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CULTURAL HERITAGE DIGITIZATION – INCLUSIVE PROCESS

Abstract. Physical accessibility of public buildings in Serbia is regulated by a series of laws and by-laws that are not being fully implemented. Contents of institutions therefore remain inaccessible for persons with disabilities, that make up about 10% of the population.

However, the presentation of cultural heritage is no longer determined by space in which it is exposed, physical presence at the exhibition or the number of exhibits that may be displayed. Through digital technology it is possible to bridge the physical inaccessibility. The only condition is to take into account the reduction of the digital gap between those for whom digital technology is available to those to whom it is not.

When we talk about people with disabilities, this effect has cumulative effect. This population is already marginalized because of a physical barriers due to poverty, poor education and general social status and digital technology is not accessible to them.

The modern development of information and communication technology made digital content available to the general society in a growing number of devices and with the support of a growing number of software and applications.

During the digitization of cultural heritage, it is necessary to take into account standards of universal design and universal access, and to provide availability of the digitized materials to persons with disabilities.

Keywords. digitization, accessibility, persons with disabilities, applications, inclusion.

Introduction Physical Accessibility – a Missed Opportunity

Ensuring accessibility to public facilities and accessibility of their content represent a moral imperative and obligation for the society. Free movement, participation in public and cultural life represents a legal obligation arising from the Constitution and they are one of the main postulates of the human rights and freedoms.¹

Physical barriers for persons with disabilities appear at every step - whenever leaving their homes, when stepping to sidewalks, when using transportation means, entering various institutions etc. Such access barriers are often seen in physical environment due to narrow-minded views regarding disability issues, when the needs of persons with disabilities are often neglected or when inaccurate presumptions of their needs are adopted. Environmental barriers can prevent or hinder access to facilities and services, provoke the feeling of irritation and confusion in users or even cause injuries in more severe cases.

In 2006 in Serbia the Law on Prevention of Discrimination was adopted that envisaged the obligation of local self-governments to allow physical accessibility to cultural institutions and other public facilities to persons with disabilities.

Persons with disabilities represent one of the most vulnerable social groups in Serbia. This group includes 10% of the population the majority of which possesses work ability. This group includes around 800,000 people (Markovic, 2011).

¹ www.parlament.gov.rs/upload/documents/Ustav_Srbije_pdf.pdf

Economically speaking, their potential is huge. They are capable of working, earning a living, producing and participating in all social and economic trends in the country.

Physical accessibility of public facilities, transportation means and other facilities has been regulated by the Rulebook on Technical Standards for Planning, Designing and Building of Structures (“Official Gazette of the Republic of Serbia“, No.22/2015), Law on Prevention of Discrimination (“Official Gazette of the Republic of Serbia“ No. 22/2009) and principles of the Convention on the Rights of Persons with Disabilities (“Official Gazette of the Republic of Serbia“ No. 42/2009). These documents ensure that persons with disabilities, children and elderly people have freedom of movement and access to public and residential buildings, they can use public transportation, have right to independent life and can participate in all social activities.

In the Report of the Committee on the Rights of Persons with Disabilities (Tatic et al., 2014) it has been stated that it was not until 2007 that the removal of barriers to accessibility started mainly thanks to the support of foreign donations and it was done without a plan.

The situation regarding the accessibility to cultural institutions is also very poor. Very few national institutions have ensured accessibility, and even fewer work on providing accessible content for persons with disabilities (Tatic et al., 2014).

The data presented indicate that the opportunity to ensure physical accessibility to cultural institutions for persons with disabilities and their participation in social activities has been missed. Inaccessible content of cultural institutions has much wider implications than the mere failure to visit such institutions. In this way, persons with disabilities are deprived of opportunities for education, intellectual development and meaningful use of their leisure time.

Digital Divide

Digital divide is a modern term that was created in the early 21st century with the aim of drawing attention to the growing gap between digitally literate and digitally illiterate population. This divide is a result of the increasing material and social stratification of the society, unequal Internet accessibility and other factors.

It is highly likely that persons with disabilities shall be classified into the group of digitally illiterate population. This is indicated by the fact that their income is below average and it is also affected by somewhat poorer educational structure of persons with disabilities.

The greatest divide in terms of presence of computers in households is observed when it comes to the structure of households according to their monthly income. The majority of households the monthly income of which exceeds EUR 600.00 (88.9%) are more likely to possess a PC, whereas the share of households the income of which is EUR 300 is only 47.2% (Vukmirovic, Pavlovic and Sutic, 2014).

The data obtained in the research The Use of Information and Communication Technology in the Republic of Serbia in 2014 further show that persons with university or college education tend to use computers more often than persons who have less than secondary education (84% compared to 30.4%). In 2013, 81.6% of employees used a PC when compared to 52.5% of the unemployed and 22.2% of other population, including pensioners. Over 90% of young people between 16 and 24 used a PC at least once in three months unlike around 70% of people between 25 and 54) and only 20% of people between 55 and 74. These records include entire population, however, persons

with disabilities are within a category with the lowest income and the lowest education level.²

As regards the data obtained about the usage of computers and the Internet in the survey conducted by the Statistical Office of the Republic of Serbia, the first conclusion one may draw is that the majority of persons with disabilities, 515.840 of them (90.2% out of the total number of persons with disabilities) are persons who do not use either a PC or the Internet. Those are mostly elderly people (the age ranging from 55 to 74), actually 446.738 of them (almost 87% of people with disability lacks computer literacy, whereas the number of persons with disabilities between 25 and 54 years of age who use neither computer nor the Internet is 64,660 (around 12%). The number of younger population with disabilities between 15 and 24 who do not use either a PC or the Internet is 4.442 (around 1%).

Nevertheless, the simplest and the most cost-effective manner of providing accessible information is by adjusting the Internet because at the same time it increases the communication possibilities, interaction, education and employment of persons with disabilities (Radosav & Catic, 2012).

The Importance of Digitizing Cultural Heritage

Cultural asset is a common public asset and, therefore, a free and simple access to a large number of contents for as broader population as possible should be provided both in local and international community. For that part of the population for which these contents are inaccessible it is extremely important that the greatest possible portion of cultural heritage can be accessed freely, which particularly refers to cultural, artistic and other works for which the period of validity of royalties has expired. In such manner the visibility and interest of the widest public in cultural and scientific works becomes increased which ultimately results in raising general cultural level and global visibility of culture.

When presenting digitized cultural heritage one must pay attention not to repeat the same mistake as in providing physical accessibility. The work on accessibility of digital contents to persons with disabilities requires less funds and effort than providing physical accessibility.

Prevention of accessibility to information and communication technologies is yet another kind of exclusion not only from information society but also from all the segments of social activity. For persons with disabilities this means inability to establish mechanisms for independent life with the help of information and communication technologies (UN Report, 2013).

Modern development of information and communication technology made it possible for digital content to be accessible to the widest social classes on numerous devices and with the support of a growing number of softwares and applications.

The digitization of cultural heritage represents a challenge and a new approach to the presentation of cultural institutions' content to the audience.

There are numerous applications on the market intended for persons with disabilities that allow them to use the content on the Internet and ICT devices more easily, facilitate their spatial mobility, understanding of contents etc.

In view of all that has been said above cooperation should be established between cultural and scientific and research institutions in the field of research innovations and development of new solutions for digital content accessibility both of

² Strategy for Improvement of the Position of Persons with disabilities, Official Gazette of the Republic of Serbia No.1/2007

digitized cultural heritage (archives, libraries, museums) and digitized content of artistic work (cinematography, magazines, TV production etc.).

Digital content represents “added value“, created through the use of information and communication technologies, to artistic and cultural heritage and contemporary production and culture (Ronchi, 2009).

Culture and cultural content can be accessed through the media, the Internet, mobile devices and other ICT devices.

The access is possible only if the content is in digital form adapted for persons with disabilities and if accessibility standards have been met. Persons with disabilities must not be excluded from cultural and artistic events. It is the obligation of the society to allow them free access to cultural content in digital form.

The UN Report titled *The ICT Opportunity for a Disability-Inclusive Development Framework (2013)* speaks of the significance of digital content through the example of the work of libraries and librarians. Digital content in libraries has major importance on spreading the popularity of books among users, younger generations in particular. Furthermore, libraries have also an inclusive role because they should create accessible environment for persons with disabilities. Digital content in libraries for persons with disabilities includes: books for the blind (audio releases); accessible information in the form of accessible magazines, newspapers, the Internet etc. The model of setting a good foundation is the digital National Library of Serbia.³

Digital content can be also accessible via television, both cable and terrestrial TV. Cultural content is certainly more desirable and educational than some other entertaining content that lacks in quality.

Films, both feature and documentary ones, can be also digitized and shown by digital-cable or terrestrial TV network with provided subtitles for the deaf or hard of hearing or with audio description of the program for the blind and visually impaired.

What is important is to stress the significance of cultural content because it is a step forward towards digital technology accessibility.

Digital Accessibility

Information and communication technologies demonstrated excellent adaptability and huge possibilities when it comes to creating inclusive solutions (Zinnbauer, 2007, 27-31). The majority of Internet portals have installed options for selecting the letter size.

In addition, many portals and presentations have the option of adapted version for persons with disabilities. The introduction of the term *Universal Access* that defines the access to ICT which is equal for all is quite important.

The term *Universal Access* has several meanings. Some interpret it as a politically correct term that implies the introduction of “specialized features“ for “special users“ in the product design. The second and accurate interpretation refers to the way in which such access is treated by designers: universal design as the most comprehensive solution for the largest number of users (Stephanidis & Savidis, 2001).

Nowadays, there is unequal distribution in accessing technology-supported services. Digital technology opens new possibilities for over 60% of the population, linking them to better job opportunities, quickly accessible information, new ways of communication and social interaction, joint infrastructures, public administration services, consumer power and various other benefits. There is a serious risk that persons with disabilities and elderly citizens in particular could be digitally marginalized.

³ <http://www.digitalna.nb.rs/>

Accessibility means availability of information and communication technologies and services to persons with various disabilities or special needs and it represents the basic pre-requisite for inclusion. It addresses the manner in which technologies and services could be used for overcoming barriers, compensating or restoring certain functions or for enabling elderly people and persons with disabilities in particular to fully realize their potentials.

A significant progress in the area of accessibility of digital content to persons with disabilities can be easily achieved by applying these ten quick tips developed by the Web Accessibility Initiative.

Ten Quick Tips of the Web Accessibility Initiative for the Internet and digital content accessibility(WAI)

1. Use the **alt** attribute to describe the function of each visual.
2. Use the client-side **map** and text for hotspots.
3. Provide captioning and transcripts of audio, and descriptions of video.
4. Use text that makes sense when read out of context. For example, avoid "click here."
5. Use headings, lists, and consistent structure. Use **CSS** for layout and style where possible.
6. Summarize or use the **longdesc** attribute.
7. Provide alternative content in case active features are inaccessible or unsupported (eg. Flash).
8. Use the **noframes** element and meaningful titles.
9. Make line-by-line reading sensible. Summarize.
10. Check your work. **Validate**. Use tools, checklist, and guidelines at <http://www.w3.org/TR/WCAG>

The main idea is to separate the Internet presentation content from the manner in which such content is presented. It means that if the layout and web page design elements are removed, the users can still access the information contained therein.

Conclusion

Ensuring access to digital content shall be carried out by incorporating accessibility components into new programs, plans and designs in accordance with national legislation and by applying the *Universal Access* principle.

It means that we should take into consideration the issue of ensuring access to digital resources as one of the fundamental requirements while they are still in the creation stage. Such work planning eliminates discrimination, the budget is spent more rationally and culture realizes its full potential by affecting the development of society as a whole.

The content of cultural institutions, cultural heritage in digital form must be made accessible to persons with disabilities. Naturally, such *online* inclusion of persons with disabilities should not represent another kind of their marginalization. It is necessary to maintain and continue to work on a very important component of inclusion – physical accessibility to public facilities and inclusion of persons with disabilities in all social activities.

Literature

1. Vukmirović, D., Pavlović, K., Šutić V. (2014). *Upotreba informaciono-komunikacionih tehnologija u Republici Srbiji, 2014* Beograd: RZS - (*The Use of Information and Communication Technologies in the Republic of Serbia, 2014* Belgrade: *The Statistical Office of the Republic of Serbia*)
2. Zinnbauer, D. (2007). *What can Social Capital and ICT do for Inclusion?* Luxembourg: Office for Official Publications of the European Communities.
3. Марковић, М., (2011). Особе са инвалидитетом у Србији. *Попис становништва, домаћинства и станова у Републици Србији*. Београд: РЗС - (Markovic, M. (2011). *Persons with Disabilities in Serbia. Population Census of Population, Households and Dwellings in the Republic of Serbia*. Belgrade: *The Statistical Office of the Republic of Serbia*)
4. Радосав, Д., Татић, В. (2012). Приступачност интернета особама са поремећајем разликовања боја. *Теме-часопис за друштвене науке, 1-2012, 278-290, УДК 376.1-056.262:004.738.5* - (Radosav, D., Catic, V. (2012) *The Internet Accessibility for Persons with Color Vision Impairment. Topics – social sciences journal, 1-2012, 278-290, UDK 376.1-056.262:004.738.5*)
5. Ronchi, A. M. (2009). *E-Culture: Cultural Content in the Digital Age*. Springer Science & Business Media
6. Stephanidis, C., Savidis, A. (2001). *Universal Access in the Information Society: Methods, Tools, and Interaction Technologies*. Springer-Verlag
7. Tatić, D. i saradnici. (2014). *Izveštaj o usklađenosti zakonodavnog i institucionalnog okvira u Republici Srbiji sa UN Konvencijom o pravima osoba sa invaliditetom i preporuke za harmonizaciju*. Centar za samostalni život osoba sa invaliditetom Srbije. Beograd: Unigraf - (Tatic, D. et al (2014). *Report on Harmonization of Legislative and Institutional Framework in the Republic of Serbia with the UN Convention on the Rights of Persons with Disabilities and Harmonization Recommendations*. Center for Independent Living of Persons with Disabilities of Serbia. Belgrade: Unigraf)
8. WAI - <http://www.w3.org/TR/WCAG>
9. UN Report. (2013)- www.itu.int/accessibility/UN-report

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