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DIGITAL TECHNOLOGIES IN MUSEUM SERVICES: INNOVATION IN A PANDEMIC

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Abstract

The areas of interactive activities of museums are considered. Technologies that are used by the largest museums in the world for organizing remote communication with visitors are systematized. The study identified the technologies that are most actively used by these museums, analyzed the main sources of attracting audiences to these resources, and identified trends in the use of remote technologies during the COVID-19 pandemic. The analysis was carried out in three aspects: country (differentiation of online requests traffic by country), time (analysis of the number of requests in the period March-April 2020) and the study of the main sources of traffic on the website. The websites of museums, social networks and instant messengers, Internet platforms used by museums to increase the availability of collections on the museum services market were used as an information base. The trends in the use of digital and remote technologies revealed in the course of the study make it possible to formulate a forecast for the development of the museum services market, taking into account new online practices, and substantiate a number of practical recommendations. The trends in the use of remote and digital technologies in the context of increasing the level of innovativeness of the formats for providing museum services during a pandemic and in a post-pandemic period are outlined. A set of services for the effective monetization of online formats of interaction with visitors is proposed, which can be used by museums in the formation of new business models in the digital era.

1. Introduction

Nowadays, the creative industries are making a special contribution to the development of event services. In general, creative industries are industries that produce and exploit intellectual property. According to the currently dominant classification (UNCTAD - United Nations Conference on Trade and Development), the creative industries include cinema, music, visual and performing arts, exhibition and museum activities, television, radio broadcasting, fashion, publishing, advertising, design, architecture, computer development, etc. In this paper, we will look at how the field of museum services (a special part of the creative industries) is responding to the challenges of the new digital reality.

In the context of widespread digitalization, the use of innovative remote technologies in organizing the activities in the sphere of creative services is one of the most productive approaches to promoting a museum product to the market. Given the epidemiological situation in 2020, more than ever, remote technologies in the service sector are becoming a tool for communication with the audience. The relevance of research and development of new forms and areas of using digital technologies in the field of museum services is caused by the fact that market participants are actively looking for various ways to attract visitors.

In the paper, the authors focus on the conditions that create new digital and information technologies to expand the diversity of museums' activities. New technologies were actively introduced in museum spaces even before the pandemic, as demonstrated by large Russian and foreign museums that use innovative formats of interaction with visitors. An additional powerful impetus to the use of new technologies was created by the crisis period in the event sphere caused by the coronavirus pandemic, which "curtailed" many projects in 2020, while many museums opened free remote access to many of their artifacts and collections. And first of all, this was done by the largest museums in the world, such as the Louvre, Prado, Hermitage, etc. In this regard, it will be especially important to build a model of monetization of remote museum services, which is changing under the influence of digitalization of services in all creative industries.

2. Problem Statement

The research problem is determined by a number of contradictions in contemporary museum activities. The main historically established socio-cultural functions of the museum include, first of all, educational functions, the implementation of which usually takes place in the format of lectures, presentations, master classes, schools and "clubs of museum friends", etc. Communication with visitors influences the identification of requests for museum services, determines the area of their development, and updates new formats of activity. The involvement of visitors in co-creation of exhibitions with the organizers, the use of interactive and immersive (with elements of immersion) practices in the implementation of exhibition and other special projects, including events, according to the idea and scenario of the organizers, are increasingly active (Grinina, 2020).

On the other hand, modern museums today cannot remain only to fulfill the function of storage, the modern visitor to the museum expects active interaction. Museum spaces allow providing a wide range of information, educational, event, reference, advertising and other services, create comfortable conditions for

self-education and meaningful fulfillment of leisure, the formation of new impressions for residents and tourists. At the same time, it is impossible to provide the entire range of such services in the digital era without the use of information and remote technologies (Bruno et al., 2010). It is important for a modern museum visitor not only to get acquainted with the artifacts, but also to receive as much additional information as possible, to keep their own impressions of what they saw, to be included in event programs, games, and quests. That is, to be not only outside observers, but to be an active consumer of the museum product with a certain element of immersiveness. The creation of immersive museums, where artifacts and other museum components interact not only with each other, but also with visitors, is possible using the digitalization of art, museum space, and information services (Lee et al., 2020). Many museums are looking for different approaches to effectively integrating digital technologies into visitor interaction technologies: digitizing collections, creating remote promotional tours of key expositions, offering video courses, posting documentary films about the history of the museum and the collections on the website, etc. It was mainly used until recently as marketing tools to attract visitors, especially tourists (Labanauskaitė et al., 2020). The situation in 2020, when the entire service sector, including the tourism sector, the field of museum services, faced the problem of restricting visits to museums during a pandemic, generated a request to create a new digital environment (Uğur & Akbıyık, 2020). The remote practices that museums were forced to use in the early months of the restrictions have enabled a virtual digital breakthrough in museum services (Ioannakis et al., 2020). At the same time, there is no full understanding of which model for the introduction of digital services should be used when visitors will return to the museum space. The level of openness demonstrated by many of the world's major museums in 2020 cannot be unwound as an acceptable model. There is a need for a system of effective monetization of museums services, a harmonious combination of offline and online communication with visitors, determination of an acceptable level of openness in combination with a sufficient level of profitability.

3. Research Questions

The use of digital technology in the field of museum services has quickly expanded in the face of the COVID-19 coronavirus pandemic. In this regard, the authors posed the following research questions:

- whether there are specific features and preferences of different museums in the use of digital technologies. What technologies are used most actively by museums;

- what forms of remote services museums offer visitors in the face of restrictions caused by the pandemic;

- what are the main mechanisms and ways of attracting visitors to remote services of museums during a pandemic;

- what are the features of the traffic of online requests on the museums' websites;

- whether there are differences in the requests of virtual museum visitors from different countries and users of different social networks.

4.   Purpose of the Study

The aim of the study is to identify the impact of restrictions caused by the COVID-19 coronavirus pandemic on the forms, rates and areas of the use of digital technologies in the field of museum services. This required the systematization of the main digital technologies used in the museum services market. It is necessary to determine the basic forms and channels of interaction with museum visitors in the online space, identify new trends in the use of digital and remote technologies in the museum sector in the context of the crisis caused by the pandemic. Based on a comparative analysis of the use of digital technologies in the six largest museums in the world, it is necessary to make a forecast for the development of the museum services market, taking into account new online practices; formulate practical recommendations for museums in terms of introducing new forms and methods of interaction with visitors; suggest areas for diversifying digital museum services; determine the monetization potential of new digital online museum services.

5.   Research Methods

To study new remote and digital trends in the museum services market, six of the world's largest museums (Louvre, Prado, British Museum, The Museum of Modern Art (MoMA), the Hermitage and the Tretyakov Gallery) were selected as the object of research. The choice is caused by the wide popularity of museums in the world, as well as a significant number of requests on social networks to get acquainted with their collections.

The analysis was carried out in three aspects: country (differentiation of online requests traffic by country), time (analysis of the number of requests in the period March-April 2020) and a study of the main sources of traffic on the museum website.

The research method was based on the use of the following search traffic analysis metrics:

- country analysis: the percentage of traffic by country - this indicator will allow assessing the host country of the main audience of the website and understand which audience the museum works with most;

- quantitative time analysis: the number of website visitors in February, March and April 2020 - this indicator forms the general picture of the museum's popularity in the virtual space;

- analysis of the source of traffic on the website - data on traffic sources allow analyzing what actions the museum is taking to popularize the website, for example, whether it uses ads on social networks, etc.

The websites of museums, social networks and instant messengers (YouTube, Instagram, Facebook, Twitter, VK, Telegram), as well as Internet platforms used by museums to increase the availability and interactivity of the collection when entering the museum services market (such as Artefact, Google Arts & Culture, Izi.travel - Big Museum, etc.) were used as an information base.

6.   Findings

In the course of the study, digital and remote technologies were identified, which are currently used most actively by major world museums. The main trends in the use of digital and information technologies are:

- the official website, i.e. the web page owned by the museum, which contains basic information

about the museum; today, no museum can afford not to have a website, in fact, it is the first resource from which a potential visitor begins to get acquainted with the museum and its activities;

- virtual tours, one of the largest projects in this area - Google Art&Culture, which includes more than 32 thousand works of art from 46 museums around the world; users can visit more than 150 interactive exhibitions, 30 virtual tours in 50 museums around the world (Biraglia & Gerrath, 2020);

- audio guides - quite a traditional tool, but actively developed in a new format via the user's smartphone; many museums use audio guides for both temporary and permanent exhibitions;

- gamification of the museum experience, one example is the project of the Ojooo platform, which offers quest templates designed specifically for museums (Reno, 2017);

- interactivity and use of projection installations, touch-sensitive kiosks, audio points, etc. (Pallud, 2017);

- active presence in social networks, thanks to which there is an opportunity to individualize interaction with potential visitors; many of the world's largest museums use personal YouTube channels to publish their videos: for example, The Museum of Modern Art, the British Museum, and the Hermitage;

- VR technologies that provide a demonstration of works of art stored in the most famous museums in the world. Virtual reality technologies are widely used; for this, museums both create their own specialized Internet platforms and use 'external' resources.

With the help of basic information technologies, the following tasks can be solved:

- increasing the availability of information about museums and their projects;

- optimization and redistribution of functional responsibilities of employees;

- increasing the interactivity and involvement of visitors in a variety of museum activities and special events;

- expanding the audience of visitors by diversifying the proposed formats of interaction and presentation of collections.

Trends of new digital reality in the museum space: research results. Remote technologies play a key role in the life of museums today. It is not enough for museums to work in a "classical format"; they need to maintain the attention of the audience and attract livelihoods through new creative solutions (Raun et al., 2016).

Let's consider the practice of using remote sensing technologies in leading museums in the world, such as the Louvre, Prado, the British Museum, The Museum of Modern Art (MoMA), the Hermitage and the Tretyakov Gallery. The choice of these museums was caused by their wide popularity, as well as a significant number of requests on social networks to get acquainted with the collections. First of all, we will give a systematization of the platforms that the chosen museums use to work with a virtual audience (Table 2). As you can see, all the museums presented in Table 1 have their own online resources, and more than half use third-party services to broadcast their collection on the Internet. However, only the Louvre brought the exposition to a fundamentally new format of exposure - in Second Life. It should be noted that Russian museums are actively involved in the formation of remote content: the Tretyakov Gallery uses the largest number of resources, both domestic and foreign, to present its collection. An analysis of the use of digital and remote technologies by museums makes it possible to clearly identify a new trend in their application, consisting in the complexity and complementarity of a wide range of digital and remote

technologies in the museum services market (Raun et al., 2016).

Table 1. The use of remote platforms in major museums around the world, 2020

	Official website	Mobile application	Social networks	Google Arts & Culture	Second life	Artefact	Big museum	Yandex. Collections	izi.travel	Culture.ru	Arzamas
Louvre	yes	yes	yes	-	yes	-	-	-	-	-	-
Prado	yes	yes	yes	-	-	-	-	-	-	-	-
British museum	yes	yes	yes	yes	-	-	-	-	-	-	-
The museum of modern art (MoMA)	yes	yes	yes	yes	-	-	-	-	-	-	-
Hermitage	yes	yes	yes	yes	-	-	-	-	yes	yes	-
Tretyakov Gallery	yes	yes	yes	yes	-	yes	yes	yes	yes	yes	yes

Source: authors based on: (Louvre official website, 2020; Prado official website, 2020; British Museum official website, 2020; MoMa official website, 2020; Hermitage official website, 2020; Tretyakov Gallery official website, 2020).

Our analysis allows drawing a number of conclusions about the priorities of using digital remote technologies in the activities of museums, taking into account the fact that all the museums taken for analysis do not need advertising. This conclusion is confirmed by the results of the analysis of request traffic and its structure. To analyze the activities of museums in the virtual space, the traffic of the websites of all 6 selected museums was analyzed.

A country analysis of traffic on the websites of the selected museums showed that one of the key roles is played by the language in which virtual activities are implemented on the official website (Table 2). Also, the isolation of citizens during the pandemic played a big role. For example, in February-April 2020, residents of Italy were in the top five in visiting all the websites of these museums. The same can be said for US residents. However, this is more related to the fact that all these sites are presented in English. Thus, the Louvre virtual space is the most popular among residents of France and the United States. This statistic can be explained by the fact that the museum's website is presented in full only in French and English versions (Louvre official website, 2020). However, at the same time, the virtual museum is slightly less, but still popular among the Russian-speaking population.

The Prado website is the most popular among Spanish speaking countries (Prado official website, 2020). The main traffic of the British Museum website comes from English-speaking countries, this can be explained by the fact that the website is presented only in English (British Museum official website, 2020). Almost half of the visitors to the website of The Museum of Modern Art are in the United States (MoMa official website, 2020). More than half of the Hermitage's website visitors are Russian-speaking visitors (Hermitage official website, 2020), which is largely caused by the fact that the website is fully used only in Russian and the virtual content is also designed for a Russian-speaking audience. The website of the Tretyakov Gallery only works with a Russian-speaking audience (Tretyakov Gallery official website,

2020), therefore, website visitors mainly 'come' from the CIS countries.

Table 2. Country traffic of visits to the websites of the six largest museums in the world, 2020

Country	% of total traffic					
	Louvre	Prado	British Museum	The Museum of Modern Art	Hermitage	Tretyakov Gallery
USA	21.7	8.4	22.0	45.3	5.4	1.5
Italy	3.8	4.6	4.5	2.7	4.7	-
Russia	6.2	-	4.4	-	60.3	89.1
United Kingdom	3.3	-	25.4	4.7	-	-
Spain	-	49.7	2.8	-	-	-
France	25.9	-	-	-	2.0	-
Ukraine	-	-	-	-	5.5	2.2
Other countries	-	9.7 (Mexico + Argentina)	-	6.0 (Canada + Australia)	-	1.3 (Belarus + Kazakhstan)

Source: authors.

Time analysis showed that the most popular website during the pandemic was the Louvre Museum. Before the closure of the museums, all websites had approximately the same popularity, while the surge of interest in the virtual resources of all museums that opened their collections for free 'visiting' during the pandemic was in March 2020, then there is a decline in interest in virtual content of all six museums (Figure 1).
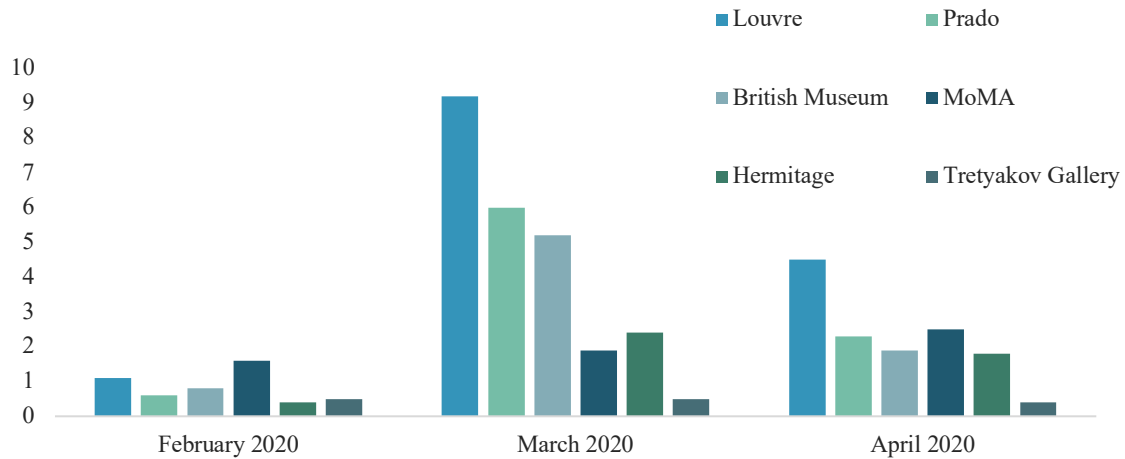

Figure 1. Total number of visitors to museum websites in February, March and April 2020 (million people)

Source: authors based on (SimilarWeb, 2020).

During the analysis, the following traffic sources were identified:

- *direct*: any traffic where the link or source is unknown. This could be mentions in blogs, news feeds, etc. People go directly to the website, without the participation of a search engine;

- *e-mail*: traffic by e-mail that has been explicitly flagged with the e-mail parameter;

- *organic search*: traffic from the search engine results, which is earned, but not paid. In this case, the user himself forms a request (types certain search words into the search line) and goes to the website;

- *paid search*: search engine traffic that is the result of paid advertising through Google AdWords or another paid search platform;

- *referrals*: traffic that occurs when a user finds an object through a website other than the main search engine, through special links, etc.;

- *social (social networks):* traffic associated with a social network such as Facebook, LinkedIn, Twitter or Instagram;

- *display ads (advertising):* traffic associated with paid advertising sources (mainly on social networks: Facebook Ads, Google Ads, MyTarget, etc.).

The analysis data are presented in Table 3. It was revealed that the most popular is 'organic' traffic, which indicates the direct interest of visitors in the museum. A certain percentage of visitors 'come' to the website through mentions in various sources, such as blogs, articles, news feeds, publications, etc.

Table 3. Traffic sources for the six largest museums in the world, 2020

Country	% of total traffic					
	Louvre	Prado	British Museum	The Museum of Modern Art	Hermitage	Tretyakov Gallery
Direct search	34.1	26.0	30.5	26.1	37.6	21.9
E-mail	1.4	1.0	1.0	1.3	2.6	6.5
Organic search	*36.4*	*55.3*	*48.8*	*56.5*	*32.8*	*52.1*
Paid search	-	3.4	2.0	3.8	1.1	-
Referrals	23.2	10.3	11.3	7.3	14.8	13.6
Social networks	4.9	4.0	6.3	4.8	11.1	5.9
Display ads	-	-	0.1	0.2	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: authors based on (SimilarWeb, 2020).

It is interesting that social networks are not a priority source of traffic, on average - 6%. The Hermitage has the maximum traffic when searching for information through social networks (11.1%). At the same time, in modern practice, social networks are one of the most common promotion channels (Arbatskaya et al., 2020). Therefore, it is advisable to consider the presence of museums in those networks that allow posting information content and are available for download in Russia via the AppStore, such as YouTube, Instagram, Facebook, Twitter. In the course of the study, we analyzed the presence of museum accounts in each social network selected for analysis. It was found that all museums in our sample have accounts on three social networks with maximum coverage: YouTube, Instagram, Facebook. Also, Twitter is popular among museums. VK is also actively used in Russian museums (Hermitage, Tretyakov Gallery). The Hermitage is also represented on Telegram.

The Hermitage has the largest number of publications on social networks; the museum posts almost twice as many publications as all the other museums in our sample. Analysis of statistics for each social network separately showed that the breakdown by frequency of social networks in each museum is

different. In all foreign museums, the main focus of communication activities is on Facebook. The number of posts on Facebook is significantly higher than on all other social networks. Russian museums are now more oriented towards YouTube, since YouTube is one of the most popular social networks in our country (Brand Analytics, 2019).

The Tretyakov Gallery's YouTube channel has almost three times more subscribers than the Louvre channel. The gallery channel ranks third in popularity among the reviewed channels of the analyzed museums. Assessing the content of the Tretyakov Gallery channel, we can say that it differs significantly from all other museums. When filling its channel with content, the museum actively uses various formats for providing information about its own exhibits (documentaries, lectures with museum staff, attracting celebrities).

In a pandemic, all museums have intensified their presence on the Internet. Although it should be noted that these are mainly online excursion activities and, to a lesser extent, event-oriented projects, since they have more complex organizational component. For visitors, 'open online doors' of museums and other cultural institutions gave one very important advantage: those attractions and cultural events that in everyday life would be "beyond the means of many" became available (Qiu et al., 2020).

Among the world's cultural objects, all the museums in our sample invite for online walks. Thus, the Louvre has given open access to such online tours as: walks along the moat that surrounded Paris in the XXII century; expositions of Egyptian antiquities; a tour to the Apollo gallery, etc. According to experts, the online collection of the British Museum is considered one of the largest. It is interesting to note that the website of the British Museum itself looks very creative, however, as we mentioned earlier, the website is aimed at an English-speaking audience and this approach has been kept in the context of the pandemic. At the same time, the photos of the exhibits posted on the website are presented in very good quality, which allows you to fully enjoy the collection. However, there are no special offers on the website in open access mode.

The Prado Museum also offers virtual guided tours, a professional guide helps to understand the plots and details of individual paintings, talks about the symbolism and history of the creation of works of art. Tours are held using the Zoom platform, and after the completion of the tour, participants were sent a link to additional materials (a list of films, articles and books about the museum for "immersion in the history of the museum"). The collection of The Museum of Modern Art (MoMA) was also posted on the Internet in an accessible form for users. Just like in other museums, you can start your acquaintance with the first and one of the most famous museums of modern art in the world with an online sightseeing tour.

In its online poster during the period of restrictions on offline visits, the State Hermitage Museum offered lectures, virtual tours, online programs that were broadcast on social networks. Among the special projects implemented by the Hermitage are live broadcasts "Hermitage Online", as well as the educational Internet project "In Focus". Another interesting Hermitage's project, which was posted on the website, - "A Journey through the Hermitage" - a film-walk of a person looking at the museum's collection for five hours. Note that among the modern remote trends, various educational online museum projects stand out, including ones aimed at improving the qualifications of the museum employees both in the format of online courses and in a game format. Among the most interesting professional games aimed at expanding the competencies of museum employees is the project of the game from the Tretyakov Gallery: "Museum

Professional", which shows and allows you to study the typical features of work in various departments of museums (Gordin et al., 2020).

But the Tretyakov Gallery, from our point of view, is showing the greatest creativity in working with its admirers at the present time (under conditions of pandemic restrictions). In addition to online excursion programs, the Gallery is implementing a large-scale project #TretyakovkaDoma. Within the framework of the project, online lectures are held by the museum's researchers. Also, there are concerts and documentaries. Thus, in March 2020, a free concert of People's Artist of Russia and the Republic of Abkhazia, Hibla Gerzmava, who performed an online concert as part of the T-Festival of classical chamber music held by the Tretyakov Gallery, took place in Yandex.Efir.

Concluding a brief review of the trends in the use of new remote formats of interaction with visitors, we point out that the return to traditional forms of providing services by cultural institutions in the post-pandemic period is still a priority. Of course, remote forms will continue to be widely and actively used by museums, but since museums lost a significant part of their income during the pandemic, upon returning to "normal" life, many such services (virtual tours, online lectures and training programs, etc.) will be monetized by museums (we have already begun to observe this process since mid-summer 2020). According to a study, excursion services will remain the most common forms of work after the pandemic, while it is planned to introduce educational and thematic routes more widely (Gordin et al., 2020). An important element in the work of museums will be innovative online formats that can be monetized quite easily: games, quests, workshops, etc. that can be implemented using a variety of digital and remote technologies.

7. Conclusion

During the study, the following scientific results were obtained:

1. The main digital and information technologies used in the museum services market at the present time have been systematized. Among these technologies and forms of interaction with a potential audience (the first three formats are used by all museums in the sample), we will name the following:

- official website of the museum with basic information, in fact, this is the first resource from which a potential visitor begins to get acquainted with the museum and its activities;

- creation and promotion of mobile applications of museums on the market of tourist services;

- active presence in social networks, thanks to which there is an opportunity to individualize interaction with potential visitors;

- activation of the creation and maintenance of personal channels on YouTube for the publication of their video materials;

- virtual tours, the creation and placement of them especially intensified during the pandemic, while most museums made access to such online tours free for users;

- audio guides quite a traditional tool, but actively developed in a new format via the user's smartphone;

- gamification of the museum experience, scalable by large museums for the market as a whole;

- interactive activities of museums using special museum events dedicated to historical or other memorable dates;

- the use of projection installations, touchscreen kiosks, QR codes, audio points and other new specialized museum technologies;

- VR technologies that provide a demonstration of works of art stored in the most famous world's museums.

2. An analysis of the use of digital and remote technologies by museums makes it possible to clearly identify a new trend in their application, consisting in the complexity and complementarity of a wide range of digital and remote technologies in the museum services market. Museums are not limited only to the creation of a detailed website (as it was until recently), but also 'go out' to social networks, expand the game and event components of their activities (the latter, however, 'froze' somewhat due to pandemic); form new online products intended for both remote and intra-museum consumption (lectures or workshops by eternal artists, educational programs, etc.).

3. New trends have been identified that have formed in the active use of remote technologies in the museum services market during a pandemic. The basic trend of this period was free access to collections and other online museum products (subject to an Internet connection). It was revealed that the largest number of requests for online visits to museums came from Italy and the United States, the third most intense traffic of online requests to the museums selected for analysis came from Russia. In terms of traffic sources, certain differences were revealed between Russian and foreign museums: foreign museums prefer Facebook when targeting social networks, Russian ones prefer YouTube. The spike in the number of requests over time fell on March 2020, and since April, the number of requests has been decreasing. The results of the analysis suggest that free virtual access to cultural property initially increased the traffic of online visits, but, apparently, did not form a sustainable interest in online products even in the 'non-monetized' museum services market. However, this trend requires additional clarification over a longer time frame. The trends in the use of digital and remote technologies revealed in the course of the study make it possible to formulate a forecast for the development of the museum services market, taking into account new online practices. We can say that the use of remote forms of communication with visitors will continue to be widely and actively used by museums: the creation of new virtual excursions, thematic and personalized excursions (creation of an individual route), screenings of documentaries about museum collections, the history of their creation, concerts and theater programs in museum interiors, etc.; expansion of educational and training activities in the online format (individual video lectures or sets, meetings with 'opinion leaders', master classes and workshops, interactive programs, quests, etc. These formats, which were tested during the period of closing museum spaces for offline visits, have shown their promise given the current level of development of digital technologies.

The established practices of using remote technologies will be quite stable even after the restrictions are lifted, and further digitalization will only consolidate the trends of online formats in the work of museum sites. However, there are two aspects that must be taken into account when further developing a strategy for their use. First, after the pandemic, their use will be associated with the need to monetize the offered services, and these will no longer be open digital spaces, but creative goods brought to the museum services market. Secondly, only online formats of familiarizing with cultural values are still not sufficient for fostering a harmonious personality, and online products should be considered as effective tools for shaping the need to get acquainted with real collections, participate in real excursions, lectures, quests, etc. Thus,

strategic priorities should ensure a rational combination of traditional and new technologies of communication between consumer and producer in the museum services market.

The study of trends in the use of remote and digital technologies in the museum services market conducted by the authors allows formulating a number of practical recommendations:

- museums need to diversify the modern technologies used in their activities as widely as possible, not concentrate on only one most mature technological solution (for example, while maintaining and improving a website, do not forget about other types of digital communications with consumers, among which the most perceptive ones are mobile applications and social networks);

- Russian museums, when posting content on social networks, should first of all focus on YouTube as the most popular social network in our country, the VKontakte network can also be used as an Internet platform, since it is the second most popular social network in Russia. Facebook can also be used to promote to markets, but it should be borne in mind that although it is the most popular network in the world (foreign museums are primarily oriented to this social network), in our country, the audience coverage does not exceed 7%;

- when posting information about the museum, as well as the actual museum online products on social networks, it is very important to present the content not only in Russian, but in several foreign languages; the analysis of request traffic by country criterion can be used to select the base languages;

- an important area of practical work of museum sites after the completion of the isolation regime should be the development of mechanisms for monetizing their own creative online products (excursions, lectures, master classes, etc.) brought to the "remote" market. It is advisable to use hybrid offer strategies that combine in one online "museum product" a completely open part (for example, free viewing of the exhibition catalog and a small part of it) and a main product that can only be accessed by paying for the service in one way or another. At the same time, one should not forget about developing a model of loyalty to the museum's online products;

- excursion services remain among the most popular forms, both online and offline ones. Online excursions can and should be used not only as a creative museum product, but also as a tool for attracting visitors to the offline space of museums, which forms the audience's interest in the main collection / services. The costs of producing such products can be considered as marketing costs;

- the response to the request to increase the interactivity of museum activities should also be provided through a variety of event formats, some of which can be successfully implemented remotely: games, quests, workshops, concerns, training programs, meetings with celebrities, original thematic excursions / lectures, etc. The effectiveness of such events precisely increases in the remote format, which allows their multiple broadcast to various audiences. Such services are quite easy to monetize in an online format, which should be used by museums in the formation of new business models in the digital age. In conclusion, we consider it expedient to point out that, according to the authors, digital and remote technologies act as a modern infrastructure for the multifaceted provision of museum services, while "cultural content" remains the basis. And it is important not to substitute one for another and not put digitalization at the forefront as the only and unconditional strategic priority.

References

Arbatskaya, E. V., Khoreva, L. V., & Shcherbakov, V. V. (2020). Shared use of digital logistics services by consumers and manufacturers of tourist services. *Economics and Management*, 26(3), 255-263.

Biraglia, A., & Gerrath, M. H. E. E. (2020). Corporate sponsorship for museums in times of crisis. *Annals of Tourism Research*, *In press*. https://doi.org/10.1016/j.annals.2020.103056

Brand Analytics (2019). Social networks in Russia: Numbers and trends. https://br-analytics.ru/blog/social-media-russia-2019/

British Museum official website (2020). Retrieved from: https://www.britishmuseum.org

Bruno, F., Bruno, S., De Sensi, G., Luchi, M.-L., Mancuso, S., & Muzzupappa, M. (2010). From 3D reconstruction to virtual reality: A complete methodology for digital archaeological exhibition. *Journal of Cultural Heritage*, *11*(1), 42-49.

Gordin, V., Sizova, I., Kudelkina, A., & Voronina, A. (2020). Museums and visitors: How to interact in the post-quarantine period. *Museum*, *7*. https://panor.ru/articles/muzei-i-posetiteli-kak-vzaimodeystvovat-v-postkarantinnyy-period/47019.html

Grinina, E.N. (2020). Role of new interactive practices in aesthetics formation of modern theater and museum space. *International Research Journal, 5-2*(95), 197-202.

Hermitage official website (2020). https://www.hermitagemuseum.org

Ioannakis, G., Bampis, L., & Koutsoudis, A. (2020). Exploiting artificial intelligence for digitally enriched museum visits. *Journal of Cultural Heritage, 42*, 171-180.

Labanauskaitė, D., Fiore, M., & Stašys, R. (2020). Use of e-marketing tools as communication management in the tourism industry. *Tourism Management Perspectives, 34*, 100652.

Lee, H., Jung, T. H., Dieck, M. C., & Chung, N. (2020). Experiencing immersive virtual reality in museums. *Information and Management*, *57*(5), 103229.

Louvre official website (2020). Retrieved from: https://www.louvre.fr/

MoMa official website (2020). Retrieved from: https://www.moma.org/

Pallud, J. (2017). Impact of interactive technologies on stimulating learning experiences in a museum. *Information & Management, 54*(4), 465-478.

Prado official website (2020). Retrieved from: https://www.museodelprado.es. Accessed: 17.04.2020.

Qiu, R., Park, J., Li, S., & Song, H. (2020). Social costs of tourism during the COVID-19 pandemic. *Annals of Tourism Research,* 84, 102994.

Raun, J., Ahas, R., & Tiru, M. (2016). Measuring tourism destinations using mobile tracking data. *Tourism Management*, *57*, 202-212.

Reno, A. (2017). Museums and digital technologies: How the visual space is developing. https://te-st.ru/2017/10/31/museums-and-digital-technologies/

SimilarWeb (2020). Website traffic statistics & analytics. https://www.similarweb.com/website/metmuseum.org/#overview

Tretyakov Gallery official website (2020). https://www.tretyakovgallery.ru/

Uğur, N. G., & Akbıyık, U. (2020). Impacts of COVID-19 on global tourism industry: A cross-regional comparison. *Tourism Management, 36*, 100744.