

# The Use of Social Software in the Online Presentation of Cultural Heritage

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## Summary

*Social software like wikies and weblogs are popular online publication media and a source of information for a substantial percentage of Internet users. An analysis of some components of the cultural heritage of Croatia in the Wikipedia is provided. The links to the related content of the Wikipedia are often among the first ten links offered in the search results when engines like Google are used to locate information on the Croatian cultural heritage. There is growing interest from libraries and educational and cultural institutions to use weblogs and wikies for various purposes. This paper analyzes the potential of those technologies for the online presentation of cultural heritage.*

**Keywords:** social software, Wikipedia, wiki, blog, cultural heritage

## Introduction

Management of heritage sites may have an important impact on local communities in developing countries (Hampton, 2005). Heritage sites are of great value for cultural tourism, but they can also profit from tourism because it can generate significant funding for their management. A number of heritage sites in the countries of Central and Eastern Europe could profit from the expansion of cultural tourism, while communication technology (ICT) could be used to attract more visitors by generating interest to view the original sites and objects (Cabrini, 2002). It must be noted that a substantial percentage of travelers who

are Internet users in countries like the USA choose the Internet for travel and destination information (TIA, 2006). Web-based tourism information systems like cultural web portals could provide more information on cultural heritage to tourists, but such information services should be ubiquitous, i.e. enable access to cultural information from any device (PC, PDA, mobile phone, etc.) as was intended in one project for Mediterranean countries (Garzotto *et al.*, 2004)

New media and virtual reality provide considerable potential for the presentation of cultural heritage information, even though the related goals of documentation for preservation purposes, accurate historical interpretation and high quality visualization for the public are rarely fully realized in practice (for the examples of digital technology use, see Addison, 2000). There are various positive impacts from the use of technology in presenting cultural heritage (adapted from Thwaites, 2001):

- a) increase of public interest in cultural heritage,
- b) greater accessibility to information about remote or closed heritage sites,
- c) variety of rich information sources,
- d) greater awareness of global humanity,
- e) encouragement of virtual tourism,
- f) means of recording, preserving, and interpreting heritage, and educating people about it,
- g) cross-cultural and inter-cultural communication.

The web is considered as the main communication channel for enabling universal and flexible access to digitalized cultural heritage resources (Kelly *et al.*, 2003). Many heritage sites have web sites that are maintained by the government, a heritage institution, or a local tourism center since the development of such Internet-based information resources can contribute to public awareness and fund-raising efforts (UNESCO, 2007, p. 71). A good example of effective use of the Internet to promote cultural heritage is the "Eternal Egypt" (<http://www.eternegypt.org>) web site as one of the most successful cultural heritage projects in Egypt that used virtual reality and other up-to-date web technologies (Saleh and Barakat, 2005). It must also be emphasized that heritage web sites have an important educational potential that can be better realized by proper learning design (Brown, 2006).

Heritage institutions like museums should try to respond to the evolving needs of the public and try to increase interest in their collections by developing the following online services (adapted from Anani, 2005):

- interactive simulations and presentations to enhance pre-visit experiences,
- post-visit online discussion forums,
- collaborative virtual learning environments,
- interactive e-workshops.

The combination of multimedia capabilities with a wireless connection of new mobile devices (handheld computers and 3G mobile phones) creates an addi-

tional challenge for the development of cultural heritage information services (Brelot *et al.*, 2007). Recently, there has been increasing effort to include Web 2.0 technologies in the presentation and interactive/collaborative development and exchange of heritage information (for instance, see Webmoore, 2007). However, to facilitate access to online information on museum collections, it is suggested to optimize the web site for search engines like Google (Chan, 2007). The authors will focus below on the use of the Wikipedia and social software like wikies and weblogs for the presentation of information on cultural heritage.

### **Wikipedia and Croatian cultural heritage**

According to the latest data on global Internet traffic, the Wikipedia is among the 10 most visited global sites (comScore, 2007) and it is also the most visited web site by the populations of Internet users in western countries like the USA, Germany and France. In the USA, 36% of adult Internet users consult the Wikipedia (about 8% of them do this on a daily basis) and for the population of Internet users in the USA the Wikipedia is the most visited web site after they perform a Google search (in fact, about half of all the visits to the Wikipedia result from a Google search; see Rainie and Tancer, 2007).

At the time of the analyses performed for this paper, there was a limited amount of content on the cultural heritage of Croatia (i.e. articles on Croatian history, culture and art) in the English version of the Wikipedia ([www.wikipedia.org](http://www.wikipedia.org)). For instance, in August 2007, the Wikipedia articles on the major cities of Croatia like Zagreb, Rijeka, Osijek and Split commonly included an overview of their history but in most cases only a brief list of cultural sites. It must be noted that the Wikipedia included separate articles on the *World Heritage Sites* in the towns and cities of Poreč, Šibenik, Trogir, Split, and Dubrovnik. In August 2007, a brief analysis (number of words, images, and links at the end of the article) of the historical and cultural content of the articles in the Wikipedia about the World Heritage Sites in Croatia was performed and gave the following results:

- Euphrasian Basilica, Poreč (240 words, 1 image, 2 listed external links);
- St. Jacob's Cathedral, Šibenik (298 words, 6 images, 3 listed external links);
- Historic town of Trogir (618 words, 2 images, 6 listed external links);
- Diocletian's Palace, Split (939 words, 3 images, no listed external links);
- Old town of Dubrovnik (2280 words, 19 images, 6 listed external links).

For the Euphrasian Basilica in Poreč and St. Jacob's Cathedral in Šibenik, the textual information in the articles of the English version of the Wikipedia was limited to fewer than 300 words. The historic town of Trogir and Diocletian's Palace in Split were presented with only 2 images, and only Dubrovnik was presented with both sufficient textual information and images. These data can easily be verified since each Wikipedia page has a history of its editing which

makes it possible to check its previous versions and analyze how the online content of a Wikipedia page has grown or been modified over time.

The use of search engines is one of the most frequent activities of Internet users. In the USA, on an average day, more than 60% of adult Internet users use *Google*, *Yahoo!*, *MSN Search* or some other search engine (Rainie and Shermak, 2005). Most Internet users trust their search engines and, among other things, they use them to seek information on places, travel, education, humanities, culture, etc. (Fallows, 2005). However, a recent study revealed that 62% of search engine users click on a link within the first page of results, and that 90% of them click on a link within the first three pages of search results, but also that only 12% of users are willing to continue their search beyond the third page of results (iProspect, 2006). The use of a search engine is one of the likely activities of an Internet user who seeks information on a specific object of cultural heritage. Therefore, it would be interesting to check the rank of Wikipedia web pages that contain articles on objects of Croatian cultural heritage after a search is performed on the two most popular search engines (Google and Yahoo!) and also on the search engine *Pogodak!* which specializes in Croatian web space. The results of such searches are presented in Table 1.

The data presented in Table 1 indicate that most of the articles on the web pages of the Croatian version of the Wikipedia (marked with "hr") related to selected objects of Croatian cultural heritage were ranked first or second after a search performed with a Google search engine. For instance, when the key words "Pulska Arena" (without quotation marks) were used for a Google search, the link to the web page of the Croatian Wikipedia on this topic ("Pulska arena – Wikipedija", [http://hr.wikipedia.org/wiki/Amfiteatar\\_u\\_Puli](http://hr.wikipedia.org/wiki/Amfiteatar_u_Puli)) was ranked first on the list of search results. Furthermore, if the search was performed on the *Pogodak!* search engine, which is limited to Croatian web space, the articles on the Croatian Wikipedia were always ranked first. However, the ranks of the Croatian Wikipedia web pages related to cultural heritage in the results of the Yahoo! search were slightly different, but in most cases they had a rank of 1-5 and appeared on the first page of search results.

As can be observed in the data presented in Table 1, among the first 100 results of the Google and Yahoo! search engines, some of the objects of Croatian cultural heritage were also located on the web pages of the English (en), Bosnian (bs) and Serbo-Croatian (sh) versions of Wikipedia. Interestingly, the related web pages of Slovenian, German and Polish Wikipedia articles were also listed in some of the first 100 search results, but these data are not presented in Table 1.

Table 1. Rank of a link to a web article on Croatian cultural heritage objects in several versions of Wikipedia after a search on the Google, Yahoo! and Pogodak! search engines (the searches were performed in August 2007)

Name of heritage object	Rank of related article of the Wikipedia (hr, bs, sh, en) <sup>†</sup>		
	Rank after a Google search	Rank after a Yahoo! search	Rank after a Pogodak! search
Bašćanska ploča ( <i>The Baska Tablet</i> ) <sup>1</sup>	2 (hr), 35 (bs)	3 (hr), 5*+7* (bs), 10+13* (en)	1 (hr)
Plominski natpis ( <i>The Plomin Tablet</i> ) <sup>2</sup>	2 (hr), 20* (sh)	2 (hr)	1 (hr)
Višeslavova krstionica ( <i>The Baptistery of Višeslav</i> ) <sup>3</sup>	1 (hr), 63* (sh), 68* (sr)	3 (hr), 5* (en)	1 (hr)
Crkva sv. Križa ( <i>The Church of the Holy Cross</i> ) <sup>4</sup>	2 (hr)	5 (hr)	1 (hr)
Vinodolski zakon(ik) ( <i>The Vinodol Law Code</i> ) <sup>5</sup>	4 (hr), 20* (bs), 73 (bs)	3 (hr), 22* (sh)	1 (hr)
Povelja kneza Trpimira ( <i>Trpimir's Charter</i> ) <sup>6</sup>	2 (hr), 40 (sh)	1 (hr)	1 (hr)
Vučedolska golubica ( <i>Vučedol dove</i> ) <sup>7</sup>	1 (hr), 77* (bs)	1 (hr), 6* (sh), 7*+10* (en)	1 (hr)
Pulska Arena ( <i>The Coliseum in Pula</i> ) <sup>8</sup>	1 (hr), 24* (bs)	3 (hr), 15* (bs)	1 (hr)
Katedrala Sv. Jakova ( <i>St Jacob's Cathedral</i> ) <sup>9</sup>	1 (hr)	1 (hr), 23 (en)	1 (hr)
Eufrazijeva bazilika ( <i>Euphrasian Basilica</i> ) <sup>10</sup>	1 (hr)	7 (hr), 17 (en), 42* (sh)	1 (hr)

<sup>†</sup> Besides the English (en) Wikipedia, there are numerous other versions of Wikipedia including the Croatian (hr), Bosnian (bs) and Serbo-Croatian (sh) version.

\* Search results that point to the Wikipedia articles on a different topic, but in which the cultural heritage object is briefly mentioned.

<sup>1</sup> “Bašćanska ploča” is a stone tablet with 13 lines of early text written in Croatian Glagolitic found near Baška on the island of Krk.

<sup>2</sup> “Plominski natpis” is a Croatian Glagolitic text on the wall of St George’s Church in Plomin, Istria.

<sup>3</sup> “Višeslavova krstionica” is a Baptistery built by Duke Višeslav at the time of the conversion of Croats to Christianity.

<sup>4</sup> “Crkva Sv. Križa” is a small church in the coastal town of Nin dating from the 9th century which represents the pre-Romanesque period of Croatian architecture.

<sup>5</sup> “Vinodolski zakonik” is the oldest legal monument written in Croatian Glagolitic in 1288 AD which originates from the coastal town of Vinodol.

<sup>6</sup> “Trpimirova povelja” is the first known charter of a Croatian ruler (Duke Trpimir) written in Latin in 852 AD (preserved only as a transcript dating from the year 1568).

<sup>7</sup> “Vučedolska golubica” is a ceramic pot/vessel in the form of a dove from the Eneolithic period that was found at the archaeological location of Vučedol near the town of Vukovar.

<sup>8</sup> “Pulska arena” is one of the largest and best preserved coliseums in the world dating back to the first century AD.

<sup>9</sup> “Katedrala Sv. Jakova” is a Christian church in the city of Šibenik that was built in the 16th century and has appeared on the UNESCO World Heritage List since 2000.

<sup>10</sup> “Eufrazijeva bazilika” is a Christian basilica built in the 6th century during the period of Bishop Euphrasius and is famous for its mosaics, representations of Byzantine art.

In an analysis of the content of the Croatian version of Wikipedia in relation to the heritage objects listed in Table 1, it was found that they were presented in one primary thematic article and mentioned in 1 to 6 other articles (these other articles were thematically related to the geographical location, such as a city, a town or a village, or to the broader historical or cultural topic: see Table 2). As can be observed from the data presented in Table 2, seven thematic articles on Croatian heritage objects in the Croatian version of Wikipedia consisted of fewer than 300 words, and only the articles on the Vinodol Law Code, St Jacob's Cathedral, and the Baska Tablet were presented in more detail. Even though the primary thematic articles of these heritage objects in the Croatian version of the Wikipedia were highly ranked on the lists of the search results of the Google, Yahoo! and Pogodak! search engines and were very likely to be selected for viewing by those who performed related searches, most of the articles had only a small amount of textual information about the heritage objects and contained from 0 to 3 photographic images.

Table 2. The number and length (in number of words) of thematic articles on selected Croatian cultural heritage objects in the Croatian version of the Wikipedia and the number of other articles in which the heritage object was mentioned (in August 2007)

Name of heritage object	Number of thematic articles	Number of words in thematic article	Mentioned in other articles
Bašćanska ploča ( <i>The Baska Tablet</i> )	1	822	6
Plominski natpis ( <i>The Plomin Tablet</i> )	1	48	0
Višeslavova krstionica ( <i>The Baptistery of Višeslav</i> )	1	248	1
Crkva sv. Križa ( <i>The Church of the Holy Cross</i> )	1	169	1
Vinodolski zakon(ik) ( <i>The Vinodol Law Code</i> )	1	3.621	3
Povelja kneza Trpimira ( <i>Trpimir's Charter</i> )	1	214	1
Vučedolska golubica ( <i>Vučedol dove</i> )	1	71	4
Pulska Arena ( <i>The Coliseum in Pula</i> )	1	229	2
Katedrala Sv. Jakova ( <i>St Jacob's Cathedral</i> )	1	1.191	4
Eufrazijeva bazilika ( <i>Euphrasian Basilica</i> )	1	291	2

### **Social software tools in the presentation of cultural heritage**

The use of the wiki in presenting a museum collection is recommended when there is interest in public participation or in remote collaboration on the development of online content. The posting of general information on the museum on the Wikipedia should also be considered for promotional and other purposes (Bowen *et al.*, 2007).

Social software tools, such as the wiki, have great potential to enable visitors of various cultural heritage institutions to co-create the contents of the exhibitions. In one case of ICT (not a wiki) for similar purposes, visitors' theories and opinions regarding the museum's exhibition objects were recorded and could later be read by other visitors, thus enabling active contribution to the contents of the exhibit (Bannon *et al.*, 2007). Research projects which investigate social interactions related to cultural experience are emerging – one Belgian project called Heritage2.0 (Luyten and Nulens, 2007) aims to link such interaction to a digital environment which is location-sensitive. One of the goals of the Heritage2.0 project is to enrich visitors' experiences before an actual visit, during the visit and after the visit. Wiki technology can also be used in those phases of interaction with visitors of heritage sites, but pre- and post-visit phases seem to be particularly well suited for its use – the wiki makes it easy for visitors to make recommendations, express opinions, conduct discussions, etc.

There are also growing initiatives to use up-to-date ICT to create open interfaces between museum staff and visitors, which support interaction and collaboration in order to connect them in a participatory design process (Hall and Bannon, 2006; Walker, 2007). Wiki tools can easily facilitate such initiatives, especially if a museum or other type of heritage institution already has some kind of traditional web site for presenting its heritage artifacts. Since traditional web sites and interactive wiki sites are based on comparable standards and technologies, their integration is fairly simple, and thus the wiki can easily enhance the existing online presentation of heritage artifacts.

Another potential wiki application is in the collaborative development of online content through interaction between cultural heritage professionals. According to the results of a case study performed by Ontario Ministry of Culture (Bentley, 2007), such interactions can promote preservation of the heritage, enhance the management of artifacts and improve the exchange of knowledge between professionals. Since most of the available wiki tools can be configured to allow editing and reading capabilities only for a closed group of users (such as a group of cultural heritage professionals), wiki technology can be used effectively in such circumstances.

Weblogs, blogs or web-based diaries can also be used to promote cultural heritage. Weblogs are online documents created by social software tools. The content of weblogs is intended for public consumption and their creation does not require knowledge of HTML to enable publication on the web. Because of its simplicity, the technology of weblogs has become widely used, at first as a means of pub-

lishing diaries (personal thoughts, comments, experiences, philosophies, etc.) and more recently for the creation of online content related to almost every field of human interest. A recent study (Sifry, 2006) reported that about 100,000 new blogs were created each day and that *Technorati* (a major blog search engine, [www.technorati.com](http://www.technorati.com)) was tracking more than 57 million blogs.

In the context of cultural heritage, weblogs are mostly used to present historical centers and museums. Visitors can be enabled to write their own impressions and reviews on a specific museum blog, or to comment on the work of other bloggers. In that way, museum staff can gain useful information from visitors by reading their reviews and comments and at the same time visitors can gather information on the personal experience of other visitors about topics of their interest and can interact with them. Furthermore, cultural enthusiasts can be involved in creating and maintaining a museum blog on a specific topic.

An interesting example of a very well organized weblog is the *Museum Blogs* web site (see: <http://museumblogs.org/category/cultural-heritage>). It is a comprehensive directory and blog covering the latest news from art museums, science centers, and other museum-related bloggers. Its *Cultural Heritage* category contains over 200 searchable museum-related blogs and pieces of news. Visitors can browse blogs by category, search blogs by specific criteria, and subscribe to the most interesting blogs. They can also read news and post comments. *Museum Blogs* is meeting the growing need of cultural heritage organizations all over the world to use social software and web-based technologies. Unfortunately this kind of initiative still does not exist in Croatia.

## Conclusion

The results of the analysis presented in this paper indicate that the one of the most effective channels for the presentation of the cultural heritage of Croatia is through the content of the English and Croatian versions of the Wikipedia. As mentioned earlier in this paper, many Internet users consult the Wikipedia which is among the 10 most visited global web sites in western countries. The Wikipedia is also one of the most visited web sites after a Google search has been performed. However, for tourists who plan to visit some of the major towns and cities in Croatia, in most cases there is only limited content on the local cultural heritage in the English Wikipedia articles about those places. Also, for the users of the Croatian version of the Wikipedia, the content of most of the articles on Croatian cultural heritage objects is approximately the size of an abstract of a conference paper (100-300 words). It can be concluded that for the presentation of Croatian cultural heritage, the Wikipedia was ineffectively used at the time the analyses were performed for this paper (August 2007). Bearing in mind that any teacher of history or art at a high school or college institution can give his/her students an assignment to extend these articles, and that the expansion of the articles about the Croatian cultural heritage on the Wikipedia can also be done by professionals, the state of the Wikipedia articles on Croatian

cultural heritage in August 2007 was far from satisfactory. For institutions which have web sites on Croatian cultural heritage, it is opportune to participate in this effort and place links to their web sites in related Wikipedia articles. For museums and institutions which manage heritage sites, it is advised to create Wikipedia articles on their collections and artifacts.

This paper has also provided a brief theoretical analysis of the potential use of social software like wikies and blogs for the presentation of cultural heritage and for interaction with the visitors of museums and other heritage sites. The use of such software is relatively simple and its installation is quite inexpensive for heritage institutions which already manage a web site. Wikies and blogs can enable a more personalized, collaborative and interactive presentation of heritage content. They can attract attention and provide information in a less official way before and after a visit to a museum or heritage site. They also enable visitors to contribute to creating related textual, photographic and video content.

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