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Pain points of cultural institutions in search visibility: the case of Serbia

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Abstract

Purpose – The purpose of this paper is to identify the common issues affecting the cultural institutions' websites in terms of organic search visibility and to detect if there are some category specifics for the national libraries, archives and museums.

Design/methodology/approach – In the first phase, an online survey was conducted involving the cultural institutions of national importance, aiming to map the current state of their websites in organizational and functional terms, to collect the information about the used domains, their social media activity and the use of analytical tools to monitor the visitor behavior and online traffic. In the second phase, the cultural institutions' websites were analyzed using the "White Hat SEO" technics of optimization on Google.

Findings – From the category perspective, the historical archives have the best Technical search engine optimization (SEO) position due to the low coding errors and fair site speed, the libraries are leading in content generation and the museums have a very good total SEO index due to their strong social media activities. Common issues are detected in the description of web images, non-existence of sitemaps and low website mobile friendliness.

Research limitations/implications – The data were collected from the personnel of the national cultural institutions based on their pre-assumed knowledge and understanding of website management.

Practical implications – The research methodology can be used to analyze the organic visibility of any national culture on search engines.

Originality/value – A research gap in addressing the cultural institutions' websites from the search engine perspective was identified and addressed within the paper.

Keywords Websites, Last KW, Search engines, Search engine optimization, Cultural institutions, Online visitors

Paper type Research paper

Introduction

> Cultural institutions are about the material they contain. The first duty of the management and curators is to look after that material. The second duty is to make that material accessible to whoever wants to see it Sir David Wilson, former Director of the British Museum (Wilson, 1991, p. 11).

Due to the long-standing crisis and the government efforts to achieve economic consolidation, culture has not been a priority in Serbia for years. The allocation from the state budget for the culture amounts to only 0.81 percent of the GDP (Ministry of Finance Serbian Government, 2015), compared with Hungary as a neighboring country – 2.1 percent and the European Union average of 1.1 percent (Eurostat, 2017)[1]. Consequently, the majority of the national cultural institutions have been in the stage of hibernation, facing scarce new projects and visitors. Taking into account that approximately 60 percent of the cultural institutions' revenues globally are gained via subsidies and donations with 40 percent from ticket sales and one-third from store sales (Yeh and Lin, 2005), the Serbian national culture has been stranded in the long-term survival mode. Because of the reduced funding from cultural budgets and the growing competition in the recreational marketspace

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worldwide (Kotler and Rentschler, 2003), the cultural institutions have been facing the increasing pressure to attract wider audiences, increase visitation and their overall visibility. This requires the identification of opportunities such as online channels that can improve awareness, expand capacities for visitation and increase the core offering (Hume and Mills, 2011). For that reason, visits to the cultural institutions' websites have become increasingly popular, and in some cases the number of online visitors exceeds the number of physical ones (Fantoni *et al.*, 2012). Virtual visits do not only compensate for the decline in physical visits, but also lead to better-prepared visitors (Voorbij, 2010), or to the post-visit experience (Marty, 2007). There is a great potential for cross-promoting and cross-fertilizing audiences, as those engaged in arts and culture online are also engaged in arts and culture offline (Arts Council England, MLA and Arts and Business, 2010, p. 17).

Lately, the efforts have been made globally toward the digitalization of the national cultural heritage (CH), the digitized representations of physical objects and the enhancement of their online visibility on the internet (Petras *et al.*, 2017). The major aim of such initiatives is to create awareness, enhance branding, boost interest and synergistically contribute to the increase of online visits to the cultural institutions (Hume and Mills, 2011; Padilla-Meléndez and Del Águila-Obra, 2013; Skov and Ingwersen, 2014). Establishing partnerships with the donor community, the business sector, and other online cultural projects such as the Europeana[2], the Google Arts & Culture[3], the Online Computer Library Center[4] or the Google Books Library Project[5] are also in favor of strengthening the online presence of cultural institutions and CH visibility. The prerequisite for the digitalization of the CH, in addition to the copyright issues on the internet and the existence of appropriate hardware and software, is the platform for displaying the artifacts online – at the institutional websites. If their webpages are not visible to search engine crawlers due to some technical factors, not relevant to user queries due to the absence of keyword strategy, and not authoritative with backlinks from referrals and follower engagement on social media, their online visibility would be low.

Through our cabinet research, we found several academic studies on cultural institution's websites, with most of them considering usability and accessibility, followed by content, presentation and technical characteristics (Kabassi, 2017; Pallas and Economides, 2008). Some of the studies are related to the social media deployment, which is used for dissemination of information and engagement with the cultural public (Bountouri and Giannakopoulos, 2014; Kelly, 2009; Kidd, 2011; Pallas and Economides, 2008). However, the impact on cultural websites from the search engine optimization (SEO) perspective remains mainly untapped in academic research. In that respect, SEO is defined as the implementation of practices aimed at making the websites friendly to search engine crawlers and improving their visibility on the search engine results pages (SERP) (Dickinson and Smit, 2015, p. 11). SEO is especially important having in mind that the visitors' online activity is mostly focused on searching for information (about artists/performers and events), the search engines being the most common method of active discovery, even across older age groups (Arts Council England, MLA and Arts and Business, 2010, p. 27). Google and its various domains (Scholar, Images, News, etc.) drive more traffic to cultural institutions' websites and digital repositories than any other source. As a result, it is not only useful to incorporate SEO practices that help Google to reach, harvest and understand cultural institutions' web presence, but it is also important to pay attention and act accordingly when the search engine recommends changes to website practices (Askey and Arlitsch, 2014, p. 57). In addition, according to Skov and Ingwersen (2014), the most common reasons for visiting the cultural institutions' websites belong to the following motivational categories (p. 92):

- gathering information to plan an upcoming visit (opening hours, admissions, etc.);
- self-motivated research for specific content information;
- assigned research (school or job assignments) for specific content information;

- engaging in casual browsing; and
- making a transaction on the website (online shop).

By identifying the research gap in addressing cultural institution websites from the search engine perspective, and due to the gained importance of online channels in the journey of cultural institutions visitors, we have analyzed the SEO position of cultural institutions of national importance in Serbia, aiming to map the common pitfalls, and identify the category specifics.

Research objective and methods

For the purpose of further examination, cultural institutions were categorized into libraries, archives and museums, and the conducted research was divided in two phases. In the first phase, a quantitative online survey was conducted, where the Serbian Ministry of Culture and Information acted as liaison between the researchers and the cultural institutions. Out of 82 cultural institutions of national importance, a valid electronic survey was delivered by 63 institutions, whilst the remaining responses came from institutions that do not have a website (No. 11) and duplicates, e.g. multiple responses from the same institution (No. 8). Those responses were removed entirely from further analysis. The aim of this phase was to map the current state of the national cultural institutions in the following areas:

- organizational and functional website management, both technical and content wise;
- collecting information about the used domains;
- social media activity; and
- the use of analytical tools to monitor the visitor behavior and online traffic.

The electronic questionnaire consisted of 12 mainly close-end questions, two of which were related to the survey sample, as follows:

- the type of the cultural institution: the largest group of participants came from national libraries (No. 28; 44 percent), followed by historical archives (No. 20; 32 percent) and national museums (No. 15; 24 percent); and
- the organizational position: more than a half of the surveyed participants is in charge of content contribution and its placement on the website, whereas one-third is responsible for social networks and/or public relations.

In the second phase, the aim was to identify the common issues affecting cultural institutions' websites in terms of organic search visibility and detecting if there are some category specifics. The conducted analysis was based on the "White Hat SEO" technics of website optimization on Google, as the most dominant search engine globally[6]. The "White Hat" refers to the best practice examples of publishing webpages that are useful to humans, while enabling search engines to better understand the structure and content of the website (Scott, 2015, p. 1).

Finally, considering the current position of the Serbian cultural institutions in terms of organic search results, we have stipulated the following research questions:

RQ1. What are the common pain points of the cultural institutions in terms of organic search visibility?

RQ2. What are the positive category specifics of the cultural institutions in terms of search engines?

Results

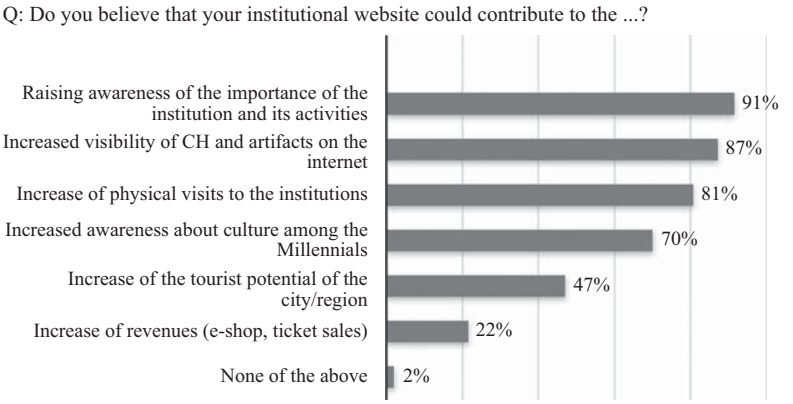
The vast majority of the cultural institutions (80 percent) are aware of the importance of their websites for users, visitors and clients. Only 10 percent of the respondents pointed out that the

target group (visitors, clients, donors) is being referred to other communication channels (e.g. social networks), mainly because the current website is odd and does not meet the institutional needs. Furthermore, the participants confirmed that the cultural institutions' websites have a much wider role, aimed at establishing a web presence. Namely, there is a high cognizance of the web presence opportunities concerning CH digitization, improvement of the online visibility of artifacts, awareness about activities and events and better attraction of visitors (Figure 1).

Website management: organizational and functional characteristics

From the organizational standpoint, it has been observed that about one-third of the surveyed cultural institutions lack a dedicated person responsible for the website management. Namely, the surveyed respondents pointed out that "everybody and nobody" deals with the websites of the institutions they belong to, and from various positions, the web administrator being the predominant one. Based on these findings, we could conclude that to systematically manage the cultural institutions' websites, it is necessary for the job classifications within the national cultural institutions to designate a person in charge of the website, as part of his/her regular job description. However, the issue of website management is a common pitfall for cultural institutions. The websites of the public libraries in the USA are mainly designed and managed by the librarians as part of their professional job duties (Chow *et al.*, 2014, p. 253), thus library websites are often the domain of a loosely regulated yet large segment of the staff, which represents a significant risk (Askey and Arlitsch, 2014). Based on the previous finding, it does not come as a surprise that a half of the cultural institutions in Serbia rely on their own resources when it comes to website maintenance, rather than outsourcing them to some external provider. However, the in-house website management prevents some more complex changes which are ultimately leading to visual improvements and better user experience (UX).

Next, the survey respondents indicated that in most of the cultural institutions, the websites are deployed in an open source content management system (CMS) (mainly WordPress), whilst only 13 percent own a custom-made CMS (e.g. large museums and national libraries), the finding which points to the lack of a systemic dealing with cultural websites in functional terms. Although a custom-made CMS is more expensive for deployment and maintenance, it tends to be safer and a more professional solution in terms of content placement and user experience (Biro, 2009; Chavan, 2004). Furthermore, two-thirds of the websites were deployed before 2012, which indicates that they are not mobile friendly and have outgrown their institutional capacities.



Note: Multiple choice answers

Figure 1.
From website to web presence

The summarized results about the organizational and functional characteristics of the website management in the surveyed cultural institutions are:

- in almost half of the institutions, the web administrator is organizationally in charge of the website maintenance (45 percent);
- more than a half (55 percent) of the institutions are relying on their own resources in website maintenance, which prevents complex improvements and innovations;
- most of the websites (78 percent) are deployed in some open source CMSs; and
- over a half of the websites (59 percent) were created before 2012, meaning that they are not mobile friendly and that they have outgrown their existing capacities.

Conflicting domains reduce the search engine branding of the national culture

Top-level domains (TLDs) are divided into two types: country-code TLDs (ccTLDs) reserved for the country for which a website is intended, and generic TLDs for the sites dedicated to specific purposes, such as .org for organizations and .com for commercial institutions purposes (Krzysztof, 2016, p. 568). As the internet has amplified in its importance, the national governments have increasingly viewed ccTLDs as a strategic part of their internet policy and national sovereignty (OECD, 2006, p. 16).

In this regard, the ccTLD for Serbia is .rs, and its usage serves as a strong signal to both users and search engines that the cultural institutions' websites are located in Serbia[7]. Although most of the cultural institutions are using .rs as their ccTLD, some of the respondents claimed other solutions (Figure 2), which showcases an uneven and unregulated situation. Therefore, we could conclude that the Serbian culture is missing a strong online identification that its brands are part of its nationality.

Finally, when analyzing the surveyed website addresses (URL), it is evidenced that the cultural institutions are inconsistent in communicating their names on the internet, a practice that creates difficulties on the Semantic Web as it prevents search engines to better understand that name abbreviations and variations refer to the same institution (Arlitsch, 2017).

Monitoring website performance

Measuring the number of physical visits to the location(s) provides an incomplete view of the total amount of use of the cultural institution and its resources. Thus, the web statistics, which offers insight into the use of a website, serves as a necessary complement to the physical measures, even more so when physical visits are being replaced by online visits. A study conducted among the cultural institutions in the Netherlands showed that gathering web statistics is quite common, the most popular being the number of online visitors and page views (Voorbij, 2010). However, given the development of cultural institution services since the introduction of the internet, the measurement of unique visitors, time spent and interaction with the content will become an important part of their operations (Caldwell, 2005). Furthermore, the web statistics is also used for practical purposes, such as adapting

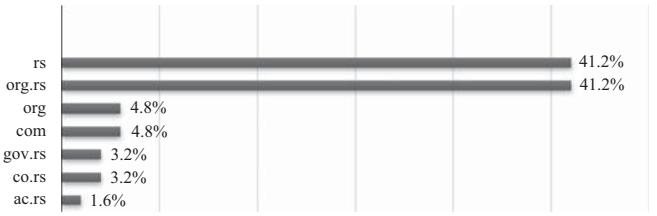


Figure 2.
Domains in use

the website, or as a critical success factor in setting the priorities for further CH digitization (Caldwell, 2005).

Among the Serbian cultural institutions, we have recorded the insufficient awareness about the use of web statistics and free analytics tools, such as Google Analytics (GA) for tracking and reporting on the website traffic. Only one-third of the respondents confirmed the usage of GA, as presented in Figure 3. Comparing the type and importance of institutions owning a website analytics tool, we can conclude that the degree of knowledge and usage is mainly related to the size of the institution; i.e. the bigger the institution, the more frequent the use of analytics (Kaushik, 2009). GA, designed to support Google's primary revenue stream, i.e. advertising, has many strengths, including its cost (it is free of charge). However, GA might be inappropriate for some types of cultural institutions, such as libraries, which have a tradition to protect the readers' privacy. Another alternative for web analytics might be Piwik (piwik.org), a free, open source tool, which supports local data collection (Chandler and Wallace, 2016).

The state of content freshness

Anagnostopoulos *et al.* (2010) defined content freshness as the rate of how fast a search engine updates its caches, reflecting the time lag between the cached version and the real version of a webpage as appearing on the web, calculated by averaging the differences between the time when the tests take place and the time when the search engines last updated their indexes (p. 741). In 2011, Google announced an important change to its ranking algorithm by starting to valuate content freshness as an important indicator designed to give users the most up-to-date results in web search. The best practices incorporate a regular update of the new, fresh content focusing on core pages (e.g. home page, category pages), a steady link growth and improvement of engagement metrics, such as shares (Shepard, 2016).

In our survey, the cultural institutions showed the strong awareness about the importance of new content generation, as two-thirds of them are performing regular content updates on a weekly basis (Figure 4). If we consider this finding from the category perspective, libraries are

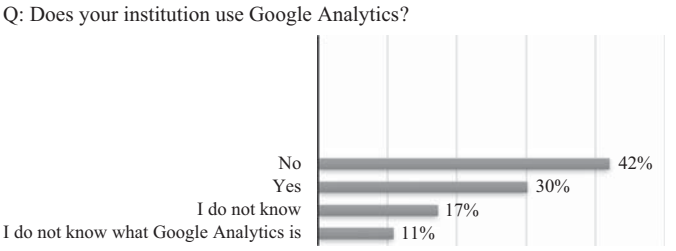


Figure 3.
The use of Google Analytics by the cultural institutions' websites

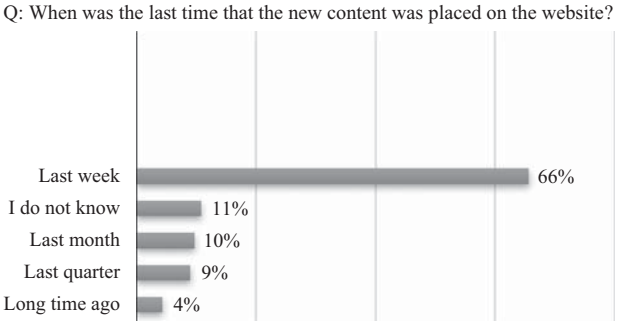


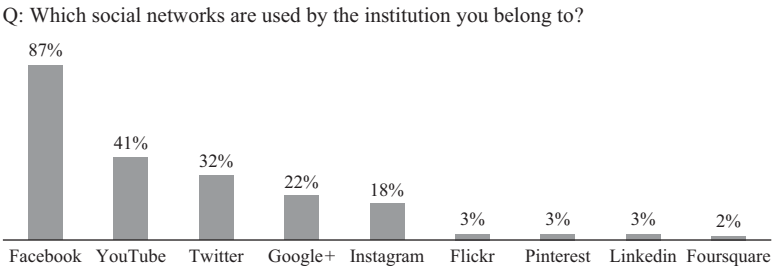
Figure 4.
The state of content freshness on the cultural institutions' websites

standing out as the content leaders. As the reasons why content updates are not more frequent, the institutions listed the absence of novelties, activities and events in their operations, but also the lack of time and the necessity of designating a person to deal with the website on a daily basis.

The strategic use of social media

The social media sites have been used since the early 2000s to give cultural institutions a recognizable face, as an extension of their branding activity, and to disseminate a variety of information to the wider public (Bountouri and Giannakopoulos, 2014; Kotler and Rentschler, 2003; Padilla-Meléndez and Del Águila-Obra, 2013). Kidd (2011, p. 66) identified the three organizing frames for the social media activity of cultural institutions: the marketing frame (promoting the "face" of a cultural institution), the inclusivity frame (related to the notions of real and online "community") and the collaborative frame (promoting collaboration with the audience). A study conducted by the Arts Council England, MLA and Arts and Business (2010) indicated that in today's digital environment, it is not enough for cultural institutions only to participate in the social media world, but that they should also be actively involved with a specific social media strategy. This would positively affect the needs of online audiences for the two-way communication, whilst further steps to improve the dialogue would develop the relationship between audiences and institutions.

Referring to our survey, the cultural institutions showed some intense activity on social networks, with the museums as the category leaders (the absence from social networks has only been recorded in the institutions without a website). Namely, nearly a half of the institutions are present on more than one social network, a positive finding which speaks about their desire to be engaged toward visitors, and showcases the visibility of their conducted activities. Furthermore, almost all the surveyed institutions are active on Facebook (Figure 5), followed by Twitter and YouTube, a finding similar to the one recorded by Thomson *et al.* (2013) who identified that the three most commonly adopted social media networks within the cultural sector globally are Facebook, Twitter and YouTube. However, our finding about the strong social media use contradicts our previous finding about the lack of people dedicated to the website management in organizational terms, as managing more than one social network is also time consuming. Furthermore, based on the research findings by Padilla-Meléndez and Del Águila-Obra, (2013) who discovered that the combination of web and social media usage for cultural institutions synergistically contributes to the online value creation, we can conclude that the Serbian cultural institutions wasted the full potential of their online value creation based on the identified weaknesses in organizational and functional terms.



Note: Multiple choice answers

Figure 5.
Social networks in use

Organic search visibility of cultural institutions

In the second phase of our research, whose goal was to define the common issues affecting the cultural institutions' websites in terms of organic search visibility, we first divided the SEO analysis into three major parts (Enge *et al.*, 2015):

(1) On-page SEO, i.e. the optimization of the webpage content, visuals and meta-tags with target keywords, showing the website relevance.

(2) Off-page SEO, i.e. the process of enhancing the website authority and its reputation with backlinks from other well-reputed websites, and the achieved social media engagement (like-share from webpages to social media and vice versa).

(3) Technical SEO, i.e. the factors which increase the findability of the website and its content for search engine crawlers and enhance the UX, e.g., the reduction of HTML errors, the mobile friendliness, the site speed score and the existence of the search engine map.

Search engines rank search results according to a broad range of factors. Google is said to employ more than 250 factors in its ranking algorithm, most of which are being held as closely guarded secrets (Cheng-Jye *et al.*, 2016). However, several prominent search metrics and SEO tool companies regularly publish their ranking factors study reports. These studies generally use the rank correlation coefficient to indicate the relationship between the rankings of search results and the feature values of the search results on a per-feature basis. The factors that have relatively high correlation coefficient are considered to have a strong influence on the search engine ranking (Cheng-Jye *et al.*, 2016; Mavridis and Symeonidis, 2015). For observing the surveyed websites in terms of relevance, authority, reputation and findability on Google, and according to the recent ranking factors surveys performed by companies Moz[8] and Searchmetrics (2016), the following measurement protocol was applied:

(1) Total SEO index; presented on a scale from 1 to 100 (with 1–30 as poor performance, 30–60 as good, 60–80 as very good and over 80 as excellent). For its calculation, the popular SEO checker and website review tool Woorank[9] has been deployed.

(2) On-page SEO[10]:

- Application of keywords optimized alternative text (alt-text) used within an HTML code to describe the appearance of an image on a page, as the first and foremost principle of web accessibility (Enge *et al.*, 2015). The websites which have described their images for search engine crawlers received 0, vs 1 for those which contain images without alt-text (tested with Woorank).

(3) Off-page SEO:

- Social score, analyzed by the SEO Review Tools[11], which displays the social media authority and social media interactions for a particular website, indicating how visitors interact and like the content. The higher the calculated social media interaction, the higher the social media authority score for a specific cultural institution.
- Domain authority (DA) link metrics includes the number of root domains linked to the domain, the number of unique internet protocol addresses (IP's) linked to the domain, and predicts how well a website ranks overall on SERPs based on the strength of external links pointing to the website on a scale from 1 to 100 (with 1 as the lowest, and 100 as highest), tested with Moz tool[12].

(4) Technical SEO:

- Site speed score, which Google indicates as one of the major signals used by its algorithm to rank pages (Webmaster Central Blog, 2010). Site speed is also important to UX, as pages with a longer load time tend to have higher bounce rates and lower average time on page (Enge *et al.*, 2015). This indicator was also presented on a scale from 1 to 100, and the Google Speed Test for page speed insights was applied[13].
- Website's mobile friendliness, with 0 as mobile friendly and 1 as not mobile friendly, tested with the Google mobile friendly test[14]. Since 2015, Google has officially extended its search to include mobile friendliness of a website as part of the assessment in the search results. This means that the sites with poor mobile experience will not be good ranked, or even penalized, as pages that are adapted for mobile devices (Schubert, 2016; Sullivan, 2014).
- The existence of sitemaps, which refers to those offering search engine crawlers a comprehensive list of the URLs wishing to have index created (Dickinson and Smit, 2015). The websites having a search engine sitemap received a score of 0, and those without a search engine sitemap 1, and were tested by the Woorank tool.
- Compliance with the World Wide Web Consortium (W3C) standards, with 0 for low errors and 1 for many errors, indicated by Woorank and markup Validation Service of the Consortium[15] (Table I).

From the category perspective, the national libraries recorded a marginally good total SEO index (43/100), with the following patterns and issues identified:

- Over a half of the national libraries did not describe their web images with alternative text (54 percent).
- In terms of the Off-page SEO, the lower social score (26) was recorded, mainly due to the strategic orientation toward local membership. Also, a very low domain authority (26/100) indicated the lack of a backlink strategy.
- Regarding the Technical SEO issues, fair results were recorded with the site speed score (52/100), but the situation is rather serious in light of the fact that two-thirds of the websites are not mobile friendly (68 percent) and do not possess a sitemap for search engine crawlers (75 percent) which makes the new content generation almost invisible on search engines. What mitigates the situation is the finding that only one-third of the websites are not W3C compliant (32 percent).

Based on the listed findings, we can conclude that the Off-page SEO results, together with the lack of sitemap and mobile friendliness, are strongly affecting the total SEO score for the national libraries.

Table I. SEO analysis for the Serbian cultural institutions: category averages

		Category averages						
Cultural institutions per category	SEO index	Without alt-text (%)	Social score	Domain authority	Site speed score	Not mobile friendly (%)	Without sitemap (%)	Not W3C compliant (%)
1. National libraries	43/100	54	26	26/100	52/100	68	75	32
2. Historical archives	37/100	40	6	22/100	55/100	65	70	10
3. National museums	52/100	40	54	35/100	51/100	33	53	13

Next, the historical archives had a good to poor total SEO index (37/100), with the following highlights:

- 60 percent of the archives optimized their web images with alternative text, which shows a positive trend for the category.
- Regarding the Off-page SEO, a very poor social score has been recorded (6) due to the inactivity in the social media arena. Thus, a very low authority has been detected within the category (22/100).
- In terms of the Technical SEO, solid results are demonstrated by the site speed score (55/100), mostly related to the fact that the majority of the websites are W3C compliant (only 10 percent of them have some issues). However, close to two-thirds of the websites are not mobile friendly (65 percent) and do not have a search engine sitemap (70 percent). The latter affects the website crawlability potential and its visibility on search engines, retroactively affecting the low domain authority.

As a conclusion, the very low Off-page SEO score mostly affects the total SEO score of the historical archives, caused by the social media dormancy and the missed opportunity in backlink generation. Thus, the lack of mobile optimized websites and search engine sitemaps with the majority of archives strongly affects their SEO position on Google. This category recorded the lowest score in organic search visibility. The low coding errors are a positive finding, in which respect the archives are the undisputed category leaders.

Finally, the national museums are clearly the category leaders in terms of SEO and organic visibility, with the total index of 52/100 and the following highpoints:

- 40 percent of the national museums did not exploit the opportunity to explain their web visuals with alternative text.
- Regarding the Off-page SEO, the highest category score is in the social media activity (54). Besides, the category recorded the highest domain authority (35/100), which is still modest taking into account that the subject of analysis was the national museums[16].
- The technical SEO factors recorded the solid results in site speed (51/100) and the excellent score in W3C compliance (only 13 percent are not compliant). After such promising results, we found it disappointing that over a half of the museums do not have a sitemap (53 percent), making their new webpage content difficult to discover for search engine crawlers. Also, one-third of the national museums do not have a mobile friendly website (33 percent), which is considered as a "must have" for the category.

In conclusion, the national museums are showcasing a dedication to their web presence, and with certain improvements in their image descriptions and in Technical SEO factors their organic visibility would be further enhanced, which would contribute to the overall visibility of the Serbian national culture on the internet.

Conclusions

Cultural institutions that are skilled in digital marketing – and particularly in the areas such as SEO and the use of social (earned) media – will see more people through their doors than the ones that rely on an old-school website (Arts Council England, MLA and Arts and Business, 2010, p. 44). Furthermore, making the digital content visible to the public is a good means to reach new audiences and attract the Millennials. Bearing in mind the global limitations in financing the culture, the increase of web visits because of better optimized websites based on the natural search engine listings is considered as a desired strategy for the agenda of the national ministries of culture and the managers of cultural institutions. The former stakeholder should provide the institutional framework which would address the detected issues in

organizational and functional website management, in addition to the national domain unification. The later stakeholder should apply the modern view on cultural artifacts and collections, in switching from the traditional "keep and protect" mode to the "experience and engage" mode. A change is necessary in both attitudes and departmental structures; rather than relegating SEO to the IT department, the administrators must integrate SEO into their organization's overall mission in order to ensure that the staff at all levels is aware of its importance in reaching the community (Arlitsch *et al.*, 2013). Creating and displaying the engaging content through the websites on the internet is at the same time a creative process in which the entire transformation of the institution's work, the change of its image and the public perception of the institution's position, significance, importance and the CH it preserves come to the fore. The analysis of the cultural institutions' websites from the search engine perspective should be a regular and strategic activity, supported both by the leadership of the institution and by the decision-makers at the highest level, such as the founders and the Board of Directors of the cultural institutions, and ministries of culture as the umbrella institutions. This would ensure sustainability of the website optimization process, as the mentioned decision-makers in charge of adopting the cultural budgets could provide supporting funds for that purpose (e.g. for education in SEO and content marketing, supporting the development of mobile websites, investment in software tools for monitoring and search engine position enhancement).

When addressing the national culture through the lens of the recorded total SEO index, we can conclude that the average score is low, with the national museums being the overall category leaders. The low SEO score evidently affects the visibility of the national culture on the internet, and its improvements would contribute to the increase of its broader importance. The identified common pain points for all the cultural institutions in Serbia (*RQ1*) are the description of web images for both visually impaired visitors and search engine crawlers and the non-usage of sitemaps, which would increase the visibility of fresh content, predominantly sourced from activities and news. Next, the predominant lack of mobile optimized websites further contributes to the decrease of online visibility of the Serbian culture on the internet, having in mind that Google started to experiment with the mobile-first indexing, which will become the prime index for showing web results in 2018 (Phan, 2016).

The positive category specifics of the cultural institutions in terms of search engines (*RQ2*) are that the national archives have the best Technical SEO position due to the low coding errors and a fair site speed, the libraries are the "queens of content," albeit the museums have a very good total SEO score mainly driven by their social score. Commonly seen, the relevance (On-page SEO) of the Serbian national culture is better than its authority on Google (Off-page SEO), which brings us to the conclusion about the untapped potentials in performing joint projects, and connecting with the broader partners, which are both in the function of generating high-quality backlinks, as the signals of online recommendations.

To our best knowledge, this type of analysis involving cultural institutions has not been conducted before. The findings may help the managers of cultural institutions, content creators, web administrators and social media managers to address their websites from the search engine perspective and to make better informed decisions regarding the online strategies and resource allocation. The limitations of the research are that the drafted conclusions are based on the data collected from the personnel of the cultural institutions, based on their pre-assumed knowledge and understanding. The exact data could only be provided with the insights into GA (concerning visitors' behavior) and Google Search Console (concerning website impact and state of technical factors), for which it is necessary to obtain a legal access permit. Furthermore, Google makes frequent changes to its search algorithm, to provide the best user experience. Some of the recent changes which are affecting cultural institutions, such as favoring websites that use the secure hypertext transfer protocol in its search results rankings (Askey and Arlitsch, 2014) have not been considered in the paper, as they were not applicable at the time of the research.

Notes

1. Per Eurostat methodology, classified on recreation, culture and religion.
2. www.europeana.eu/portal/en
3. www.google.com/culturalinstitute/beta/
4. www.oclc.org/
5. www.google.com/intl/en/googlebooks/library/
6. www.netmarketshare.com/search-engine-market-share.aspx?qprid=4&qpcustomd=0
7. www.rnids.rs/en/domains/national-domains
8. https://moz.com/search-ranking-factors/survey
9. www.woorank.com
10. Other common On-page SEO elements such as the title tag, headings and optimized content were not analyzed. Namely, none of the institutions properly configured their headings, but all of them set their title tags with institutional names. The analysis of the page content would be possible only with an individual keyword strategy.
11. www.seoreviewtools.com/social-authority-checker/
12. https://moz.com/researchtools/ose/
13. https://developers.google.com/speed/pagespeed/insights/
14. https://search.google.com/test/mobile-friendly
15. https://validator.w3.org
16. The British Museum has a domain authority of 89.

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Appendix. SEO analysis for the Serbian national institutions (November 2017)

Institutional name	Web address	SEO index	Without alt-text	Social score	DA	Site speed score	Not mobile friendly	Without sitemap	Not W3C compliant
1. Vladislav Petkovic Dis, Čačak	cacak-dis.rs	49	1	50	27	59	1	1	1
2. Jovan Sterija Popović, Kikinda	kibiblioteka.org.rs	42	1	4	22	66	1	0	0
3. Gradska biblioteka Subotica	subiblioteka.rs	35	0	68	26	88	1	1	0
4. Biblioteka Šabac	bibliotekasabac.org.rs	54	1	3	22	70	0	0	1
5. Narodna biblioteka Pirot	nbpi.org.rs	50	1	16	23	28	0	0	0
6. Gradska biblioteka Zrenjanin	zrbiblio.rs	45	0	42	22	37	0	1	0
7. Univerzitetska biblioteka S. Marković	unilib.rs	59	0	41	43	69	0	0	0
8. Narodna biblioteka Radoje Domanovic	nbleskovac.org.rs	29	0	0	19	54	0	1	0
9. Narodna biblioteka Bor	biblioteka-bor.org.rs	49	0	3	26	63	0	1	0
10. Biblioteka Grada Beograda	bgb.rs	53	0	42	42	47	1	1	0
11. Srpska Akademija Nauka i Umetnosti	sanu.ac.rs	37	0	4	56	74	1	1	1
12. Radislav Nikčević, Jagodina	jabooka.org.rs/	51	1	116	28	49	1	1	0
13. Ljubomir Nenadović Valjevo	maticnabiblioteka-va.org.rs	26	1	0	23	33	1	1	1
14. Narodna biblioteka Smederevo	biblioteka-smederevo.org.rs	38	1	0	28	23	1	1	0
15. Narodna biblioteka Stevan Sremac Niš	nbss.rs	61	0	62	30	8	1	0	0
16. Stefan Prvovenčani Kraljevo	kv-biblio.org.rs	43	1	0	26	54	1	1	1
17. Narodna biblioteka Srbije	nb.rs	51	1	148	57	65	1	1	1
18. Rade Drainac Prokuplje	bibliotekaprokuplje.org.rs	33	0	3	9	39	1	1	0
19. Gligorije Vozarović	biblioteka-sm.rs	44	0	23	15	49	1	1	0
20. Karlo Bjelicki Sombor	biblioso.org.rs	32	1	3	29	72	1	1	1
21. Svetozar Marković Zaječar	bibliotekazajecar.com	24	1	23	1	67	1	1	0
22. Biblioteka Vranje	bibliotekavranje.rs	33	1	3	13	66	1	1	0
23. Biblioteka Matice Srpske	bms.rs	37	1	0	35	86	1	1	1
24. Dr Vićentije Rakić Paraćin	nbvrakic.org.rs	49	0	3	11	35	0	0	0
25. Dr Milovan Spasić Rekovac	rekovac.jabooka.org.rs	43	1	1	28	50	0	1	0
26. Narodna biblioteka Užice	biblioteka-uzice.rs	32	1	42	20	68	1	1	1
27. Narodna biblioteka Kruševac	nbks.org.rs	56	0	24	30	6	0	0	0
28. Ilija Petrović Požarevac	bibliotekapozarevac.org	38	0	16	23	27	1	1	0
Total No. 28		1,193	15	740	734	1,452	19	21	9
Category averages		43/100	54%	26	26/100	52/100	68%	75%	32%

Table AI.
SEO analysis for the national libraries

Table AII.
SEO analysis for the historical archives

Institutional name	Web address	SEO index	Without alt-text	Social score	DA	Site speed score	Not mobile friendly	Without sitemap	Not W3C compliant
1. Istorijski Arhiv (IA) Subotica	suarhiv.co.rs	35	1	0	24	55	1	0	0
2. IA Grada Beograda	arhiv-beograda.org	59	0	5	34	19	0	1	0
3. IA Šabac	arhivsabac.org.rs	30	0	0	13	35	1	1	0
4. IA Zrenjanin	arhivzrenjanin.org.rs	36	0	0	23	57	1	1	0
5. Arhiv Vojvodine	arhivvojvodine.org.rs	54	0	41	29	61	0	0	0
6. IA Bela Crkva	arhivbc.rs	34	1	34	18	37	1	1	0
7. IA Jagodina	arhivja.org.rs	32	0	0	10	85	1	1	0
8. Arhiv Srbije	archives.org.rs	53	0	0	41	66	0	0	1
9. IA Vranje	vranjearhiv.com	33	1	5	12	45	1	1	1
10. IA Senta	zentarhiv.rs	28	0	2	21	83	1	1	0
11. Arhiv Jugoslavije	arhivyu.gov.rs	28	0	0	29	60	1	1	0
12. IA Kikinda	arhivkikinda.org.rs	28	0	0	6	72	1	1	0
13. IA Toplice	arhivtoplice.org.rs	32	1	3	10	39	1	1	0
14. Arhiv Čačak	arhivcacak.org.rs	32	1	10	19	51	1	1	0
15. Vojni arhiv	vojniarhiv.mod.gov.rs	25	0	0	58	43	0	1	0
16. IA Šumadije	istorijskiarhivsumadije.com	35	1	0	15	41	0	1	0
17. IA Kraljevo	arhivkraljevo.org.rs	50	0	13	19	47	0	0	0
18. IA Požarevac	arhivpozarevac.org.rs	37	0	0	21	45	1	0	0
19. IA Timočka krajina	arhivzajecar.org.rs	54	1	6	16	69	0	0	0
20. IA Niš	arhivnis.co.rs	30	1	0	23	82	1	1	0
Total No. 20		745	8	119	441	1,092	13	14	2
Category averages		37/100	40%	6	22/100	55/100	65%	70%	10%

Table AIII.
SEO analysis for the national museums

Institutional name	Web address	SEO index	No alt-text	Social score	DA	Site speed score	Not mobile friendly	No sitemap	Not W3C compliant
1. Muzej Vojvodine	muzejvojvodine.org.rs	49	0	24	37	53	1	0	0
2. Muzej nauke i tehnike	muzejnt.rs	51	0	25	30	62	0	1	0
3. Muzej primenjene umetnosti	mpu.rs	39	0	159	38	63	1	1	0
4. Muzej Jugoslavije	muzej-jugoslavije.org/	67	1	152	17	95	0	1	0
5. Muzej pozorišne umetnosti	mpus.org.rs	61	1	18	35	52	0	0	0
6. Galerija Matice srpske	galerijamaticesrpske.rs	45	0	31	33	9	0	1	0
7. Etnografski muzej	etnografskimuzej.rs	60	1	46	47	70	0	0	0
8. Narodni muzej	narodnimuzej.rs	56	0	130	40	57	0	1	1
9. Muzej žrtava genocida	muzejgenocida.rs	46	0	2	33	37	0	1	0
10. Staro selo Sirogojno	sirogojno.rs	57	0	66	29	22	0	1	1
11. Muzej naivne i marginalne umetnosti	mnmu.rs	40	1	56	22	43	1	0	0
12. Prirodnjački muzej	nhmbeo.rs	38	0	16	34	64	1	1	0
13. Muzej Subotice	msub.org.rs	58	1	8	46	74	1	0	0
14. Istorijski muzej	imus.org.rs	57	1	12	42	28	0	0	0
15. Jugoslovenska Kinoteka	kinoteka.org.rs	61	0	69	46	39	0	0	0
Total No. 15		785	6	814	529	768	5	8	2
Category average		52/100	40%	54	35/100	51/100	33%	53%	13%