Croatia</b>	1.059	2.135	24,78	10,03
<b>Germany</b>	903	1.179	13,62	3,39
<b>Bulgaria</b>	888	1.158	19,64	4,40
<b>France</b>	724	866	9,68	2,58
<b>Great Britain</b>	707	819	8,75	2,35
<b>Macedonia</b>	704	1068	18,94	5,34

**Table 2.** Overview of the number of users by geographic location and data on the use of digital library The Great War (28/02/2013 – 31/03/2019) – the first 10 places

volumes of the *The Great War of Serbia for the Liberation and Unification of Serbs, Croats and Slovenes* collection with 8,651 and 4,779 visits. This collection, published from 1924 to 1937, in which the documents of the Supreme Command of the Kingdom of Serbia were published, is an invaluable source for anyone who is researching the period of the World War I, and therefore it is not surprising that the number of views of individual books is high.

Among the frequently visited pages was the sticker album – *World War in Photos: 1914 – 1918: Milk chocolate Šonda* from the 1930s, which had 4,165 visits. Of the periodicals, the fifth volume of the magazine *Woman* from 1918 was the most visited – 3,661 visits. The postcard from France – *Serbie: la revanche ou la mort* has 3,071 visits, and the postcard with the description “Momčilo Gavrić, 10 years old, whose parents were killed by Austrian soldiers, is reporting with his friend to the officer” – 2,987 visits.

The monograph *Tragic Days of Belgrade*, by Jovan Miodragović from 1915, is the most visited item published during the war period with the total of 2,953 visits.

## 7 Conclusion

The Analyzed user data and the use of *The Great War* portal show that this digital library, with an average number of monthly visits of around 900, is a very valuable and important source for studying the period of the First World War. The users' age structure shows that more and more people give preference to easily accessible and searchable digital sources of information compared to traditional ones. All this points to a need for the expert team to continue to work responsibly on the development and promotion of *The Great War* portal. Although the basic project is completed, the work on improvement and enrichment continues, by continuously adding scanned materials, and by holding lectures where in direct contact with the users, both returning and new ones, the team gains an insight and new ideas for the future of the portal.

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