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Virtual Museum and Tour – the Added Value of a Web Site Wirtualne muzeum i spacer – wartość dodana strony internetowej

Streszczenie: Nowe technologie rozszerzają możliwości prezentacji kolekcji muzealnych. To powód, dla którego muzea są zainteresowane cyfryzacją ich kolekcji, które stają się ogólnie dostępne, i to o każdej porze. Nowe technologie, jak na przykład rozszerzona rzeczywistość czy gigapanoramy, są stosowane na stronach internetowych muzeów, a możliwość dotarcia z ekspozycją do nowych odbiorców (po niewielkich kosztach) jest na tyle kusząca, że wiele jednostek decyduje się na projekty związane z wykorzystaniem nowych technologii.

Słowa kluczowe: marketing internetowy, wirtualne muzeum, podcast, wirtualny spacer, rozszerzona rzeczywistość

Abstract: Digital technology expands the possibilities for presentation of museum collections. That is why the museums are interested in the digitalizing their collections. It also makes the information content accessible to a wider range of visitors. New technologies, like augmented reality or podcasts, are used on museums' web sites, and possibility of interesting new visitors is so important that a lot of museums invest in ICT projects and create virtual museums to present their collections online and to make their web site more interesting and attractive for new users.

Keywords: online marketing, virtual museum, podcast, virtual tour, augmented reality

Introduction

We are an integral part of the digital society. Let us refer to some statistical data from Poland from 2012 and have a look at the numbers². The number of residential (families) who have a computer at home had systematically increased. In 2012, 73% of them (with at least one person at the age 16-74) had a computer. The percentage of people who used internet also increased and reached 71%. The most common place to work with a computer and internet was the home (59%). The most popular activity connected with using a computer was sending and receiving emails (51%) and also searching for information (48%). Taking only into account the use of the internet – it was searching for information (98%). The number of mobile devices increased. Most of the owners, having such a possibility, used the internet (60%). Taking into account these data, the

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² Społeczeństwo informacyjne w Polsce, GUS, Szczecin 2012.

number of web sites increased. It became an opportunity to contact consumers and customers, to be present in the clients' consciousness, to present one's own offer in an attractive way using relatively small amounts of money. Online marketing uses the internet, which gives access to resources for anyone and anywhere, and what is very important - anytime.

The paper's objective is to present the trends of changing the museum web sites, which gives them opportunities to develop and to be more attractive for visitors and in this way find new ones.

The research method used in the article includes reviewing papers and museum web site analysis.

Online marketing in museums

A museum is often defined as a store of the past and also a place where one can learn about history, forgotten events or unknown facts. There, it is possible to wonder at works of art, to obtain an esthetic pleasure from the contemplation of artifacts of known or favourite artists. Everybody has visited a museum, but are their web sites visited often? In an information society, online marketing plays an important role, and a lot of users search for information on the net and visit a museum web site before a personal visit. The web site should interest and even attract visitors and get them to look at the museum. Museums have always been one of the main tourist attractions. But some of them do not use the opportunities which give them new technology nowadays. They still have the old version of their web site with a set of basic information. The time the information society lives in, when people are supported by mobile devices, demands daily use of ICT.

The problem is not easy, especially given the fact that a museum often possesses several thousand valuable artifacts that physically cannot be presented on a few pages. However, web sites developers and designers create them in a way that would interest visitors, surprise them and even encourage to come and make a personal visit to a museum. This means that the site must be interesting, original, unique and also as interactive as possible.

In the internet it is possible to find some hit lists of the best museums' web sites. Among them, we can find the Louvre, the Hermitage or the Smithsonian Institution. They are well known around the world thanks to their outstanding collections, and now they also attract people through their web sites. It is worth knowing that there is a platform – "Museum Analytics"³, which won the "People's Choice" and "Museum Professional" awards at the conference Museums and the Web 2012 where the museums web sites are investigated to prepare some reports. One of them concerns the most visited sites in 2011. The results are presented for the first 10 museums in Table 1.

³ www.museum-analytics.org

Table 1. Most visited museum web sites in 2011 (top 10)

Name	Number of online visits
Metropolitan Museum of Art	47.000.000
Victoria and Albert Museum	24.669.783
Museum of Modern Art	19.300.000
Tate	17.887.851
National Portrait Gallery	13.725.000
British Museum	8.700.000
National Museum of Korea	7.799.124
Getty Museum	7.162.281
Centro Cultural Banco do Brasil	5.883.055
National Gallery	4.500.000

Source: own preparation on the basis of www.museum-analytics.org

In table 2, there are the numbers of personal tourists visits. Some museums can be compared, like the Tate museum, where the numbers of online visits are 4 times more than personal ones.

Table 2. Number of visits in museums (top10)

Name	Number of visits
The Louvre	8.880.000
Metropolitan Museum of Art	6.004.254
British Museum	5.848.534
National Gallery	5.253.216
Tate	4.886.769
National Gallery of Art	4.292.252
National Palace Museum	3.849.577
Centre Pompidou	3.613.076
National Museum of Korea	3.239.549
Musee d'Orsay	3.145.000

Source: own preparation on the basis of www.museum-analytics.org

The best practices – the Smithsonian Institution⁴

Most of the museums are aware of these changes and understand the need of looking for new visitors. The new possibilities given by ICT, like social media marketing or web usability become less intimidating and the results are great. Facing the online collection is very interesting. One of the best is the web site of the biggest world museum – the Smithsonian Institution. It consists of 19 museums, a zoo and research centers. It has not only got a main web site, but also a web site for each museum. Each one has got a unique design and interface. Social media are also present there. The home page is organized in a clear, friendly manner. There is a set of the most important information for visitors (like the address, how to get there...). The social life is also presented there, which of course is very much alive, and it is obvious that such kind of contact

⁴ www.si.edu

with visitors is very important for this institution. Let us have a closer look. Facebook, updated more than once a day, here users questions and comments always get a response. Next is Twitter and also Youtube with central channels for each museum and a big library with videos, in a very high quality. Here are also playlists which help to select the right film. There are audio files (podcasts), they can be listened to on a computer or MP3 player. There are also files about museums (audio guides). One can listen to them while visiting, and all of them for free.

Projects undertaken by Smithsonian are based on ICT applications and these are as follows⁵: Smithsonian American Art Museum, Ghosts of a Chance cross-platform game (2008-9), NMAI Fritz Scholder exhibition mobile web site tour, NASM Explore The Universe exhibition cell phone tour or QRcodes. Games are relatively new elements⁶. The main idea is to search the objects and follow the received messages on the phone screen. Visitors are encouraged to look for the pointed artifacts from the collection. The Smithsonian (American Art Museum) prepared some games. In 2008, *the Ghost of Chance* was introduced to visitors. Then it was followed by some others like *Artful Abe*, and *Pheon*⁷. The last one was possible to play up to December 2011. Visitors were divided into two separate and competing groups. They did some tasks and then received points. It was an informative method, and as a result the visitor got a deeper knowledge of the museum collection. Nowadays, there is a new game - *Meet me at Midnight*. This game also allows people to play at home or any place. The museum web site offers some other games as well⁸.

There are currently seven mobile web sites at the Smithsonian to help to prepare one's own way to visit museums, exhibitions, collections and research material. They have launched five applications to complement exhibitions - MEanderthal; Infinity of Nations; Yves Klein, Set in Style and Design USA, and also the EOL uploader to add photos to the Encyclopedia of Life Flickr group and the Smithsonian Channel's applications. Three new applications will be developed and released soon. All published mobile web sites and applications are accessible at: <http://si.edu/mobile>. The possibilities for using the QR code technology are broad, and are growing rapidly. Some of the possible uses for QR codes are: direct accessibility to a specific web page, download an application, trigger Augmented Reality, launch Google Maps, make a phone call, send a text message, send an email, create a calendar event, add a contact to your address book, make a purchase, or launch a video. Each mobile Application is prepared for at least 1 device: iPad, iPhone, or Android.

Added value for museum web site

Gigapixel panoramas (gigapans)

Giga panoramas⁹ are gigapixel panoramas, digital images with billions of pixels, huge with details and all captured in the context of a single photo. They

⁵ <http://si.edu/mobile>

⁶ <http://smithsonian-webstrategy.wikispaces.com/SI+Mobile+Projects>

⁷ americanart.si.edu/multimedia/games/ (access: 28.03.2013)

⁸ americanart.si.edu/luce/downloads/ (access: 28.03.2013)

⁹ Spacerywirtualne.pl

are phenomenally large, remarkably crisp and vivid. It is the technology to create high-resolution panorama images and the resulting giga panoramas images offer a new, unique perspective of the world. Software automatically combines thousands of images taken into one, single image in a unique mega-high resolution. Such giga panoramas are not available on museum web sites but there are panoramas which allow users to zoom in (used in virtual tours).

Virtual museums and virtual tours

The most common way to enrich the web site and place there added value is the virtual museum (and a virtual tour). Virtual museums are becoming a very popular way for museums to present their exhibition collections and information online in an accessible way.

The definition of a virtual museum from Encyclopedia Britannica¹⁰ states that it is “a collection of digitally recorded images, sound files, text documents, and other data of historical, scientific, or cultural interest that are accessed through electronic media. A virtual museum does not house actual objects and therefore lacks the permanence and unique qualities of a museum in the institutional definition of the term. In fact, most virtual museums are sponsored by institutional museums and are directly dependent upon their existing collections. Nevertheless, through the hyperlinking and multimedia capabilities of electronic information media – particularly the World Wide Web (a hypermedia system carried on the Internet) – digitized representations can be brought together from multiple sources for enjoyment and study in a manner largely determined by the individual user. Virtual museums of this type can be a powerful tool for comparative study and for research into a particular subject, material, or locality.

There are three types of virtual museums¹¹:

- The brochure museum: the aim of this simple web site is to inform visitors about the museum and it is just a marketing tool.
- The content museum: a web site containing detailed information about museum collections, with the content presented in an object-oriented way.
- The learning museum: a web site which offers different types of access for visitors. The information is presented in a context-oriented rather than an object-oriented way. The site is also enhanced with additional information to motivate visitors to visit the web site again and also to establish a personal relationship with museum using social media.

A lot of virtual museums have their beginnings in “web sites” or “home pages” maintained in the internet by museums to present information about themselves. Museums’ home pages usually contain administrative information (like opening hours, coming events and services). Some also include a floor plan of the museum (like the British Museum¹²). Virtual museums in this limited sense join some products like the exhibition, the guidebook and photographs, into one medium for promoting a museum and its collection.

¹⁰ www.britannica.com, Ordyńska O., Pawełczak M., *Wirtualne muzea. W poszukiwaniu edukacyjnych zastosowań*, ABC IT, Warszawa 2009.

¹¹ Styliani S., Fotis L., Kostas K., Petros P., *Virtual museums, a survey and some issues for consideration*, Journal of Cultural Heritage, no. 10, pp.520-528, 2009.

¹² www.nhm.ac.uk/nature-online/life/human-origins/early-human-family/lucy-ar/

Web sites offering “virtual exhibitions” - that is, online tours of certain most important exhibits - are maintained by some museums.

The first virtual museum in Poland was created in 2008 and it was a virtual tour in the interactive Warsaw Rising Museum¹³, opened for tourists in 2004. The virtual platform was built using 3D technology. Flash technology, sound and video provide the visitor with the second war times. Thanks to an interactive camera, access to the exhibition rooms is possible. The virtual visitor controls the movement of the camera and in this way choose which area he/she would like to visit. The exhibits are presented in 3D resolution. Each of them can be seen from all angles, and most of them allow the viewer to get to know their history.

Nowadays, there are some projects on virtual museums in Poland. One of them is a project – Virtual Museums of Malopolska¹⁴ (2007-2013) – a platform which collects around 700 digitalized exhibits from 35 museums of this region. During the project, museums will select over 900 exhibits, and only 500 will be chosen. They will be digitalized in 3D technology that delivers realistic colour and a sharper image, and 200 of them in 2D technology. Visitors will be able to find there not only exhibits, articles. An example of a virtual tour can be a tour to the interior of the Castle Museum in Pszczyna¹⁵, Film Museum in Łódź¹⁶ or Underground Tourist Route “Rzeszów Cellars”¹⁷.

Augmented reality

Augmented Reality (AR) is the ability to see or hear relevant information superimposed on user's view of the world. Usually it is the view one sees through the camera lens of the phone or mobile device screen. But the view might also be a video from a webcam on a computer. To determine how AR is used in museums, let us look at some examples. The AR use may be grouped in¹⁸:

- Virtual reconstruction. AR can show things to scale, such as a building, room or other objects e.g. ships. Using the 3D models, it is possible to reconstruct the contexts around objects which correspond to users' movements. As users rotate a device, for example, additional parts of the models are exposed and they can be explored using zooming or tapping the screen for additional information. A good example here is a reconstruction of the Cluny Abbey¹⁹, where today, there are only some remains, but AR allows one to see how the building looked in Medieval times.
- Multiple views on the same gallery space or narrative. Museum interpretation is becoming increasingly sensitive to the needs of diverse visitors. It is not practical to provide a variety of information on printed labels because of the limitations of space. Augmented reality helps to create an invisible con-

¹³ www.1941.pl

¹⁴ blog.muzea.malopolska.pl, muzealnictwo.com

¹⁵ www.zamek-pszczyna.pl

¹⁶ www.kinomuszeum.pl

¹⁷ www.rzeszow.pl/turystyka

¹⁸ Styliani S., Fotis L., Kostas K., Petros P., *Virtual museums, a survey and some issues for consideration*, Journal of Cultural Heritage, no. 10, pp.520-528, 2009.

¹⁹ Gontar B., *Cyfrowa rewolucja w muzeach, Społeczeństwo Informacyjne. Stan i kierunki rozwoju w świetle uwarunkowań regionalnych*, Rzeszów-Lwów-Tamopol, 2012.

tent suited to different visitors to be present in galleries and accessed by them on demand.

- Bringing creatures back to life, using animated 3D models to show what an extinct animal or plant would have looked like. It is another example of AR use. Holding a device over a skeleton or fossil to reveal an animated model answers an age-old interpretive challenge. A good example is the Natural History Museum in London²⁰ which has already used the technique for some years to populate a multimedia show with early humans, dinosaurs, fish and other animals the interactive films. Astonished visitors receive a very realistic picture of a chosen object.

Podcast

Podcasts are distributable audio files, easily downloaded from the internet, often for free. The user can listen to them anytime, anywhere in audio portable players such as mp3, mp4, tablets, mobile phones or iPODs. Concerning museology, podcasts are used as audio guides, but their scope is beyond an explanation of the exhibition; they can concern almost any field in the museum. The use of podcasts in museums offer a lot of advantages, such as easy updating and flexibility of use.

Also, the possibility of using podcasts as audio guides substitutes or complements the guide and is another low-cost advantage. Since institutions will produce its own material instead of buying and maintaining audio devices. Podcasts in museums can be used to describe an art gallery or develop expositive speech, but also to interview specialists, artists or museum staff or to explain temporal exhibitions, recent archeology discoveries or new works that have been added to the permanent museum exhibition, etc. Podcasts can usually be downloaded from the museum web site free of charge.

Another option is that the museum can supply computers to allow users to download podcast to their mp3 at the beginning of the visit. The National London Gallery²¹ or the MOMA²² are two good examples of podcasts in use, where visitors have the possibility to download these audio files (now most museum podcasts are in English).

Concerning Polish examples, the Museum of Literature²³ in Warsaw has a collection of audio files (mostly interviews with authors) accessible from the museum web site. The museum has in its catalog over 3500 visual and audio recordings, which include interviews with people of culture, the provisions of prose and poetry, read by the authors themselves. The podcast service presents programmes relating to current issues in the museum, and fragments of unique recordings with added introduction or/and commentary. The other example is the Archeological Museum in Poznań²⁴. Lasting around 15 minutes the recordings can be downloaded from museum web site in mp3 files and listened to in any

²⁰ www.nhm.ac.uk/nature-online/life/human-origins/early-human-family/lucy-ar/

²¹ www.nationalgallery.org.uk/podcast/default.htm

²² www.moma.org/visit_moma/audio.html

²³ muzeumliteratury.pl/

²⁴ www.muzarp.poznan.pl/edukacja/podcasty/

place from a mobile phone or another device or listened to directly thanks to a player placed on the web site. They are not audio guides.

Games

The afore-mentioned Smithsonian Institution created some games for visitors. This kind of added value is mostly for younger visitors, who can, or have to join their groups to explore new things and get new knowledge in an interesting way. It is possible to play at home (like in the case of Meet me at Midnight) or at the museum, where player receive mobile devices²⁵. In Poland, in the Virtual Museum of Malopolska project a game will be created which quite new concerning Polish virtual museums. To link education with the presentation of museums exhibits, the idea of a gamification was used. To play you have to look carefully for information hidden on the portal and get knowledge to solve tasks. So the main aim of the game is to get to know better the collections and exhibits of the online museum.

Conclusions

Most of the museums, all over the world, try to present heritage and their expositions in a new, attractive way. They have very interesting web sites, and often use ICT. They are also present in Facebook or Twitter with a number of "likes". It proves, that they are popular and visited. Based on the Museum Analytics site, table 3 and 4 were prepared. In table 3, the number of likes on Facebook of the most known world museums are presented. In the first part of the table, there are the first 10 museums with the biggest amount of "likes". In the second part, there are Polish museums present in the list. In table 4 there are Twitter results.

Table 3. The number of "likes" on Facebook

Name	Facebook
Museum of Modern Art (MoMA)	1.368.877
Saatchi Gallery	948.327
The Louvre	922.757
Metropolitan Museum of Art	875.363
Royal Collection Trust	628.163
Tate	561.229
Solomon R. Guggenheim Museum	447.710
Acropolis Museum	381.593
British Museum	309.336
Centre Pompidou	309.055
Museum of Modern Art in Warsaw	22.686
Museum Literatury	2.841
Collegium Maius Museum	794
Pracownia Twórcza Impresja	77
Museum Erotyzmu	0

Source: own preparation on the base of

²⁵ Gontar B., *Cyfrowa rewolucja w muzeach, Społeczeństwo Informacyjne. Stan i kierunki rozwoju w świetle uwarunkowań regionalnych*, Rzeszów-Lwów-Tarnopol, 2012.

Of course one can say it is not the best indicator, but in a digitalized world it can be evidence that these sites are alive. It is also a proof that they are popular and often visited. The attractive web site is not only a set of information but also a way of communication with visitors and serve to encourage them to have a personal contact with the museum, or virtual one at least.

The article presented the most often used ICT solutions one can find on the museums web sites. Museums all over the world are open anytime and anywhere ready to reveal their secrets and show treasures.

Table 4. The number of “likes” on Twitter

Name	Twitter
Museum of Modern Art (MoMA)	1.363.837
Saatchi Gallery	915.714
Smithsonian Institution	899.917
Tate	854.554
Solomon R. Guggenheim Museum	766.689
Design Museum	728.250
Metropolitan Museum of Art	565.586
The Andy Warhol Museum	535.628
Royal Collection Trust	472.798
Getty Museum	436.113
Museum of Modern Art in Warsaw	1.172
Museum Literatry	722
Collegium Maius Museum	0
Pracownia Twórcza Impresja	0
Museum Erotyzmu	1.477

Source: own preparation on the base of

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