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The Influence of Digitization on the Transformation of the Heritage Institutions

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Abstract: The present research studies the process of digital transformation in the heritage institutions. With the COVID-19 pandemic and constant development of modern digital technologies museums are forced to build their unique representation in the digital environment and keep the legacy and established functions simultaneously. At the same time, museums assume that this transformation will not only ruin the classical understanding of the museums but also make the institutions a form of mass-entertainment. The usage of both qualitative and quantitative methods aims to create a theoretical framework that will determine the possible tools and areas of the museums' digitization. The evolution of cultural institutions can be seen as a primary indicator of global development.

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Keywords: cultural transformation, digitization, heritage institutions, museum industry, interaction with the audience

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L'influence de la digitalisation sur la transformation des établissements du patrimoine

Résumé: La présente recherche étudie le processus de transformation digitale dans les établissements du patrimoine. Avec la pandémie du COVID-19 et le développement continu des nouvelles technologies, les musées ont été forcés de créer une représentation unique de leur environnement digital, tout en maintenant l'héritage et les fonctions déjà mises en place. Parallèlement, les musées ont conscience que cette transformation va non seulement compromettre la notion traditionnelle de musées, elle va également transformer les institutions dans des modèles de divertissement de masse. L'usage des méthodes quantitatives et qualitatives vise à établir un cadre théorique qui va déterminer les potentiels outils et domaines de la numérisation des musées. L'évolution des institutions culturelles peut également être perçue comme un indicateur primaire du développement mondial.

Mots-clés: transformation culturelle, digitalisation, établissements du patrimoine, secteur des musées, interaction avec l'audience

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Introduction

Currently, there is a noticeable tendency in the use of omnichannel not only in terms of communication promotion but also in the principles of building and organizing business models. The organizational combination of online and offline processes in business is one of the main elements of social and economic transformation over the past decade.

The digital transformation model highlighted by Peter Weill and Stephanie Woerner (Weill & Woerner, 2018) is used to describe changing business models. Considering the process of creating a next-generation company, they offer four separate business models (supplier, omnichannel, modular manufacturer, and ecosystem driver), which illustrate the changes in the business processes of the companies. To trace the transformation process, the authors identified six areas that determine the creation of a new generation of companies: threat, model, advantage, connectivity, ability, and leadership.

The global trend of offline processes transformation to online is taking over by both national corporations and social institutions, such as education or culture.

At the same time, the digitization of education or culture is more related to the non-commercial side and the need for offline interaction with the audience. With the museum activities being moved to an online environment, there is a risk of losing contact with the work of art and blurring the patterns of audience behavior in the

museum. Thus, there is a change in the functional component of museum institutions and their role in modern society.

The interaction of museum institutions with the online environment was previously studied mainly in the context of communication promotion and marketing tools. Thus, the usage of digital channels for promoting museum activities can be traced in the articles of V. A. Ryazanova and A. A. Sergeeva (2017), N. Z. Nagieva (2017), N. Zakakis (2015, pp. 342-358), and others. In their works, the authors emphasize that to make the audience involved, museums need to create not only PR strategies, but also use media relations and promotion on social networking sites. Regarding social networks, much attention is paid to the development of a high-quality promotion strategy which should include the synthesis of the possibility of creating UGC, popular formats on social networks (for example, conducting quizzes and contests), and creative visualization. Media relations, controversially, are aimed at the events held by the museum coverage. As a result, this attracts the audience to the event and to the museums and increases the attendance and popularity of a particular museum among the audience. The digitization of various fields and business processes highlights the importance of studying the way socio-cultural institutions adapt for the new reality. The key issue of socio-cultural development in the post-global world is the role of ideology or its socio-cultural, spiritual substitutes in the future world and the mechanisms of its convincing and socially effective translation into societies. Considering these challenges, culture, including aesthetics, is becoming one of the key mechanisms (Evstafiev & Tsyganova, 2020).

Problem Statement. The representation of museums has become particularly relevant in the context of the COVID-19 pandemic and widespread lockdown. If the transformation of educational institutions to the digital environment raised a lot of questions that were later discussed, and commercial companies found a way to adapt to the restrictions, the cultural institutions still face transformation problems.

Therefore, the issue of the current research encompasses the lack of the museum's digital representation framework that could be used by institutions during the online transformation. With the online transformation there is a challenge for the museum industry to mix both the technologies and new patterns with the cultural legacy and functions established by the museums. Many studies on the use of digital media by museum institutions have identified the importance for the museum industry to apply modern media to their activities. However, it is also stated that museums are mostly skeptical about these interactions. Even though the problem of digital transformation of the museums is quite acute, museums were not ready to perform their activity digitally during the pandemic.

To this aim, the study is proposed to investigate the way exhibition activities could be moved to the digital sphere and the physical access to exhibits could be represented in an online environment. The main objective is to identify discourses that influence the change of the museum institution and identify tools for online transformation and communication with the audience.

To answer the stated question several hypotheses were made:

- the transformation of museum institutions in the digital environment contributes to the popularization of museums among the audience;

- the transformation of museum institutions leads to functional changes in museums;

- the representation of museums in the digital environment changes the patterns of audience behavior and the user experience of interacting with museum artifacts;

- the interaction of museum institutions with the audience through social networks contributes to greater audience engagement, as well as to attracting new audiences;

- online tours organized by museums do attract the audience and do not enhance its interest in the museum activities.

1. The Transformation of the Museum as a Socio-cultural Institution

Starting with Jean Baudrillard (2005) culture scientists have been arguing about the loss of hidden meanings and illusions in contemporary art and culture. The changing role of the museum is also connected with the same narratives and studied by K. Lehman (2010, pp. 87-100), J. Badell (2015, pp. 244-263), B. Günay (2012, pp. 1250-1258), Anne Rørbæk Olesen (2016, p. 290), Mihelj et al. (2019, p. 1483), Holdgaard and Klastrup (2014, p. 195) and others. The transformation of the heritage institution covers not only the new functions of the museum industry but is also connected with the changing patterns of audience's behavior.

An in-depth understanding of transformation requires tracing some changes that have been happening not only in the way museums interact with the audience but also in terms of urban planning, the usage of modern technologies to guide the exhibitions, and others. Thus, this literature review includes the papers devoted to museums' interaction with the city, the applicability of modern technologies in the museums' activities, the audience engagement and museums' marketing, and new opportunities for the museums' content created for social media.

One of the most interesting and important works on understanding the new museum space is related to the study by Giuliana Bruno (Bruno, 2021), in which the author proves the institutional and functional similarity of two cultural institutions - a museum and a cinema. For G. Bruno, the museum is an "intimate form of public demonstration", a space where people come for subjective perception and emotional response, that can be obtained during the museum promenade. G. Bruno emphasizes that the museum should not be considered as an isolated and separate institution, but rather as a place that combines many different functions and provides an opportunity for creativity. The similarities between the two forms of culture that G. Bruno discovered provide the opportunities for further development of film installations

inside the museum. Modern exhibitions are increasingly accompanied not only by audio guides, but also present cinema halls for a more detailed (and, often, fascinating) acquaintance with artists and curatorial design.

It is obvious that the institutional nature of museum activity is largely determined by the functions and tasks that museums perform. Like many other social institutions, museums are also undergoing changes from this point of view. As noted above, the main museum functions can be traced back to antiquity (exposition and scientific activity, and then there is an educational function). Artist D. Buren (Hertz, 1993) describes the museum as privileged space that performs the following roles: aesthetic (the museum as a center for artwork), economic (gives the status of privilege and material value to the work of art) and mystical (giving artifacts the status of a work of art). In addition to the main roles, Buren also highlighted the functions that the museum institution has: storage, collecting and shelter. D. Buren states that unlike a museum institution existing outside of space and time, art itself is determined by time-space frames.

Along with discussions about the changing role of the museum in the socio-cultural environment, there are also debates about the applicability of modern technologies in museum activities. While many museum institutions themselves note the need to follow trends in the development of digital technology and experiment with technological forms inside the museum, cultural scientists and sociologists note the danger of unique cultural phenomenon being blurred and its replacement by digital reality.

The changing role of museums in urban planning was explored by van Aalst and Boogaarts (2002, p. 203). The paper examines the development of museum clusters created for a tourist attraction and an easier promotion of the activities. The authors state that even though museum clusters are supposed to be a visitor-oriented redevelopment, there is a strong loss of each museum's identity and uniqueness.

With the advancement of digital technologies and new forms of user activities Light et al. (2016, p. 415) discuss the way digital tools can influence the visitors' experience in the museum and the new opportunities for engagement they provide. With the main question of 'What role, if any, do digital media play in (dis)connectedness in the museum experience?' (Light et al., 2016, pp. 407–423), the group of authors conclude that digital technologies stimulate the visitors' connection with both the exhibition and the special activities created by the curators. However, they also state that some features of social media (for instance, like buttons) are seen as superficial elements that make visitors evaluate art publicly. Moreover, the museums' applications are also considered as barriers and are commonly not used by visitors.

On the other hand, with the COVID-19 pandemic, the digital sphere could be the only option for the museums' continual work. Agostino et al. (2020, p. 2) draw our attention to the problem of museums' transformation to the digital environment, forced by the COVID-19 pandemic. As the authors claim the museums 'have been pushed

for years to adopt digital tools to increase participation' (Agostino et al., 2020), but only the pandemic situation finally designated the necessity of using online communication. They also state that museums with their desire to provide people with unique information forget and do not follow the consumer needs.

2. Virtual Space as a Socio-cultural Environment

The interdisciplinary subject of modern digital space covers almost all spheres of life. Thus, approaches to the definition of digital space may vary depending on the disciplinary focus.

A. I. Nenashev (Nenashev, 2008, pp. 335-338) understands the digital environment in the philosophical paradigm and focuses on the impact of information technologies on economic, political, and cultural spheres. The author identifies two main characteristics that make it possible to simulate social space in a digital environment: the impact of the digital environment on the senses (vision, hearing, touch) and the ability to transfer those into the virtual environment (the author also notes that digital technologies such as VR contribute to an increasing blurring of the boundaries between the real and virtual world). A. Nenashev also highlights the properties characteristic of the digital environment: immateriality of impact, conditionality of parameters and ephemerality.

Virtual reality as a new form of interactions between the artefacts and recipients is also understood as an establishment of new aesthetic experience. L. Manovich (Manovich, 2021) suggests rethinking the modern culture of the information society from the point of constant access to large amounts of information. Exploring the transformation of information and the scope of its application, and most importantly, the new cultural and social paradigms that information creates, L. Manovich concludes that the creation of new cultural forms in contemporary society is closely related to the concept of interface, since any computer and virtual action is associated with graphic and aesthetic interpretation. The new aesthetics is considered by the author through the prism of screen forms (cinema, photography, computer environment, etc.), which contribute to socio-cultural changes, the emergence of a new culture that is based on a large amount of information and skills to work with it.

A. Cauquelin (Cauquelin, 1996) understands modern aesthetics through the concept of a technobase, which determines changes in the object of art (image) through the prism of technology. Thus, a techno-image is an unstable and diverse process that along with constant motion requires interaction from the viewer and the recipient. A. Cauquelin notes that changes in imagery entail changes in aesthetics as a disciplinary area. Modern aesthetics is tied to the interactive relationship between the subject of modern visual art and the viewer, which in turn is a synthesis of marketing, media, technology, and communication. Thus, communication and marketing practices are now becoming both an important business tool and a full-fledged part of visual art.

Thus, the digital environment as a phenomenon of modern society introduces many opportunities not only for the creation of new technologies and the economic sphere, but also becomes the very tool that is able to change modern culture and create new forms.

K. Rutten (Rutten, 2018, pp. 1-8), studying the influence of digital culture on fine art, concentrates on the interdisciplinary approach of such a phenomenon and the possibility of interaction between the art object and the viewer, the complicity of the art object and the viewer in creating a certain aura around the cultural form, and the emergence of participatory practices of media content consumption.

C. Paul (Paul, 2015), continuing the development of new art forms under the influence of technology ideas, centers on the issues of exposure, collecting and storage of digital art. Thus, the author says that digital works of art differ not only in their form and genre, but also in their approach to collecting and displays. Digital artefacts such as photographs or video clips can be represented in a digital environment, since their exposure does not inherently differ from the display of these artefacts in a museum institution, however, cultural forms requiring participation and interactivity must be classified and defined as an "exhibition" format.

To understand the transformations taking place with museum institutions, P. Weibel (Weibel, 2007) introduces the term "museum 2.0", which is based on the principle of "Web 2.0". The principle of Web 2.0 has made it possible to create a format of cultural communication where art is no longer something elitist and closed. The author also notes the changing behavioral patterns among the young audience and insists on the timely adaptation of museum activities to the needs of the young audience. A format of streaming service not only will help the museum to retain its loyal audience but will also attract those who were initially afraid to visit museums to some extent, trying to avoid elitism. On the other hand, A. Huyssen's (Huyssen, 1994) approach to the understanding of a modern museum is related to the phenomenon of mass media in terms of modern museums trying to meet the needs of the audience: the desire to visit some bright, loud and classically understandable exhibition, rather than a serious understanding of art and discovering new genres. Such a request already predetermines the transformation of the museum as a phenomenon of mass culture (in this case, we can talk about the erasure of those boundaries of "elitism" and the formation of an open space). Referring to the model of the cultural society (Kulturgesellschaft), in which cultural activity acts as an agent of socialization and the creation of public relations, A. Huyssen refers to mass media as a source of cultivating a desire to receive a unique spectator virtual experience that has reached such an extent that participants are trying to transfer this experience into real life. A museum in this context has a potential to become a tool for attracting an audience to the museum space itself. Huyssen concludes that modern principles of organizing activities have been able to turn the museum into an independent platform for dialogue.

Thus, the question of the representation of museum activities in the virtual space remains open both from the point of view of socio-cultural understanding, and from the side of interaction and communication with the audience. However, at this stage it is important to emphasize that the COVID-19 pandemic has greatly influenced the development of museum forms and indicated the need to follow modern trends and adapt to it. In this regard, the question arises: how can such a cultural transformation be carried out? How can a virtual museum space be used without becoming a phenomenon of mass culture and preserving a unique historical functional heritage?

3. Methods

The mixed research design is chosen to answer the research question and study the stated research gap and includes the next methods and steps: survey, case-study, discourse analysis and interviews.

4. Transformation of the Museum Institutions

The analysis of cases of museum representation in a virtual environment includes an analysis of the digital activities of leading and world-famous museum institutions to identify the most relevant formats of digital activity. The case study includes the analysis of digital representation of such museums as the State Hermitage Museum, the Pushkin State Museum of Fine Arts, the State Tretyakov Gallery and the Russian Museum. Moreover, the following will be studied as benchmarks: the Metropolitan Museum, the Louvre Museum, the National Gallery of London. These museums are chosen due to the reasons that they attract a large number of visitors and are widely represented in the digital environment.

A comparative approach to the study of digital activities of museums will allow us to consider the most popular ways of organizing museum activities in digital, and will also allow us to study the main challenges associated with the use of certain formats. The international experience explored in this case study should create a common understanding of the museums' approach to organisation of their activities in virtual space, while the study of the activities of Russian museums identifies unique frameworks for communicating with the audience created by Russian museum institutions.

4.1. *Overview of the Current Formats of the Museum's Activities in the Digital Environment*

Before directly studying the museum representation in a digital environment, it is necessary to form a common idea of the existing formats of the museum's work in the online space. In general, all the content that is created digitally by the museum industry can be conditionally divided into synchronous and asynchronous interaction by analogy with the types of communication activities. Synchronous interaction, for example, can include the organization of live broadcasts, online lectures or online

discussions that allow a virtual visitor to interact with a museum institution in real time. Such formats certainly make it possible to form stable links between the audience and the museum. On the other hand, synchronous interaction often implies a limited amount of time for planning and organizing a particular project, which can cause some problems with the quality of the delivered content. At the same time, synchronous interaction, making attempts to convey the museum atmosphere in a digital environment and create interaction conditions as close to offline reality as possible, jeopardizes the preservation of the "museum aura", since it cannot provide a dialogue between the art object itself and the visitor.

It is worth noticing that asynchronous formats allow museum institutions to create large multimedia and interdisciplinary projects. One of the striking examples of asynchronous interaction can be considered 3D tours of the museum's exposition, halls and the building itself. Created to expand the potential audience and get acquainted with the expositions, this format does not allow engaging into live communication with the museum staff and does not always provide the opportunity to get additional information about artifacts. In addition to virtual tours, museums also use the formats of libraries, digitized collections and collaborations with other platforms and opinion leaders. While asynchronous interaction gives more space to museum institutions to create projects, for virtual visitors this means that there is no possibility of more customized interaction.

Social networking sites are platforms for dialogue between museums and potential visitors. One of the main tasks of which is to create engaging content that could facilitate conversion into visiting an institution or interacting with a museum in a virtual space.

The State Hermitage Museum. Being one of the main Russian museums, as well as the leaders of the international museum industry, the State Hermitage collection has more than three million works of art. The Hermitage is actively working on the development of its digital space and is creating a large number of projects. So, one of the most interesting formats is the creation of a digitized collection on a separate landing page of the State Hermitage Museum. Collections Online is a project of the Hermitage, which includes access to about 550 thousand exhibits, more than 50 collections and 19 exhibitions. Created together with other partner museums of the Hermitage, "Collections Online " allows, firstly, to study the main masterpieces of the Hermitage collection, as well as to visit virtual exhibitions prepared by the curators of the Hermitage and partner museums. However, while studying the digital collection, users are offered small descriptions for each exhibit that do not contain any curatorial comments, which may make it difficult for interaction.

The film "The Hermitage. Shot on iPhone", which was created in collaboration with Apple, is a five-hour walk through the most famous halls of the Hermitage that allows the Hermitage to create the image of a more open institution being ready to experiment with various communication formats. In addition, the Hermitage is also actively developing its own account on YouTube as a platform for conducting online

lectures and online discussions. Combining live broadcasts with pre-recorded lectures, the Hermitage covers topics such as the work of the restoration department or projects dedicated to the work of a particular artist, such as "Dialogues about Raphael".

The State Tretyakov Gallery. The State Tretyakov Gallery is one of the leading museums dedicated to Russian art of various periodicals. The museum's collection includes more than 190 thousand works of art.

Like the Hermitage, the State Tretyakov Gallery offers to start a virtual acquaintance with the museum with the digitized collection of the museum. However, unlike the State Hermitage Museum, each digital exhibit is accompanied by a detailed commentary from the curator, which allows the virtual visitor to experience a more involved interaction. Separately, it is worth mentioning the format of "virtual exhibitions", which are made with the help of separate landing pages. So, the project "Lessons" includes an introduction to the work of three outstanding Russian artists: Kuindzhi, Serov and Larionov. Each virtual exhibition is accompanied by audio and text comments from the curators and contains an interactive format (for example, an online quiz), which allows not only to get to know the work of the authors better, but also to understand the features of the author's approach. The cooperation of the Tretyakov Gallery with Google Arts & Culture opens access to a 3D walk through one of the halls of the museum, acquainting with additional virtual exhibitions (for example, "Vasily Kandinsky. Counterpoint: Composition VI - Composition VII", which combines a variety of multimedia formats: from a detailed analysis of each element of the painting to a small film about the artist's work) and the study of additional digitized exhibits collected by collections (for example, "Fashion").

The museum's social networks have also become a platform for creating projects with public opinion leaders. One of the most striking projects is a small series "Guided tour of the masterpieces of the Museum", which included a walk through the halls of the Tretyakov Gallery by Zelfira Treuglova, director of the museum, and Konstantin Khabensky and Sergey Shnurov. The project was created with the support of Sberbank and the online cinema Okko, which allowed the Tretyakov Gallery to integrate into the streaming service. However, despite mostly positive comments from the audience, the project did not continue its development. Now the Tretyakov Gallery is focused on creating documentary series about outstanding artists and a series of recorded virtual tours of temporary exhibitions of the museum and the permanent exhibition.

Pushkin State Museum of Fine Arts. The Pushkin State Museum of Fine Arts is one of the leading Russian institutions in the field of foreign art, whose collection includes about 700 thousand exhibits of various eras, genres and origins.

The "Museum IT Laboratory", created by the Pushkin Museum, is engaged in the development of the digital space of the Pushkin Museum. The main tasks of the laboratory are the search and creation of optimal digital solutions and strategies for the museum industry.

"Virtual Pushkin" is a media project that includes a virtual lecture hall and virtual excursions, visits to virtual expositions and exhibitions prepared as an additional format for accompanying offline exhibitions, electronic collections (digitized permanent exhibitions in the form of separate sites), as well as a 3D projection of the future museum campus. At the same time, for a virtual visit to the online lecture hall and excursions that are conducted together with curators and guides through the Zoom platform, it is necessary to book an excursion in advance and pay for a ticket. Attempts to monetize digital content by museums, on the one hand, make it possible to regard digital space as a full-fledged platform for exhibition activities. At the same time, such a policy may restrict the flow of virtual visitors.

In its social networks, the museum tries to combine entertaining and educational content, involving, for example, the students of the institution in the creation of publications and stories on Instagram, which helps to promote educational programs and creates the image of an open institution with a community of people interested in arts and culture.

The Russian Museum. The Russian Museum is the world's largest museum of Russian art, the collection of which includes more than 400 thousand exhibits and covers the main genre, compositional and temporal trends of Russian heritage.

The Virtual Russian Museum provides an opportunity to get acquainted with the museum's activities through tours of the main and temporary exhibitions, which include audio comments from curators and the ability to view the exhibition through VR, thereby bringing the virtual visit as close as possible to offline interaction. The Google Arts & Culture platform is also actively used by the institution to organize "amateur" online exhibitions. The online exhibition "Catch a Big Fish" gave an opportunity to non-professional artists with special needs to show their work in one of the leading museum institutions. Thus, the digital space of the museum continues to work on an inclusive museum space and makes it even more accessible.

The Russian Museum also actively integrates the museum's educational activities into digital by creating online lectures, courses and webinars not only on the history of art and culture, but also for the professional museum community about various formats of digital activities.

Musée du Louvre (Louvre Museum). According to The Art Newspaper Russia, more than 2.5 million people visited The Louvre Museum in 2020, which is 72% less than in 2019. However, the Louvre Museum, being one of the main international museum institutions, also uses digital space to build strong relationships with potential audiences.

For virtual visitors, the Louvre Museum offers digital projects dedicated to a certain periodical, painting or artist with a description of the history of creation, the concept of a virtual exhibition and exhibits, and a video shot in the halls of the Louvre is also offered for each such project. The Louvre also offers to virtually get acquainted

with the museum building and the surrounding area with the help of the same multimedia projects.

The collection of digital artifacts, including more than 480 thousand works of art, is made in the form of an online library with such sections as "painting", "sculpture", "interior items", "textiles", "jewelry art" and others. In addition to the collection of art objects, the Louvre offers to study thematic albums collected by a certain genre or period (for example, "Portrait Art" includes both painting and sculpture). At the same time, it is interesting that the Louvre does not provide the possibility of a virtual "walk" through the halls of the museum in the format of 3D tours, leaving only asynchronous video tours available in French. Google Arts & Culture is also not a priority site for the museum, offering only selected exhibits of the museum.

The museum's social networks mainly contain educational content, focusing on introducing potential audiences to the most significant museum artifacts. So, on the social network Instagram, the Louvre has almost a record 4.5 million subscribers for the museum. It is worth noting that the publications are accompanied by comments in French and English.

The Metropolitan Museum of Art (Metropolitan Museum of Art). The Metropolitan Museum of Art is the leading art museum of the USA and the world. The museum's collection covers periodicals of more than five thousand years and includes paintings, sculptures, as well as one of the world's largest collections of decorative and applied art. The museum's activities in the digital space cover two main areas: educational content, as well as entertainment formats, which is called "I want to feel inspired".

The educational format "I want to learn" includes a digital library with essays and various cultural texts devoted to the history of art and culture. All texts are freely available and are accompanied by digital exhibits from the museum's collection. The digital collection is made through thematic collections that cover a particular genre, period and type of art and are accompanied by curatorial comments. In addition to this format, the Metropolitan Museum of Art also offers to study more than 8 thousand digital artifacts, each of which has a detailed description of the work itself, the history of its creation, as well as the history of the inclusion of this exhibit in the museum's collection. Immersive online acquaintance with the museum itself, its halls and the building requires interaction of the visitor with individual landing pages, namely watching videos and listening to comments, as well as, for example, answers to quiz questions.

The entertainment content "I want to feel inspired" offers to get acquainted with the museum as a social institution, creating a project with personal stories about the museum (for example, related to certain halls, some important moments from life). The Metropolitan Museum of Art also offers content for children, which will allow them to get acquainted with the most significant works of art in the museum's collection in a playful way, namely through coloring pages.

The National Gallery. The collection of the National Gallery has more than two thousand exhibits of Western European art from different eras. Among the collection of the gallery you can find such works of art as, for example, "Sunflowers" by Van Gogh or "Venus with a Mirror" by Diego Velasquez.

Virtual tours of the museum are presented through the institution's own platform, as well as the Google Arts & Culture platform. While their own tours attach quite voluminous comments about the creation of a work of art, virtual tours on Google Arts & Culture only provide an opportunity to get acquainted with the collection. The digitized collection of the museum is available for study and offers more than 2 thousand digital artifacts.

Google Arts & Culture is used by this institution to create virtual exhibitions in the format of stories more than other institutions. For example, the exhibition "Monet: The Village and the Picturesque" offers to compare places from Monet's paintings with how landscapes have changed and how those places look today. In addition to this comparison, the project offers a detailed history of the creation of each painting selected for this virtual exhibition.

The museum's social networks are mostly aimed at creating educational video and photo content. At the same time, in any case, they imply both synchronous interaction through online conversations with curators and museum employees, and asynchronous communication, which are more aimed at independent study of content by virtual visitors.

5. Results

The main practical task of the current study was to develop a strategy for the digital representation of the institution, which would allow museums to comprehensively use virtual space for their activities. This strategy will include several blocks: interaction with the audience, external projects and the development of its own ecosystem.

The representation of museum institutions in the digital environment can also be considered from the point of view of the activities and functions themselves. The digital space is dominated by two museum functions: exhibition and educational activities. Both directions imply synchronous and asynchronous formats. In terms of synchronous formats, online lectures, webinars and online courses can be distinguished in the context of education, which require direct communication between the visitor and the museum representative through electronic means of communication. Asynchronous educational formats include, for example, libraries or online courses created with the support of the Coursera platform.

Exhibition activities are illustrated by such activities as independent walks on a 3D model, synchronous tours with guides, large asynchronous museum tours or large multimedia projects and collaborations.

The content on social networks can also be divided into three main areas: educational (recorded mini-lectures and excursions, live broadcasts in the form of talks about art), entertaining (contests and quizzes about art, attracting public opinion leaders, short videos about favorite places in the museum) and engaging (posting the digitized collection of the museum, interesting facts about museum artifacts, artists and craftsmen).

The following hypotheses can be identified as confirmed hypotheses of this study: "the transformation of museum institutions in the digital environment promotes the popularization of museums among the audience", "the interaction of museum institutions with the audience through digital space contributes to the expansion of potential audience and communication with new audience segments", as well as "educational formats of museum activities in the digital environment contribute less to the involvement of the audience while entertainment content allows you to reach large layers of the audience". The hypothesis of changing patterns of audience behavior in the digital space is not confirmed as a part of the research.

5.1. *The Digital Space of the Museum and the Auditorium*

Digital space is one of the main channels not only for attracting a diverse audience, but also for communication. To build museum communication, you can use the generally accepted "AIDA" model, which allows you to generate certain content and communication messages at each stage of the funnel. However, it is worth noting that in the context of museum marketing in the digital environment, such a model will be more simplified and consist of Attention –Interest – Action, and also reflect the principle of Online – Offline – Online interaction. Due to the fact that digital space does not allow the audience to fully convey the "museum aura", the digital environment should become an additional channel that will provide primary interaction with the museum and allow it to be transferred to the offline space. The task of communication at the Attention stage is to attract the attention of a wide audience and convert it into interest in other digital activities. At this stage, it is important to build communication through social networks and third-party platforms, for example, Arzamas, as well as focus on any short formats (small videos, short texts). This distribution is explained by the fact that the audience as a whole is quite accessible on social networks, and is also ready to accept educational and entertainment content. For the Interest stage, the main task is to involve museum institutions in other digital projects. At this level, funnels should be used as their own channels in the form of a digitized collection, an online lecture hall or a virtual walk. At the same time, it is important to note that the digitized collection is one of the factors motivating the audience for further interaction. Speaking about online lectures, it can be noted that a promising format of use is the creation of online courses designed for different age audiences. However, the specifics of such programs are the integration of online and offline interaction, and may also involve the involvement of "high-profile" speakers and opinion leaders. In addition, this level of the funnel should facilitate the conversion of the virtual audience into the offline space of the museum. Action is the last stage of the funnel, which is directly aimed at visiting the offline

space by virtual visitors in combination with online channels. Projects and major events that combine both formats of interaction, as well as special formats, such as interactive quizzes using online communication, the presence of special stands inside the museum that allow you to integrate VR and AR into the exhibition itself and other formats, can occupy a special place here.

5.2. *Collaborations with External Platforms*

Partnership projects with various platforms and services certainly contribute to the promotion of the museum institution, at the same time they allow you to expand the virtual audience and involve it in the communication funnel described above.

The Google Arts & Culture platform is a promising tool for organizing digital activities, primarily due to the available tools and a large number of opportunities. Interesting formats include, for example, international cooperation with other museums in the digital space and the organization of joint digital exhibitions. In addition, Google Arts & Culture can become a museum space that will allow the audience to feel like curators and create their own collections and exhibition materials. On the other hand, according to the Google Arts & Culture online survey, it is still quite an unknown tool for a wide audience, which means it cannot be a place of concentration of all the main digital activities. Returning to the funnel described above, Google Arts & Culture rather refers to the Interest stage, which offers interaction with the institution in various forms.

Other platforms are the services Bookmate, Readymag, Arzamas and others. These services allow you to quickly create high-quality and creative content, as well as engage the audience in a variety of formats. For example, the gArage Museum of Modern Art maintains its shelf on the Bookmate service, in which it posts texts about art and culture. Such a channel can also be attributed to the Interest stage, as it motivates users to get involved in third-party museum projects. Arzamas service has a large loyal audience, which is initially interested in scientific pop content and is interested in the educational component. The creation of partner projects will not only allow the museum institution to share expertise with other venues, but also expand the audience at the initial stage. In this regard, this channel can be attributed to the Attention stage.

5.3. *Development of the Digital Ecosystem of Museum Institutions*

The ecosystem nature of digital projects implies the mutual integration of all areas of activity in the digital space and allows for a unified digital strategy for individual areas of activity. The ecosystem of the museum institution is expressed, first of all, in the development of its own communication channels (social networks and website), the development and support of its own application that can be used for virtual excursions and 3D walks, as well as in the monetization of digital content.

Speaking about the strategy of presence in social networks, it is worth noting that experts advise the involvement of production studios to create high-quality content, however, such content should still reflect the overall marketing strategy of the

museum. Among the formats possible for use in social networks are synchronous and asynchronous communication methods. Synchronous, of course, are reflected in live broadcasts, while live broadcasts can be as a short virtual tour, online discussions or online lectures. Asynchronous formats are expressed in "snack content" with a visual component.

Virtual exhibitions and other digital activities are often presented as a separate page on the site, but such an arrangement does not allow to fully explore the digital content due to the presence of a lot of other information. Creating a separate landing page for digital activities will allow you to create a full-fledged exhibition space in the digital space, while maintaining identification with the museum's brand. While the museum's own application provides the museum with the opportunity to integrate offline and online interaction, for example, by creating AR content through applications.

The development of the digital space for commercial companies is largely due to an additional source of monetization. For museum institutions, the subscription model can be considered the most relevant monetization methods. At the same time, such a subscription model can be aimed at creating a digital community (by analogy with the "Friends of the Museum" model), which will have access to exclusive materials and more personalized content. Also, an alternative option can be considered the Patreon service, which allows you to create a subscription model in a simpler version. However, in this case, the museum will need to integrate Patreon into its digital strategy, which can significantly complicate internal processes.

6. Discussion

The role of the museums as a socio-cultural institution is constantly developing under the influence of changes happening in society, establishment of new technologies and global processes of communication and interaction. While the museums are searching for the new forms of the well-known functions to be presented in the current museum strategies, the new functions of digital communications, digital art exhibitions are providing new platforms of interaction with the audience. There is no doubt that the new museums functions are emerging due to the audience's needs and interests in the way they want to be involved in museums' activities. As an example the function of education can be presented when the institutions followed the needs of both adult and younger generations in studying the principles of arts and culture.

At the same time, with the new museum roles being under formation, academic and theoretical discussions stress the risk of the classical concept of the museums disappearing. As the classical concept of the museum institutions is built on the principles of heritage, culture and art legacy and it being accessible for the public, the new functions of entertainment, digital environment and integration with other leisure institutions give the opportunity to talk about the museum as an entertainment and leisure center which combines several practices within the structure. This leads to the

necessity to rethink the role of museums in the society and cultural hierarchy with the need of saving the missions of keeping the cultural legacy and education as a priority for the communication between the museum and the public with the attempts to involve as many people into the cultural activities as possible due to the museums' interest in being a more opened institution.

The current research contributes to the theoretical discussions by highlighting the potential change within the concept of the museums and blurring its legacy and heritage functions, and entering the cluster of creative industries and practices. The future of NFT-art as a new direction for the art museums and galleries could even force this process of transformation from the fully-closed cultural institutions with the traditions to the opened center of entertainment and art with the focus on the superficial interaction with the public. While these changes are inevitable, the digital environment could be mostly considered as an additional source of communication and interaction as the offline exhibition space would still remain the key way of involving the public into the museum space due to the audiences' interest in emotional contact with the art and physical feeling of cultural legacy. The COVID-19 Pandemic undoubtedly changed the museums' perception of digital from the skepticism and lack of understanding to the future development of the independent digital strategy.

The limitations of this work are connected with the selection of large art museums as a focus of this study. Such a limitation raises the question of identifying digital strategies applicability to the online activities of other types of heritage institutions, such as local history museums. Moreover, the strategies of digital representation used by leading art institutions are formed by the funding museums have for developing their digital presence. Local museums or simply smaller ones might have different strategic tasks.

The prospects for the research of this topic are expressed in several directions. First of all, it is necessary to study the interaction of the audience with digital content from the point of view of UX/UI design for the optimal organization of digitized collections and 3D tours. Moreover, the opportunities for digital marketing in heritage institutions should be examined, as it provides directions for marketing communications and promotion of virtual exhibitions.

Conclusion

Centring the research around exploring the ways museums' exhibition activities could be transferred to the digital environment, the possible ways of interchanging the physical access to the exhibitions by online activities have been studied. With the question of how a virtual museum space can be used without becoming a phenomenon of mass culture and preserving a unique historical functional heritage, the authors developed the three layers strategy of museums' digital activities which includes communication with the audience, external projects and the development of its own ecosystem.

The COVID-19 has highlighted the importance for museums to organize the digital environment for keeping the connections with the public and monetization. Alongside the transformation of cultural institutions to an online environment, museums were able to adapt to the new communication environment, such transformation also caused a discussion about the accessibility of the museum environment and cultural artifacts for different segments of society. The study shows that exhibition and excursion activities can be transferred online, and this has a positive effect on the popularity and recognition of museums, contributing to the growth of the audience. However, the representation of museums in a digital environment changes the behavior patterns of the audience and the user experience of interacting with museum exhibits.

The results of this study allow us to take into account the characteristics of the audience to build a representation of the museum in the digital environment, as well as to use the strategic directions of digital activity highlighted in this work. In general, it is more reasonable to conclude that the current study highlights the problem of modern museum transformation. Although this transformation allows heritage institutions to be in the modern media and digital agenda, it also unlocks the socio-cultural challenges that museums face. With the applicability of digital instruments in the museum industry, there is a chance for blurring of the classical heritage functions and for a museum becoming an entertainment institution rather than a cultural one. Hence, the discussion of the impact of technologies on the preservation of the cultural legacy, as well as the communication about this preservation remains theoretically open and requires time to notice the actual changes happening in the museums industry after Pandemic and fully-online activities.

Authors' contribution

Both authors contributed equally to this manuscript.

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