

# Intelligence Web Analysis of Internet Resources of Intangible Digital Cultural Heritage Collections

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## Abstract

The article on the example of five countries examines digital collections dedicated to preserving and popularizing intangible cultural heritage in the web information environment, representing a sufficient number of objects/practices of intangible cultural heritage presented in multimedia resources. The intelligence web analysis of intangible digital cultural heritage collections is conducted. It is shown that in the context of marketing and communication policy, it is rational to use social network platforms and mass media to promote intangible cultural heritage, encouraging public interest in intangible cultural heritage objects. Furthermore, taking into account many intangible cultural heritage objects of individual projects entering the information resources, we can say that popularization of intangible cultural heritage within the scope of scientific, educational, and entertainment activities, in particular both in the mass media and social networks, will lead to social interest. As a result, the nation's identity, awareness, skills, and knowledge will be created. The scientific novelty of the work consists of expanding ideas for activities aimed at protecting and preserving intangible cultural heritage at the global and national levels. Analysis of five digital collections of intangible cultural heritage was analyzed in the web information environment. Information resources of the hosted intangible cultural heritage digital collections, which represent Eastern, Western and Northern Europe and act as indicators of interest in society and are a source of information and a means of popularizing intangible cultural heritage objects, are considered.

## Keywords 1

Intelligence web analysis, intangible cultural heritage, digital collection, Internet, digitalization, global information space

## 1. Introduction

Under modern conditions, the ability of culture to change society becomes obvious. Various onsets of culture, either valuable historical sites, museums, monuments, customs or modern art forms enrich our daily lives in a various ways. Cultural heritage is an inexhaustible resource of nation, which encourages uniting communities that have been separated as a result of tremendous changes and economic instability. Creativity, in its turn, contributes to the creation of open, inclusive and pluralistic societies. Together, heritage and creativity lay foundations for dynamic, innovative and prosperous societies in which knowledge is of fundamental importance.

In such conditions, the study of global trends and national principles of intangible cultural heritage protection and preservation acquires noteworthy significance, which determines the relevance of the presented scientific research.

The objective of the work is to reveal global and national aspects of activities related to the protection and preservation of intangible cultural heritage and ensuring access for users as well as consider

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digital collections dedicated to preservation and popularization of intangible cultural heritage in the web-based information environment.

The research methodology consists in applying the general scientific and special methods, in particular the system approach, analysis, synthesis, logical method, method of research results visualization. Methods of content analysis, comparative and analytical monitoring of Internet resources for preservation of intangible cultural heritage were used to track the state of digital collections in the web information environment.

## 2. Related Work

Separate aspects of the study of intangible cultural heritage of Ukraine protection and determination of the important role played by libraries, in particular in its documentation, research, preservation, popularization and creation of the knowledge of society are considered in scientific works [1-4]. Research of intangible cultural heritage presentation on the Internet can also be taken from foreign experience. In particular, M. T. Artese and I. Gagliardi presented a cataloging card of intangible cultural heritage on the Internet for its inventory, developed within the framework of the Italian-Swiss border cooperation project and an analysis of its integration with an archival database (Lombardy). Such a project enabled obtaining a data structure containing an inventory and a detailed catalog of intangible objects [5]. In his work, M. Ziku discusses open data standards and considers the possibility of using software platforms for semantically based digital documentation of intangible cultural heritage by archival, library, and museum institutions [6] and cyber security issues [7-9] are actual for digitalization era [10, 11]. Methods of protecting intangible cultural heritage in the era of technological progress [12-14], particularly during the COVID-19 pandemic, were considered in his research by Afolasade A. Adewumi [15]. A team of scientists from the University of Morocco considers the concept of communication in social networks as a successful marketing strategy for the promotion of intangible cultural heritage [16] and web project management [17, 18]. Another relevant study was conducted by French scientists, who considered the presentation of intangible cultural heritage in the Instagram social network in the context of promoting the development of tourism [19].

To provide the culture with a worthy place in developing strategies and mechanisms, UNESCO works in several directions. In particular, it leads a global campaign in support of culture and development, and cooperates with the international community to develop and implement a clear policy and legal framework in this field. The conducts work on the ground, assisting governments and interested parties of regional significance concerning heritage preservation, developing creative industries, and promoting pluralism in culture.

Considering the growing danger of losing valuable information that defines the world knowledge heritage, identity, history, and values of humanity, UNESCO seeks to increase the attention of governments, relevant institutions, and the general public to the importance of preserving information for present and future generations. Documentary heritage is the memory of humanity. Still, there is a constant threat of its disappearance forever.

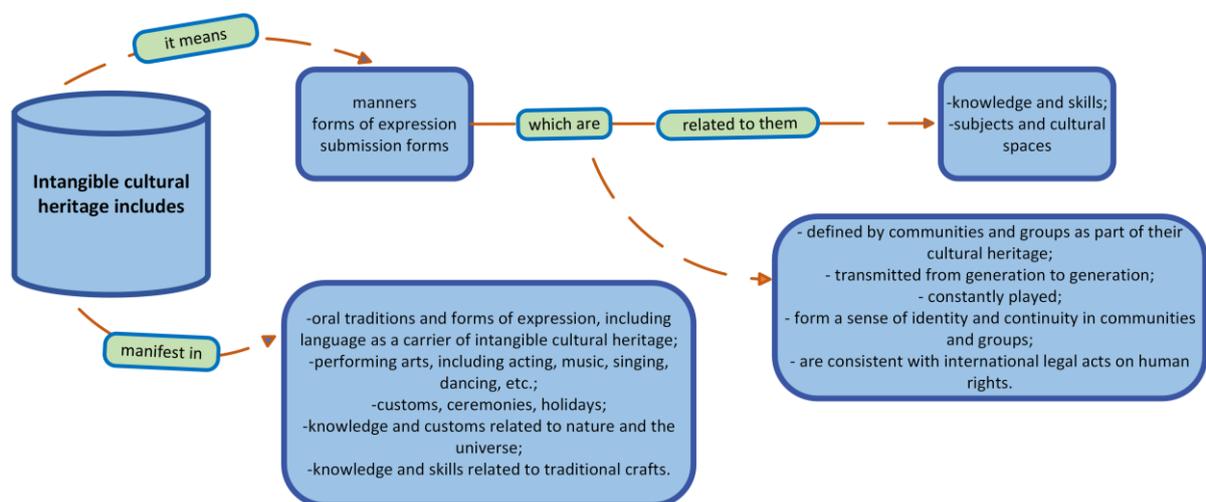
The first and most urgent need is to preserve the documentary heritage of world importance. It is also essential to make it available to as many people as possible using the most appropriate technologies. Therefore, UNESCO takes measures to protect documentary and audiovisual heritage with the help of the "Memory of the World" program, the essence of which is based on the fact that the world's documentary heritage belongs to everyone. It should be fully preserved, protected, and accessible to everyone without any obstacles.

Various forms of intangible cultural heritage constitute enormous wealth. It is known that it is also called "live heritage," which includes customs, knowledge, and skills passed on from generation to generation.

The 2003 UNESCO Convention on the National Safeguarding of the Intangible Cultural Heritage aims to preserve these assets, ensure their viability and create conditions for their full potential in the interests of sustainable development. UNESCO's activities in this field aim to support member states worldwide, promote international cooperation in the protection of live heritage and create an institutional and professional environment conducive to the protection of intangible heritage [20].

The objectives of this Convention include the protection of intangible cultural heritage; ensuring respect for the cultural heritage of relevant communities, groups, and individuals; increasing the level of knowledge about the importance of intangible cultural heritage and its mutual recognition at the local, national, and international levels; international cooperation and assistance [20].

Intangible cultural heritage (ICH) is defined as customs, forms of display and expression, knowledge and skills, as well as related tools, objects, artifacts, and cultural spaces recognized by communities, groups, and, in some cases, individuals as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly reproduced by communities and groups under the influence of the environment and their surroundings, interaction with nature and history, and forms their sense of identity and continuity, thereby promoting respect for cultural diversity and human creativity. Only intangible cultural heritage compatible with current international human rights law, with mutual respect between communities, groups, and individuals, and with sustainable development is included in the scope of this Convention. Intangible cultural heritage functions, in particular, in the following areas: oral traditions and forms of expression, in particular in language as a means of communication of intangible cultural heritage keepers; performing arts; customs, ceremonies, holidays; knowledge and practice related to nature and the universe; knowledge and skills related to traditional crafts (Fig. 1.).



**Figure 1:** Component structure of intangible cultural heritage

Though fragile, intangible cultural heritage is nevertheless essential in preserving cultural diversity in growing globalization. Understanding the intangible cultural heritage of different communities promotes intercultural dialogue and mutual respect for other ways of life. Intangible cultural heritage is not a direct cultural expression but a wealth of knowledge and skills transmitted through it from generation to generation. This knowledge transfer's social and economic value is relevant for minority groups and significant social groups within the state.

Intangible cultural heritage is inherited from traditions of the past and contemporary rural and urban practices involving diverse cultural groups. Intangible cultural heritage does not question whether certain practices are culture-specific. It promotes social cohesion by encouraging a sense of identity and responsibility that helps people feel part of one or different communities or society in general. Intangible cultural heritage is not only valued as a cultural asset. It develops in communities and depends on those whose knowledge of traditions, skills and customs is passed on from generation to generation. Intangible cultural heritage can be property only when it is recognized by the communities, groups or individuals who create, maintain and transmit it; without their recognition, no one else can decide for them whether an expression or practice of their heritage is [21].

Having joined the UNESCO Convention on the Safeguarding of the Intangible Cultural Heritage in 2008 (Law of Ukraine on 06.03.2008 No. 132 "On the Accession of Ukraine to the Convention on the Safeguarding of the Intangible Cultural Heritage"), Ukraine must fulfill all obligations arising from its provisions. The Convention proclaims the importance of intangible cultural heritage as the primary source of cultural diversity, which is also emphasized in the UN Recommendations on the

preservation of traditional culture and folklore [22]. The Ukrainian Center for Cultural Studies (hereinafter referred to as the Ukrainian Center for Cultural Studies) was designated as an institution for the implementation of the provisions of the Convention, and the National List of Elements of Intangible Cultural Heritage was formed.

In 2012, the Order of the Ministry of Culture of Ukraine on 14.12.2012 No. 1521 "On the approval of the sample form of the registration card of the object (element) of the intangible cultural heritage of Ukraine and the definition of the objects of the intangible cultural heritage" started maintaining the list of elements of the intangible cultural heritage of Ukraine. However, the National List of Elements of the Intangible Cultural Heritage of Ukraine was officially created by the Order of the Ministry of Culture of Ukraine dated February 12, 2018 No. 105 "On the Approval of the National List of Elements of the Intangible Cultural Heritage of Ukraine", an appendix to which is actually the National List. New elements of the National Cultural Heritage of Ukraine are included in the National List based on the recommendations of the Expert Council on Intangible Cultural Heritage, which operates under the Ministry of Culture and Information Policy of Ukraine, by amending the Appendix to the Order. As of September 1, 2021, Ukraine's National List of Elements of the Intangible Cultural Heritage includes 26 elements of the ICH [22].

The inclusion of elements in the National List is carried out following the Procedure for Maintaining the National List of Elements of the Intangible Cultural Heritage of Ukraine, as well as based on the decision of the Expert Council of the Ministry of Culture of Ukraine, which includes well-known folklorists and ethnographers [23]. The procedure defines the mechanism for creating and maintaining the National List of Elements of the Intangible Cultural Heritage of Ukraine, a state information system that ensures collection, accumulation, processing, protection, accounting and access to information on the elements of intangible cultural heritage available on the territory of Ukraine for their protection. The national list is formed based on the information contained in the registration card of the ICH element, auxiliary materials that record and demonstrate the ICH element (audio, photo, and video materials stored on separate electronic media (optical disk, memory card, flash drive hard disk) [24].

An ICH element included in the National List must meet the following criteria:

- represent at least one branch of the ICH defined by the Convention;
- reproduce traditional Ukrainian culture or traditional cultures of national minorities living on the territory of Ukraine;
- be recognized by communities or a group of persons as their ICH;
- go through the process of passing on from generation to generation on the date of submission of the petition for its inclusion in the National List;
- be applied in practice (to function) on the date of submission of the petition for its inclusion in the National List.

Intangible cultural heritage is traditions that have been formed over many centuries. They have no clear date of initiation, but they make it possible to observe the stages of the ethnocultures development and their influence on the development of Ukrainian culture over the centuries. To implement the Convention, the UCCR has been given the appropriate powers to provide scientific and methodological support to implement the Convention in Ukraine.

### **3. Analysis of the foreign experience of presenting digital collections of intangible cultural heritage**

Let's consider digital collections in the example of the four countries dedicated to preserving and popularizing intangible cultural heritage in the web information environment.

In 2002 development of the National Register of Intangible Cultural Heritage of Bulgaria began, and in 2008 the "Living Human Treasures - Bulgaria" National System was launched [25]. Representatives and experts from the Ministry of Culture of Bulgaria and the Institute of Folklore of the Bulgarian Academy of Sciences participated in this project. The "Living Human Treasures - Bulgaria" information resource contains a division of intangible cultural heritage into six categories, similar to those defined in Article 2.2 of the 2003 UNESCO Convention. However, this division was applied to

the inherent national Bulgarian intangible cultural heritage: traditional holidays and ceremonies; traditional songs and instrumental compositions, folk dances and games for children; oral tradition; traditional works of sculpture and products of domestic production; folk medicine.

It is also worth noting that each category is divided into subcategories. For example traditional celebrations of family rites are divided into birth rites, wedding rites, and funeral rites. The Digital collection contains descriptive text and 378 images describing cultural practices.

In accordance with the provisions of the 2003 Convention, since 2008 France has created its own inventory of intangible cultural heritage to identify all elements of intangible cultural heritage located on its territory. In 2017, a platform called PCI-Lab - L'Inventaire du Patrimoine culturel immatériel en France was created for the French inventory of intangible cultural heritage [26]. The PCI-Lab project was developed and implemented by CIRDOC - Institut Occitan de Cultura ethnopole under the direction of the Department of Research Management and Scientific Policy of the Ministry of Culture (General Directorate of Heritage) to promote research and encourage the popularization of intangible cultural heritage that web 3.0 offers today. The project aims to facilitate access to the French intangible cultural heritage inventory for any interested audience. To promote intangible cultural heritage, PCI Lab uses data from the open data platform, the online encyclopedia Wikipedia, to enrich the database (thematic queries, interactive cartography, visualization of related videos, etc.) helpful in finding inventory records. To do this, each element inventoried by the Ministry of Culture must correspond to the content of data specific for Wikipedia. As a result, the Wikipedia database directly enriches the Pci Lab, which uses it as a thesaurus for indexing inventory entries.

After their confirmation by the Ministry of Culture, all the inventory sheets that have been integrated into the national inventory of intangible cultural heritage in France are evaluated in PciLab. A significant part of inventory sheets are accompanied by multimedia content (photos, video and/or audio).

Digital collection contains a correspondingly detailed description (textual content), 110 videos, and approximately 501 images describing cultural practices; material elements related to practice, technical data; bibliographical elements; training modes and practice transfer.

In 2013, Finland ratified the UNESCO Convention on the Intangible Cultural Heritage Preservation, and in 2016, as a part of the Convention implementation, the Finnish National Council of Antiquities launched the "Wiki-inventory for living heritage" project [27]. The "Wiki-inventory for living heritage" project was developed and implemented by the Cultural Heritage Agency of Finland, an expert agency under the Ministry of Education and Culture of Finland and with the members of the Finnish Wiki community in consultation with heritage communities. This project allows different groups, associations, and communities to present and promote intangible cultural heritage in nine categories. Any community can report to the Wiki-inventory about phenomena that it regards as intangible cultural heritage, but the National Council of Antiquities checks and moderates the notices.

The Cultural Heritage Agency of Finland recommends intangible cultural heritage practices to be included in the National Register of Living Heritage, but the final decision rests with the Ministry of Education and Culture of Finland. Elements included in the national living heritage cadastre can be nominated for inclusion in the UNESCO List of Intangible Cultural Heritage.

Digital collection contains a correspondingly detailed description (textual content), approximately 308 images describing cultural practices, bibliography and links to external sources of information; practicing tradition; background and history of the tradition, and image metadata.

Thus, from the two analyzed above projects, which are implemented with the help of wiki technologies, we can conclude that Wikipedia is considered an important global social and information service designed to reflect social and cultural events on both a global and national scale [28] and is a particularly effective channel to popularize data on intangible cultural heritage.

In 2011, Poland ratified the UNESCO Convention on the Safeguarding of Intangible Cultural Heritage, and in 2012 the portal "Niematerialne Dziedzictwo Kulturowe" [29] operated by the National Heritage Institute. On the portal, you can find information about current activities, initiatives, and projects related to the living intangible heritage of Poland [29].

An essential aspect of the website is the systematically updated National List of Intangible Cultural Heritage, a list of living intangible heritage in Poland. Users can download an application template on the website and instructions to help them complete it.

The Digital collection contains a correspondingly detailed description of the practice (textual content) and approximately 69 images describing cultural practices.

Based on the above-mentioned digital collections of intangible cultural heritage in the web information environment, we will characterize according to the established criteria (Tab. 1.).

**Table 1**

Characteristics of presentation of intangible cultural heritage to the web information environment

Country	Project name	Presence in social networks	Multi-media	Accompanying documentation	Additional features of the information resource
Bulgaria	Living Human Treasures – Bulgaria	-	+/-/-	Photos from the National Center for Collecting and Archiving Bulgarian Folklore at the Institute of Folklore of the BS, Ss. Cyril and Methodius National Library, National Archives, personal collections	-
France	PciLab	-	+/+/+	Collection of printed works of a certain field of knowledge, electronic resources of library and museum funds; Internet resources	Interactive map; the advantage of this project is the use of a semantic network. Data structured concerning Wiki-data
Finland	Wiki-inventory for living heritage	Facebook (1.6 thousand) YouTube (92,678 views, 227subscribers)	+/-/-	A set of printed works of a certain field of knowledge; electronic resources of archival, library, and museum funds; Internet resources; Video recordings of TV program websites and audio recordings of radio program websites	Using a project based on MediaWiki software
Poland	Niematerialne Dziedzictwo Kulturowe	-	+/-/-		Reading room - electronic editions of intangible cultural heritage

As can be seen from the characteristics of the four analyzed digital collections of intangible cultural heritage, only one information resource is present in social networks - "Wiki-inventory for living heritage". In "Niematerialne Dziedzictwo Kulturowe" when describing lists of intangible cultural heritage, no bibliography is indicated. Still, in the "Reading Hall" section, there is a list of electronic

publications related to intangible cultural heritage. In "Living Human Treasures - Bulgaria," there are no additional features on the information resource.

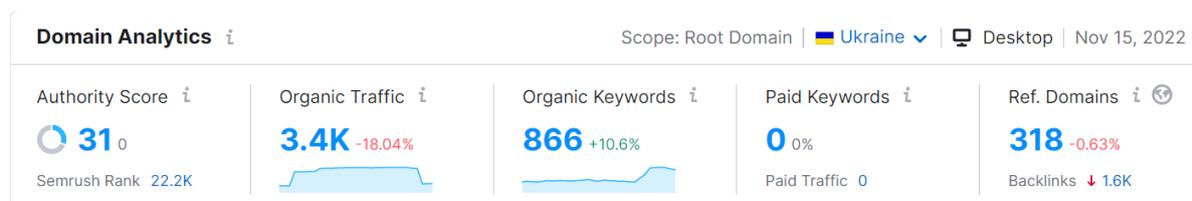
#### 4. Intelligence Web Analysis of the Ukrainian experience of presenting digital collections of intangible cultural heritage

Identification, research, and dissemination of information on the elements of the intangible cultural heritage of Ukraine are key to fulfilling the obligations within the Convention implementation framework. The Ministry of Culture approved the sample form of the accounting registration card of intangible cultural heritage elements. However, this is insufficient to ensure a complete account of intangible cultural heritage elements. It is necessary to develop methodological recommendations for preparing and executing documents regarding the inclusion of the intangible cultural heritage elements of Ukraine into the UNESCO lists [23]. Besides, a draft of the Law of Ukraine "On Intangible Cultural Heritage" has been developed, which is currently being finalized by the Expert Council of the Ministry of Culture and Information Policy of Ukraine [22].

The two projects, namely "Virtual Museum of the Intangible Cultural Heritage of Ukraine" (2018) and "Authentic Ukraine: Intangible Cultural Heritage" (2019), became an essential step for popularizing the cultural traditions of Ukraine, i.e., preservation of knowledge, methods, techniques, skills that are extremely important for the further spread and development of these traditions. Within the framework of the "Virtual Museum of Intangible Cultural Heritage of Ukraine" project, a heritage of Ukrainian culture was researched, recreated, and represented. Its elements are included in the National List of Intangible Cultural Heritage. The Virtual Museum of Intangible Cultural Heritage of Ukraine has a Facebook page [30]. It is known that a museum's mission is to preserve and pass on knowledge, to expand possibilities of cultural diversity perception, and to teach people to respect it. The main goal of the virtual museum is to reproduce and present the intangible cultural heritage of Ukraine in a modern and accessible form as well as to increase the number of persons interested in getting acquainted with the cultural heritage of our people and studying traditions, which will mainly contribute to the formation of a unified cultural space of Ukraine [22].

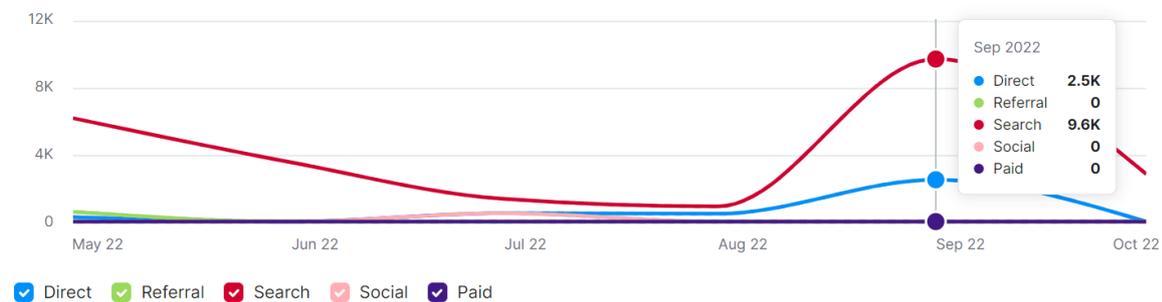
On the virtual museum website [22], people can familiarize themselves with the elements of intangible cultural heritage included in the National List of Elements of Intangible Cultural Heritage of Ukraine, with the winning elements of the "Living Tradition" contest. The museum exposition contains a huge number of photo and video illustrations, with a meaningful story added to each of the elements, which highlights the general characteristics of the element, tells about the history of the element, its carriers, and traditions, and measures for revival, preservation, and popularization. One of the sections of the museum offers educational entertainment: puzzles, crosswords, and coloring pages, which will be useful to teachers and beginners who are interested in one or another direction of folk art. The uniqueness of the museum lies in the combination of existing cultural and research initiatives, promotion of maximum dissemination of knowledge about the traditional culture of Ukrainians, creation of a precedent for the introduction of a modern accounting format of intangible cultural heritage objects according to the cluster (regional) methodology [22].

The Domain analysis (see Fig. 2) of the information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine [22] using Semrush service [31] shows a general view of metrics and performance trends compared to last month.



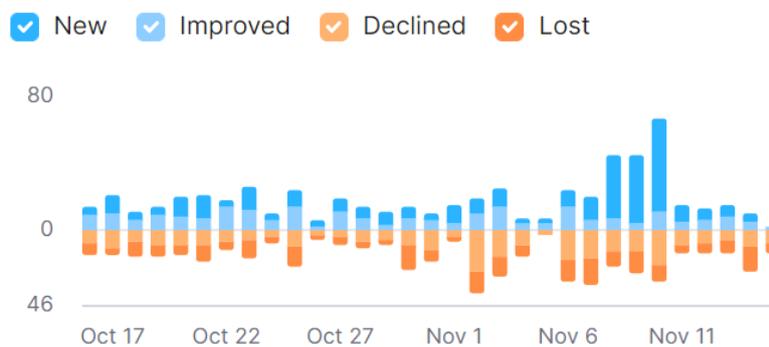
**Figure 2:** Domain analysis of information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine

Fig 3 represents estimations of any website's desktop and mobile traffic of information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine based on SEMrush's proprietary AI [31] and machine learning algorithms, petabytes of clickstream data, and Big Data technologies.



**Figure 3:** Traffic Analytics of information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine

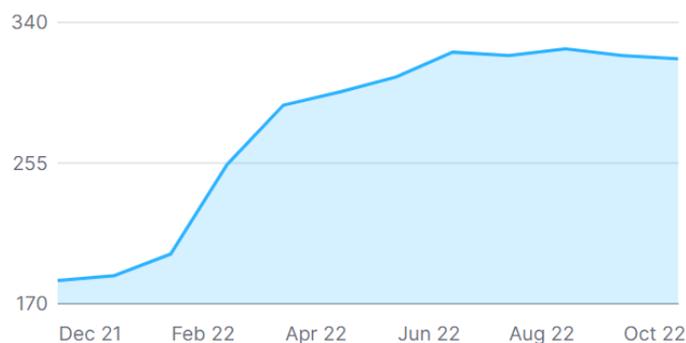
Figure 4 shows the main keywords that perform best for information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine rivals and uncover new means of getting this information resource on SERP [31] and monitoring position changes trend.



**Figure 4:** Organic Keywords Analytics of information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine

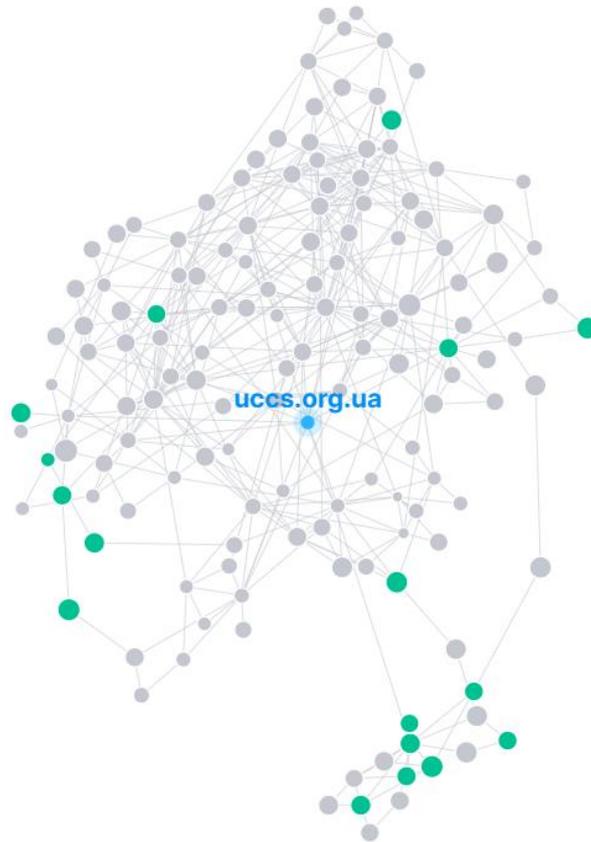
Organic keywords in the period October 16, 2022 – November 15, 2022, are the following keywords: "цікаві факти про українську мову / interesting facts about the Ukrainian language" (position -11, volume -1,900, traffic - 26.59%), "свята/ holidays" (position - 55, volume -12,100, traffic - 18.01%), "юнеско / UNESCO" (position -55, volume - 9,900, "traffic" - 14.74%), and "цікаві факти про мову / interesting facts about the language" (position -11, volume -390, traffic - 5.44%).

The report plot of the root domain's backlink network of an information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine is shown in Fig.5. This data [31] helps evaluate the domain's backlink profile by monitoring the growth and quality of its referring domains, and observe the trend of referring domains linking to an analyzed domain.



**Figure 5:** Referring Domains Analytics for last 12 months of information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine

According to the report plots (Fig. 6), the domain's backlink network of an information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine is 12% of relevant domains to the domain of information resource of Virtual Museum of the Intangible Cultural Heritage of Ukraine.



**Figure 6:** Network Graph- report plots the domain's backlink network of an information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine

In Figure 6 shows domains in green color are niche relevant. The backlinks are beneficial for rankings of an information resource of the Virtual Museum of the Intangible Cultural Heritage of Ukraine.

The "Authentic Ukraine" project was created by order of the Ministry of Culture of Ukraine and with the support of Google Ukraine. The project "Authentic Ukraine: Intangible Cultural Heritage" [32] is a unique virtual space containing a collection of authentic audio and visual examples of Ukrainian identity.

One of the project's goals is to preserve and popularize Ukraine's cultural and historical heritage. Due to the "Authentic Ukraine" website, any user, both in Ukraine and abroad, can discover the beauty and diversity of the cultural heritage of different regions of Ukraine.

The "Authentic Ukraine" platform consists of two parts: "Tangible cultural heritage," represented by virtual tours, and "Intangible cultural heritage," which contains five sections:

- The section "Oral traditions and forms of expression" is dedicated to lullabies, fairy tales and legends, riddles, carols (koliadky/shchedrivky), and many other exhibits of folklore and language. This section covers the history of folklore. Here one can find out why folk creativity is considered "oral" and get acquainted with the most bright examples of the Ukrainian folk epic.
- The "Performing Arts" section contains information about Ukrainian singing, dancing, folk drama, and games.
- The third division is devoted to customs, rites, and celebrations.

- In the "Knowledge and practices related to nature and the universe" section, the traditions, customs, rites, and practices that made up the household culture of the Ukrainian people and personified their knowledge about the surrounding world are described.
- The "Traditional crafts" section tells about Ukrainian crafts, particularly pottery, painting, weaving, embroidery, carving, wickerwork, blacksmithing, toy making, and pysanka making.

The site provides an opportunity to add and expand information content; here, users can find the author's descriptive texts, audio and video materials, illustrations, 3D images, and virtual tours. Information is available in Ukrainian and English.

Its educational component is an essential part of the "Authentic Ukraine" project. At the end of each chapter, there are interactive tests that teachers can use during the educational process, which makes the platform a bright and convenient tool for educational activities in schools and state institutions [32].

Based on the above-mentioned digital collections of intangible cultural heritage in the Ukrainian web information environment, we will perform a characterization according to the established criteria (Tab. 2).

**Table 2**

Characteristics of presentation of intangible cultural heritage in the Ukrainian web information environment

Country	Project name	Presence in social networks	Multimedia resources	Accompanying documentation	Additional features of information resource
Ukraine	Virtual museum of intangible cultural heritage of Ukraine	Facebook 576 people are following	+/-/+	Collection of printed works of a certain field of knowledge, electronic resources of library and museum funds; Internet resources	Interactive map; placement of cognitive entertainment (composing puzzles, solving a crossword based on viewing/studying the exhibits of the virtual museum)
Ukraine	Authentic Ukraine: Intangible cultural heritage	YouTube Authentic Ukraine 498 people are following	+/+/+	Collection of printed works of a certain field of knowledge, electronic resources of library and museum funds; Internet resources	Created with the support of Google Ukraine; contains 3D Google maps; placement of tests as a test of knowledge of the traditions of the Ukrainian people

As can be seen from Table 2, digital collections representing intangible cultural heritage have their representations in social networks. When describing digital collections, information resources include a bibliography and additional features such as interactive maps, placement of tests, and 3D tours.

Investigating the aspects of intangible cultural heritage preservation and popularization, the question of users' interest in learning about intangible cultural heritage arises. Users' interest in the intangible cultural heritage of Ukraine can be traced with the help of statistics of views on Wikipedia as the

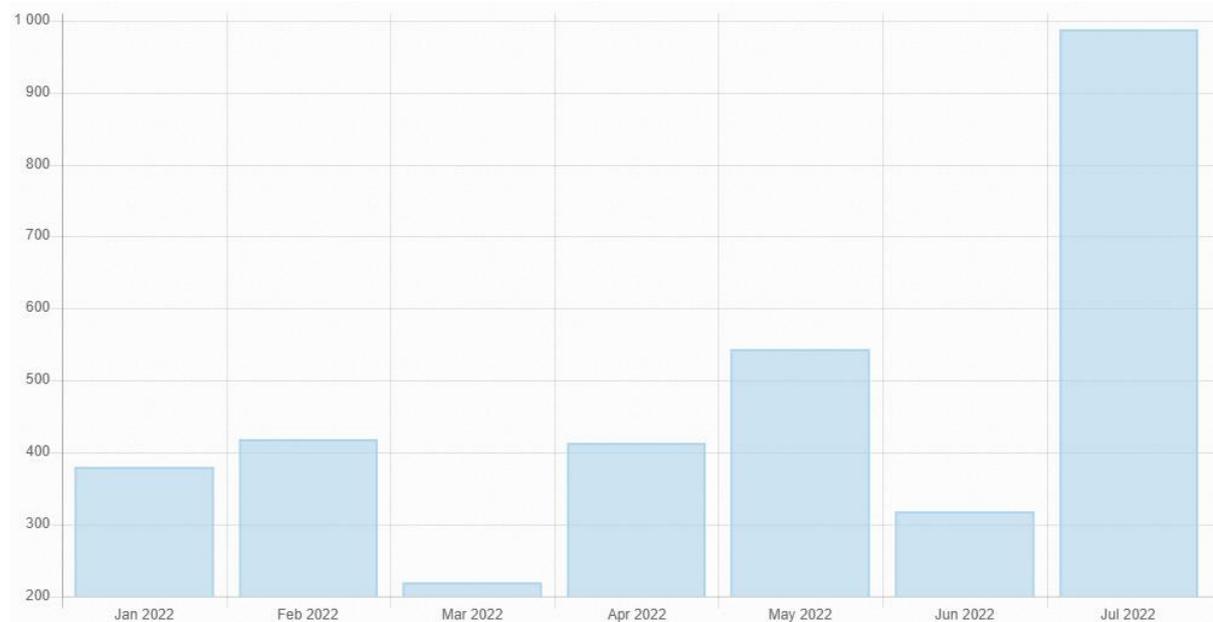
most popular encyclopedia in the world for the "Intangible cultural heritage of Ukraine" query (Tab.3).

**Table 3**

Statistics of "Intangible cultural heritage of Ukraine" views in Wikipedia from March 2018 to July 2022

Research time range	Number of views per year	The maximum number of views per month	Minimum number of views per month	Editing
March 2018 - December 2018	532	93 (November)	24 (April)	4
January 2019 - December 2019	885	113 (December)	47 (January); 48 (August)	1
January 2020 - December 2020	1686	332 (December)	76 (March); 76 (June); 74 (August)	9
January 2021 - December 2021	5156	679 (December)	208 (July)	7
January 2022 - July 2022	3280	988 (December)	220 (March)	3

As we can see from Table 3, beginning in March 2018, the interest of Internet users is noticeably increasing. During all the years, the trend of a maximum number of views is obvious in December-November. In our opinion, such annual bursts of views on the request of "Intangible cultural heritage of Ukraine" in Wikipedia are caused by the upcoming New Year and Christmas holidays, which cause to satisfy the Internet users' requests in search of customs, rites, and celebrations of the calendar cycle.



**Figure 7:** Viewing users of the "Intangible cultural heritage of Ukraine" page in Wikipedia in 2022 per each month.

We will separately consider the year 2022 until July (Fig. 7). As we can see from the figure, since January, there has been a tendency towards a possible increase in views of the "Intangible cultural heritage of Ukraine" in Wikipedia every month. However, on February 24, 2022, Russia launched a large-scale invasion of Ukraine, destructive in all possible directions: military and civilian casualties, environmental crimes, and destruction of the Ukrainian cultural heritage. Eradication of the language and culture became the primary goal of the war started by Russia. The Russian military forces destroyed infrastructure under the pretext of fighting Nazism and ruined cultural heritage.

In the first month of the war, we observe a sharp drop in views, which is accompanied by the people staying in bomb shelters from missile strikes and the volunteer movement of Ukrainian society.

From the following data, we observe an increase in interest in Wikipedia's "Intangible cultural heritage of Ukraine" page. We also note that in July, there was a surge and growth to 988 views by unique users of this page, which is the highest number of views for all the previous years. It is also worth noting that the "Intangible cultural heritage of Ukraine" page on Wikipedia has not been reviewed in foreign languages since March 2022. In our opinion, the Russian invasion of Ukraine caused a great interest of the world community to the Intangible Cultural Heritage of Ukraine page on Wikipedia, and a large number of non-Ukrainian-speaking users made a review, namely 1,514 views in English and 170 views in Turkish during the period from March to July (inclusive) 2022, and citizens made 3,280 views of Ukraine. This confirms that intangible values acquire a new meaning and are significant for the world community as a considerable world asset.

In July, the Ministry of Culture and Information Policy of Ukraine issued two orders to supplement the National List of Elements of the Intangible Cultural Heritage of Ukraine.

## 5. Analysis of society's interest in objects of the intangible cultural heritage of five informational recourses representing the five countries of Europe

An assessment of public interest in the objects of the intangible cultural heritage of five resources from five different countries was carried out. Table 4 shows data on unique visits to resources using the Site Rank Data service. Data on daily, monthly, and annual visits to the researched resources by unique users are presented here.

**Table 4**  
Indicators of digital collections visits

Indicator. Re-searched resource	Daily unique visitors	Monthly visitors	Annual visitors	Period of information resource operation	Country Population for 2020, UN data	Annual visitors in relation to the population
Virtual museum of intangible cultural heritage of Ukraine	5 097	158 015	1 896 180	4	43 733 762	0,0434
Living Human Treasures - Bulgaria	22 633	701 626	8 419 512	14	6 948 445	1,2117
L'Inventaire du Patrimoine culturel immatériel en France (PCI-Lab )	9 247	286 652	3 439 824	5	65 273 511	0,0527
Wiki-inventory for living heritage	8 663	268 552	3 222 624	6	5 540 720	0,5816

Indicator. Re-searched resource	Daily unique visitors	Monthly visitors	Annual visitors	Period of information resource operation	Country Population for 2020, UN data	Annual visitors in relation to the population
Niematerialne Dziedzictwo Kulturowe	5 898	182 832	2 193 984	4	37 846 611	0,0580
Average studied	10 308	319 535	3 834 425			

A comparative intellectual analysis of five information resources (L'Inventaire du Patrimoine culturel immatériel en France (PCI-Lab), Wiki-inventory for living heritage, Niematerialne Dziedzictwo Kulturowe, Living Human Treasures - Bulgaria, Virtual museum of the intangible cultural heritage of Ukraine) was carried out using the Semrush service [31].

A graphic representation of the activity of these information resources by month is presented in Figure 8, and statistics of these five information resources by year are shown in Figure 9.

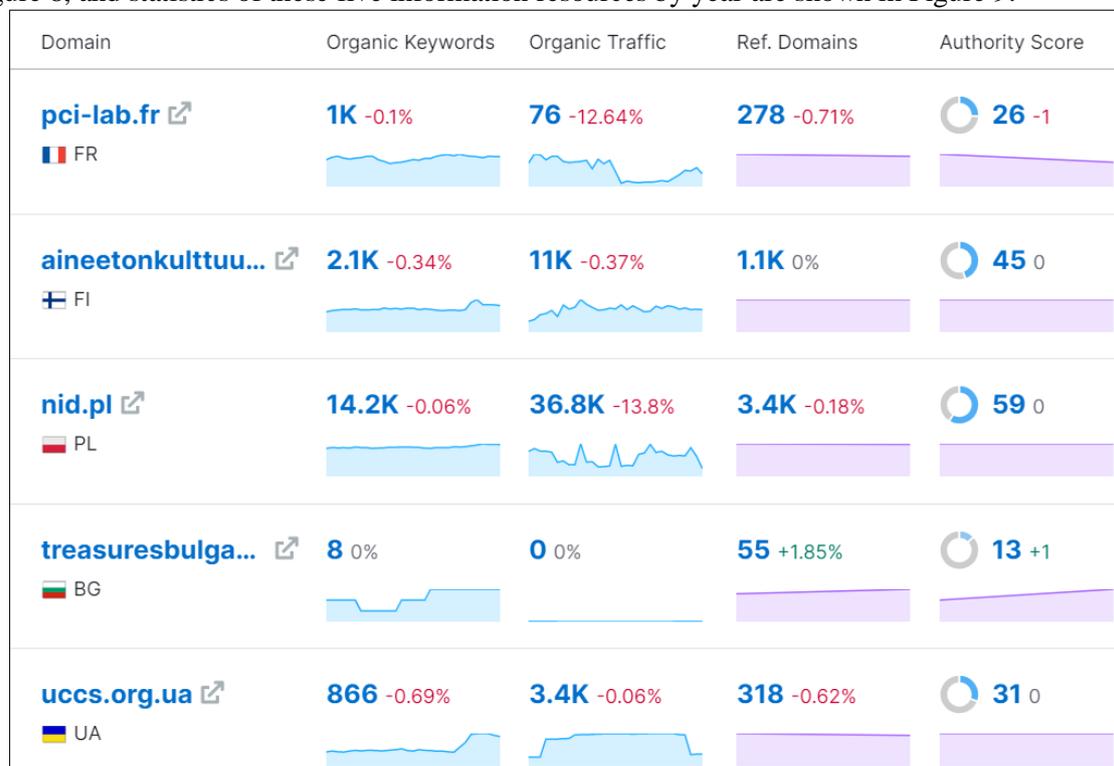


Figure 8: Intelligence web analysis of five information resources by month using the Semrush service

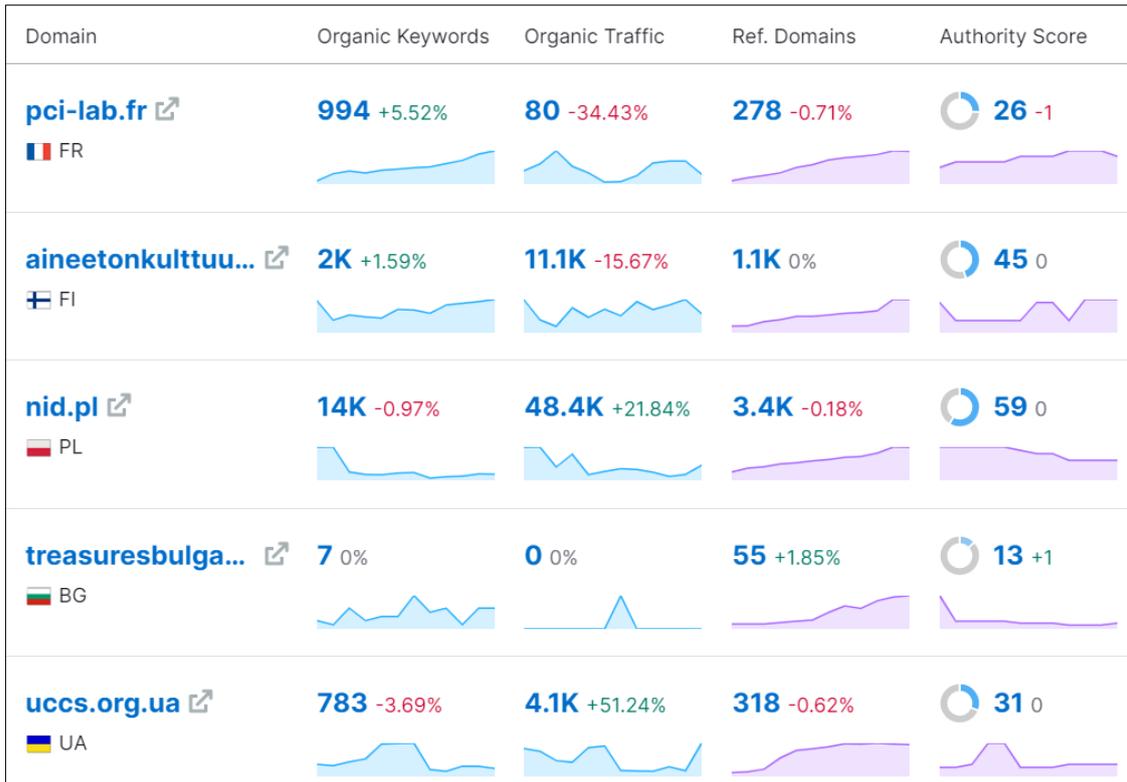


Figure 9: Intelligence web analysis of five information resources by year using the Semrush service

Figures 10, 11, 12 represent comparative histograms of visits to resources of five intangible cultural heritage objects. Here, the dashed line shows the average visit by unique users to the researched resources. Fig. 10 represents a comparative histogram of unique daily visits to the resources of five intangible cultural heritage objects.

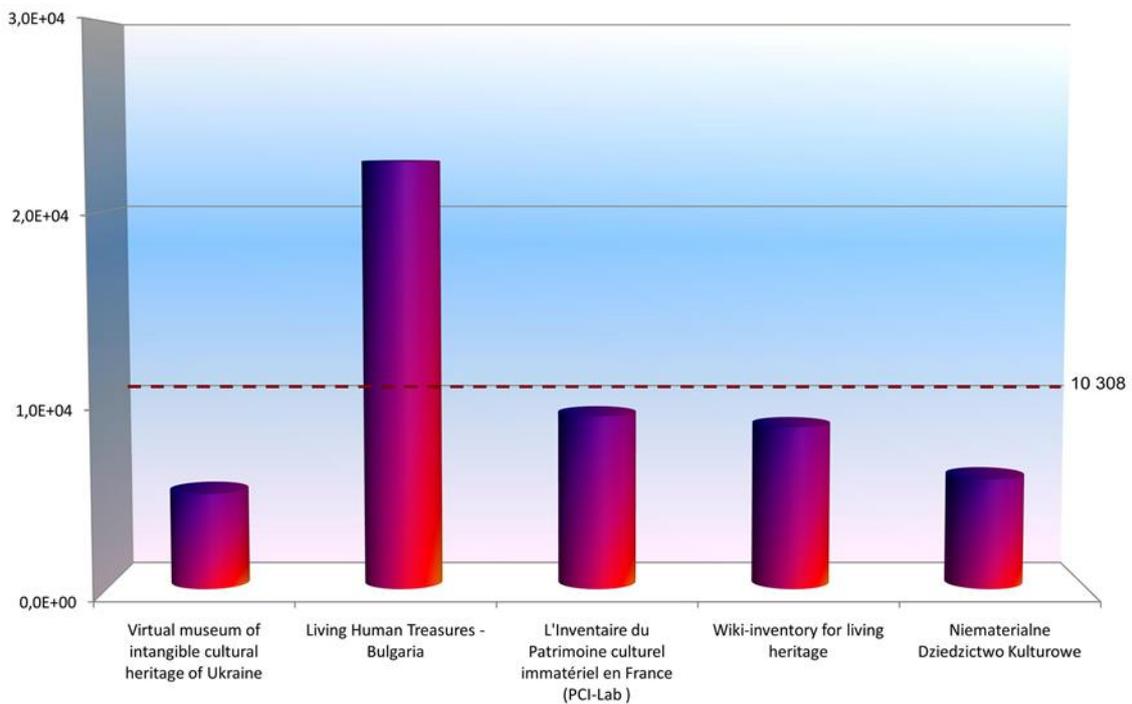
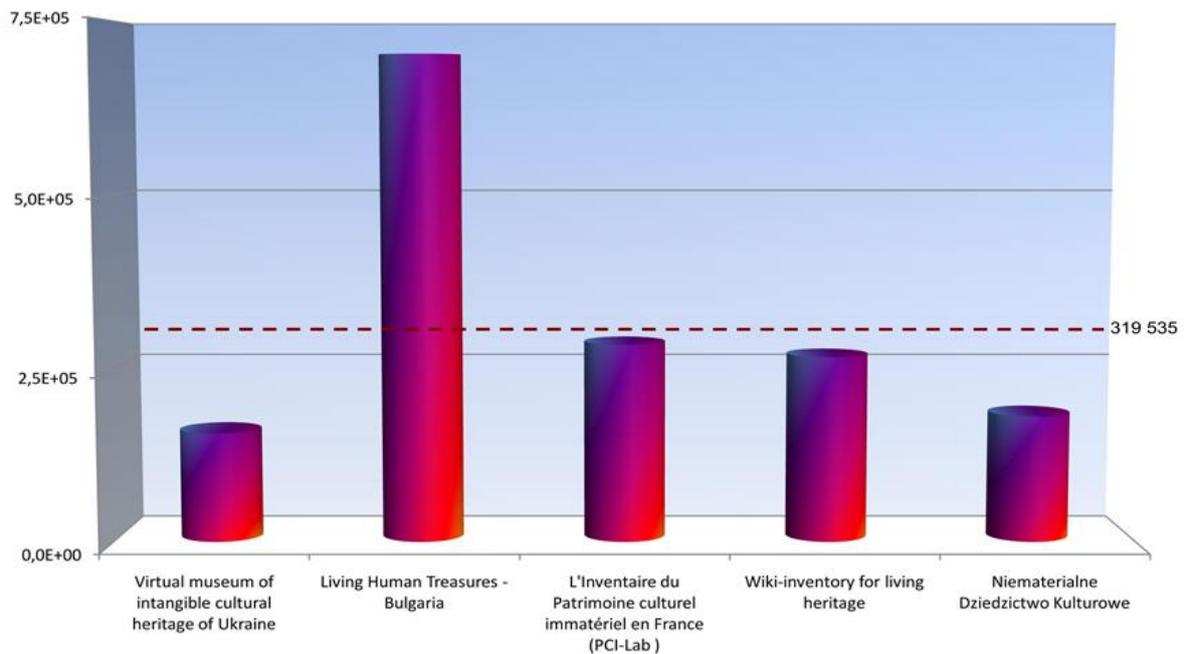


Figure 10: Daily unique visitors

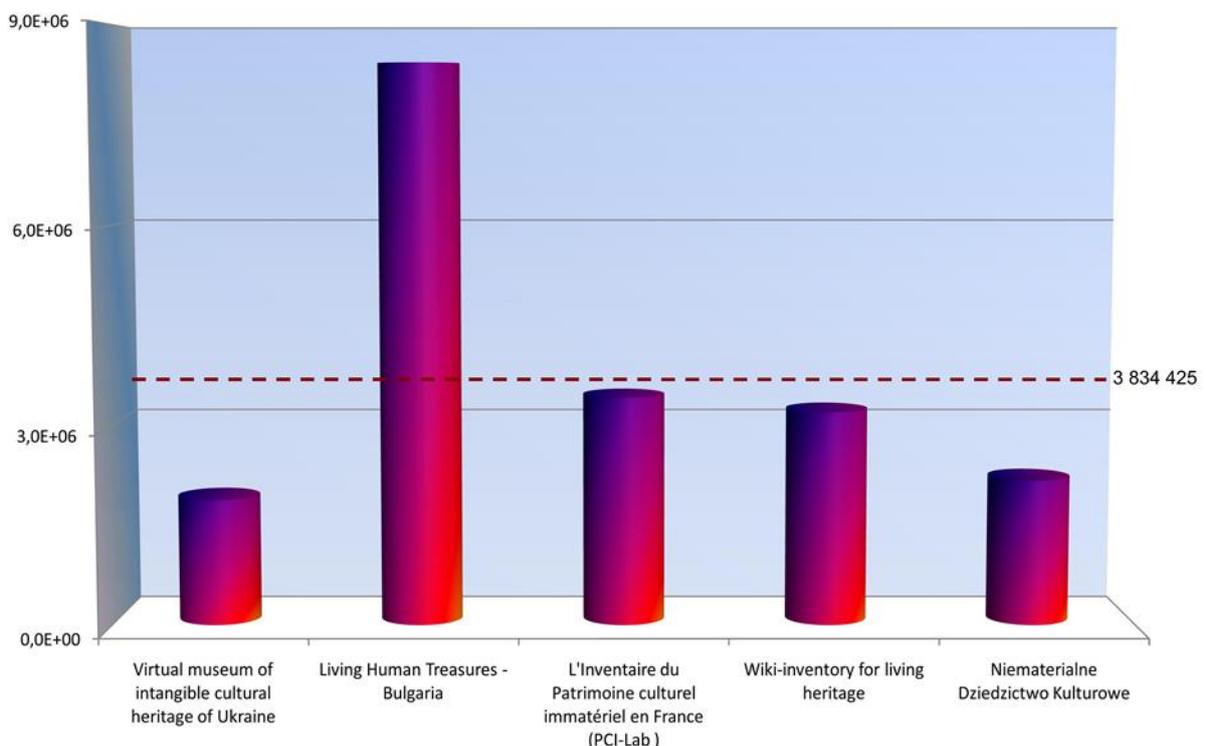
Having analyzed Fig. 10 and the data of unique daily visits to resources in Table 4, it can be easily seen that visitors to the **Living Human Treasures - Bulgaria** resource chose this resource twice as

often as compared to the average value of all the five investigated intangible cultural heritage sites. At the same time, visits to the **Virtual Museum of the Intangible Cultural Heritage of Ukraine** resource were twice as low as compared to the average value.

The histogram of unique monthly visits to the resources of the five objects of intangible cultural heritage is presented in Fig. 11. The same histogram regarding annual visits is shown in Fig. 12.



**Figure 11:** Monthly visits



**Figure 12:** Annual visits

The nature of monthly and annual visits and the ratio of all investigated resources of the five intangible cultural heritage sites are preserved. From the average researched, visits to **L'Inventaire du Patrimoine culturel immatériel en France (PCI-Lab)** are 19% less, and Wiki-inventory for living

heritage is 16% less. Also, the **Niematerialne Dziedzictwo Kulturowe** resource was visited 33% less often than the average value of the studied resources.

The effect of population amount on the number of visits is ambiguous. And we cannot say that the larger the country's population, the more people visit resources that display information about objects of intangible cultural heritage. It is so because the resource **Living Human Treasures - Bulgaria**, which provides information about objects of the intangible cultural heritage of Iceland, was visited daily by one out of three hundred citizens. And the **Virtual Museum of the Intangible Cultural Heritage of Ukraine** is seen by approximately every nine thousand unique visitors daily. This raises the question, at the same time, that popularizing intangible cultural heritage objects and attitude to one's heritage can affect the number of visits to such resources. Therefore, this study shows that some resources need to make sufficient efforts for their popularization and fullness of resources.

## 6. Conclusions

At the current stage of our country's development, joining the European integration processes and striving for a worthy representation of Ukrainian culture in the world information space are irreversible. Creation of the Ukrainian people's historical and cultural heritage resource has become one of the activities directions for libraries, archives, museums, and other institutions related to national memory, an integral part of the national bibliography, archeography and archival studies, museology of Ukraine in its broad sense as a resource of national documentary memory. As the study of the considered digital collections showed, namely on the example of the five countries dedicated to the preservation and popularization of intangible cultural heritage in the web information environment, an important place is occupied by the mental attitude of society towards its culture and values built on the legacy of previous generations. An analysis of interest in daily, monthly, and annual visits to digital collections of five intangible cultural heritage sites in five countries of the world was conducted. We believe that in the context of marketing and communication policy, it is rational to use social network platforms and mass media to popularize intangible cultural heritage, promoting public interest in intangible cultural heritage objects. The study showed that the interest in objects of intangible cultural heritage and such objects added to digital collections is served by a certain surge in society or a particular defining event, which is followed by a re-awareness of all the values.

Also, taking into account the number of visits to the information resources of intangible cultural heritage objects of individual projects, we can say that intangible cultural heritage popularization within the scope of scientific, educational, and entertainment activities, in particular both in the mass media and social networks, will lead to social interest. As a result, the nation's identity, awareness, skills and knowledge will be built.

Today, this large-scale work acquires a new quality in connection with the entry of society into the digital era, when the documentary resource and the corresponding scientific and reference apparatus are actively integrated into the Ukrainian information space and the world network.

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