

Museum Communication with Virtuality & Museum Communication in Virtuality

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Virtuality as an object of art

Talking about digital culture we need to define some reference points. In any country a museum where a first computer appeared is well known. These very early years of digital epoch were romantic and full of expectations. Few persons had access to the computers and data processing looked like a miracle. The data converted in binary form, ones and zeros were not attractive at all. That experience was important anyway while these pioneers designed the theory of museum digital world. At that time only analogue video of low quality could submit visual set of images.

Thus, the next step refers to the development of computer graphics, colour monitors and increment of resolution. This way in 1991 Jeffrey Shaw, founding director of the ZKM Center for Art and Media Karlsruhe presented during the Art Frankfurt festival an art object titled "Virtual Museum". That was the first time when a visitor of the installation being able to manipulate visual objects on the screen managed digital artefacts.

Since that moment the idea of a *virtual museum* penetrated to mass media and particularly to the museum society. Digitally born as an art installation it transformed to web-sites with images of the museum items or hall views. Now some may consider any accumulation of the digital data a virtual museum but it is not correct. This term means an institution designed only in virtual space, not a digital copy of an existing one. Virtual is a feature describing internal potentiality. As we already know, original version was not a museum but a model for the demonstration of the possibility to possess a set of digital objects.

We know other example of the post-modernist exhibition in XXI century with a computer game on CD as an exhibit, allowing to collect digital copies of the presented items and to place them into virtual space of the imaginary world of the painting created by Anatoly Belkin for his project "Gold of the Swamp Places. Personal Version".

The up-to-date immersive space Mori Building Digital Art Museum created by the artists, architects and programmers from Team Lab in Tokyo continue the tradition of computer installation as a modern digital art. The announced concept consists in the "borderless art in vast, complex, tree-dimensional 10,000 square meter world", where the "artworks move out of rooms, communicate with other works, influence, and sometimes intermingle with each other" (<https://borderless.teamlab.art/>). Thus we revealed the very important property of the virtual environment – *communication*. Anybody obtain the possibility to communicate with the objects in a virtual museum as well as with other virtual visitors.

Main feature of information technologies – communication

During the centuries a paper copy, painting or drawing were the only possibility to get impression of the monument or masterpiece. Even original photography needs to be printed on paper. But the digital photos are free of paper and can be distributed in millions of copies in seconds. The beginning of the XXI century is described by numerous CD versions of the digital catalogues of museum collections and early web-pages presenting museums. Nice time with long read texts composed by museum professionals. The young generation, surprising of the floppies hesitates, if this information is reusable. Digital data stop to be "recycling". The audio guides co-existing on the same on line platform like izi.Travel offer extensive selection for any customer.

But the Global net makes the museums and cultural heritage accessible thanks to the advanced technologies of panoramic photo. The special software allows us to get additional data and pictures through Google Glass or simple QR-codes on our personal devices. GIS systems make cities so smart, that we live just in the everyday information flow. The main problem of searching is to find reliable content, but in case of museums what we should mean under "customer satisfaction"? Web-analytic offer various techniques helping

appreciate usefulness of the web-pages and user reaction. They are very helpful for the understanding of the museum virtual audience as well as for the improvement of the presentation of a museum in Web. Strictly speaking, the index-machines process the code the way that only upper level of the sites is evident and accessible for search. If you are not on the top, nobody will mention your efforts to show something unique and very attractive. These instruments are helpful and their use results in impressive results, for example, with our Digital Encyclopaedia of the Hermitage, the web-project on archaeological investigations of the Hermitage Museum, realized by the students (www.archaeoglobus.com). In the very beginning several experiments were provided to study the museum audience and the sources of data about collection. The long term observations revealed transformation in balance: Internet got preference among the others. People get and share information, make points and organize discussions in virtual space. Finally, the motivation to visit museum changed from “must see” to “good emotions”. The last reason requires from the museums more efforts, because keeping the attention in the case depends not of the brand but of the presentation and attractiveness.

Museology always applied the unidirectional model of communication offered by Duncan Cameron in the 1960s. Guide, telling the stories about a museum objects, no discussion in principle. Moreover, nobody could imagine discussion with the artefact itself. The digital technologies are based on the theory of information by Claude Shannon and use the model of management with feedback. The artificial intellect and neuron nets are able to participate to cultural event, spectacle or exhibition. Perhaps, the accessibility and mobility result in creative ideas for all museums, famous and absolutely new too.

Accessibility and Mobility

The analytical reports demonstrate that culture forms very small part of the services on the digital market. Strictly speaking cultural heritage is not a service. The tourism and business around form the commercial services. So, only the interest and need in culture are able to develop business. According to the General director of the State Hermitage Museum Mikhail Piotrovsky, the role of museums is to form a complex person with various needs. The remote access to the museum collections and archaeological sites present a perfect way of making cultural heritage the world property. The president of National Museum of Natural History in Paris was absolutely right talking on the topic of virtual reality to New York Times: “People are coming to a museum to see real objects because real objects are emotional”. Use of technologies can be emotional and even dangerous; anyway visitors understand the difference between originals and digital copies. Computers became casual thing and immersive technologies are developing the same direction ().

Thoughtful implementation of the digital technologies brings collection to life and help to investigate them carefully and safely. For example, use of the 3D-model uploaded into Sketch Lab on line service protects an artefact of damage and provides open access to numerous scientists. In case the object is not transportable like an archaeological monument such digital model turns to be exhibit of the real exhibition. The author of the digital object must be mentioned while the copyright for the digital models is the same as for other artists. The modern everyday life is full of emergency and act of God, that's why the digital coping help us to document unique places, monuments and artefacts and save information for the future. Laser scanning and 3D modelling work miracles for the investigations and restoration of the museum items if their are in skilled hands. The international Convention on reproduction, storage and distribution of works of art and cultural heritage by means of digital technologies within the global initiative of ReACH (Reproduction of Art and Culture Heritage), created by Victoria and Albert museum with the assistance of Peri Charitable Foundation appeared just in time. Air photographing, remote sensing, laser scanning, photogrammetry, digital visualization serve for the reconstruction of the past and show it in present. The simpler decision to augment reality applied (QR/AR codes, Blue tooth beacon or Link-ray), the more popular it is.

The project “Hermitage.VR. Immersion in History” realized by a group of highly motivated enthusiasts allowed the museum to give a diverse experience of visit the collections through time with a popular actor (<https://vr.hermitageshop.ru/>) including a bird's eye view of the museum complex. The idea of mobile with 360 video in the VR glasses leads to the next level on the way of minimization. Instead of video made with professional camera the advanced Apple technologies make possible the 5-hours non-stop movie thanks to

the capacity of accumulator and optics. In that way, difficult to say if the technologies penetrate to museum or the museum pushes the technique forward. One thing is certain. Any virtuality gives a chance, while a true museum space doesn't exist.