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*INTRODUCTION OF THE LATEST TECHNOLOGIES IN MUSEUMS: CREATING
AN ELECTRONIC ARCHIVE AND DATABASE*

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**INTRODUCTION OF THE LATEST TECHNOLOGIES IN MUSEUMS:
CREATING AN ELECTRONIC ARCHIVE AND DATABASE**

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Abstract

In the context of museum communication with visitors, the primary goal is interactive communication. Currently, the most relevant aspect is not the instrumental role of cutting-edge technologies, but rather their potential for enhancing traditional museums. Moreover, it is particularly intriguing to assess whether these technologies can fundamentally impact a conservative museum institution, open new horizons in virtual space, and attempt to envision the museum's future—undoubtedly closely tied to the overall course of cultural evolution. Introducing people to the museum, fostering their attachment, and making them regular visitors and friends of the museum remain steadfast objectives for its successful existence. The presence of a museum in a social network makes both its virtual and real existence visible and tangible. Museums and their collections can be presented from a new perspective while preserving their individuality and relevance for a new audience. The application of innovative technologies and the implementation of automated systems significantly enhance the efficiency of solving tasks that museums encounter throughout their existence.

Keywords: digital archive, digital copies, features of the museum database, paper document fund, passport of the museum unit, survival strategy, relevance, network interaction.

Introduction

With the introduction of innovative technologies into our museum life, the creation of museum databases solves the overarching task of the existence of an architecture museum. The transformation of thinking, the entire modern way of life, a significant change in museum mentality require an urgent solution to the priority issue for museums - their «digitalization».

Our goal is not just to create an electronic archive, but a complete database of the museum. To create a database in a museum means to make it modern, competitive, relevant for visitors, capable of communicating with museums around the world «on equal terms». The museum's database is an interactive automated system that includes: search algorithms,

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several catalogs (exhibition catalog, visitor reviews, inventory lists, etc.), the museum's website, pages on social networks, correspondence with partners, and so on [1]. The entire history of life and plans for the future of the museum - in the electronic database, as a guarantee of safe existence for many years.

There are various approaches to creating electronic museum archives and databases, as well as their application in practical tasks of managing museum collections and popularizing cultural heritage. It is no longer possible to ignore the fact that any museum must be represented not only in the real world but also in the internet space. How, where, on which platform, in what volume and sequence should this happen [2]?

Without a clear, universal survival guide or a definitive plan (specifying what modern museums should and shouldn't do), each museum has had to navigate this path independently. The transition from extensive paper archives to digital formats has been a significant undertaking. Museums have addressed old challenges, encountered new ones, and forged their own paths. Our architectural museum, the National Museum-Institute of Architecture named after A. Tamanyan, has developed a survival strategy and tactics through empirical methods. The experience gained from creating an electronic archive allowed us to draw several conclusions: Digitization Process: All information existing in paper form must be meticulously reviewed (including authorship, dates, etc.) and gradually digitized as we read and catalog paper files. To achieve this, we first need to establish a suitable Classifier for describing each storage unit and create a tree-like schema for systematic organization (structuring the distribution of objects into sections, subsections, etc.) [3]. Database Considerations: The database is a separate entity. How should we store information that is not suitable for public use on the internet? Should there be a separate online museum database? If so, which platform and resource should host it? Challenges in Automation: When implementing automated (or even simple electronic) systems for collection management, storage, and research, challenges often arise related to information structuring, standardizing terminology, and defining classification features. Transitioning to automated work does not merely involve transferring manual tasks to computers; it represents a different level of work with distinct tasks and objectives [4].

Conflict Setting

In every museum (and ours is no exception), there is a colossal volume of information accumulated and systematized by each department or individual employee according to their own understanding. The first step will be to compile a registry of all these disparate and diverse databases, assessing their volume and quality. Since the same information about an object (the same document) appears repeatedly at all stages and among all employees, or conversely, different information about the same object (several documents on one topic, etc.), it is quite evident that there is a desire to automate this process by creating a database.

Research Results

All information available in paper form must be verified and digitized step by step, as it is read and paper folders are taken into account. For this purpose, a Museum Unit Passport

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has been developed – its identification card. This document contains all the necessary information about a specific exhibit for integration into the electronic archive, thereby uniting and regulating the work of all employees. Additionally, the passport contains and updates information obtained throughout its entire life. Thus, with the introduction of mandatory passportization for incoming and existing museum valuables, questions of identification, indexing, and integration into the museum’s database, and consequently into the overall system of museum connections, are resolved. Digitized information can be distributed across files on each specific computer as needed [5, 6]. But how? Should jointly developed criteria and standards for filling out electronic documents exist among all employees? Similarly, how should the scheme for their storage and accounting in the common database be constructed through collaborative efforts? What goal should be prioritized when creating our museum archive’s database? What are the priorities when translating museum collections into digital format [7]?

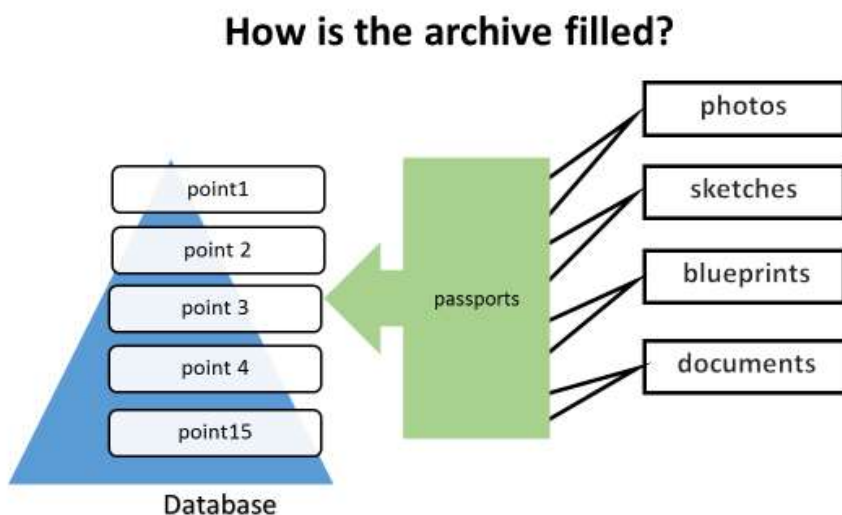


Fig. 1 The museum's digital archive administering algorithm.

In the first place, should we digitize what has already been identified? Or should we digitize new materials as they arrive? Or perhaps prioritize digitizing the paper materials that are in dangerously poor condition? Or focus on the most valuable ones? Who is the archive primarily created for, and for what purpose? Is it for students and researchers? For the museum’s needs? To preserve collections? For users? For future generations? Is it for record-keeping or ease of searching for specific documents? Transparency and accessibility for a wide audience in the online space? Should the operator responsible for their «digitization» consider identifying new, unknown documents (i.e., research work), or should we refrain from addressing global tasks during the construction of the museum archive database [8]?

These questions were addressed by the museum during its work. Additionally, it became clear that when the structure of the museum archive database is clear, a tree is drawn, and a well-defined order of working with paper carriers (documents) is established, but without a carefully thought-out strategy for its filling, issues in future work cannot be avoided.

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What is the archive filled with?

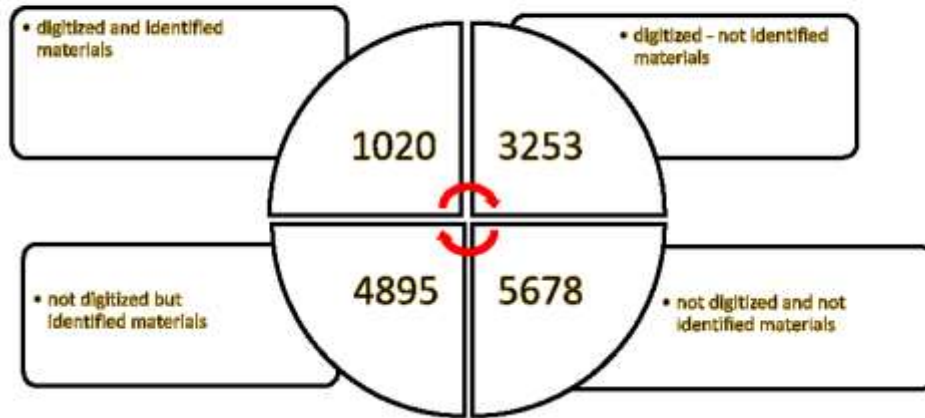


Fig. 2 Structure of the digital archive database of the museum.

Considering the above, work can be organized in such a way that the data input section from multiple operators is constructed like a large factory: each operator has their own specialization, and each operator enters or verifies their field in the database. However, it is crucial to organize everyone’s work as a unified team with the goal of introducing consistent terminology, structuring information, and developing classification principles, among other things. In this context, extensive discussion within the museum team about terminology, description structures, and the acceptance of compromise decisions plays an important role—essentially, the «rules of the game» without which one would be at an impasse. Since the initial users of the automated accounting and storage system are museum employees, the chosen strategy for populating the database plays a significant role in the successful implementation of electronic document management.

Passport

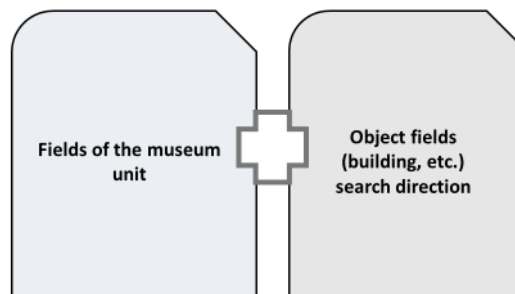


Figure 3. Passport of the museum unit.

Working within an automated system is based on the psychology of collective work. Information enters the database through various paths during different museum operations.

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Consequently, it is sometimes impossible to determine who entered which information, where they obtained it from, and whether there is a likelihood of another colleague reusing the same material when adding it to the electronic archive.

Instead of scattered «individual» information, a shared information resource emerges—one whose quality depends on the efforts of all involved. Creating this resource requires increased responsibility from each person contributing information, but it also becomes a powerful motivating factor for enhancing scientific work efficiency and enables a greater number of researchers to engage in collection processing.

What fields are in the passport of a museum unit?

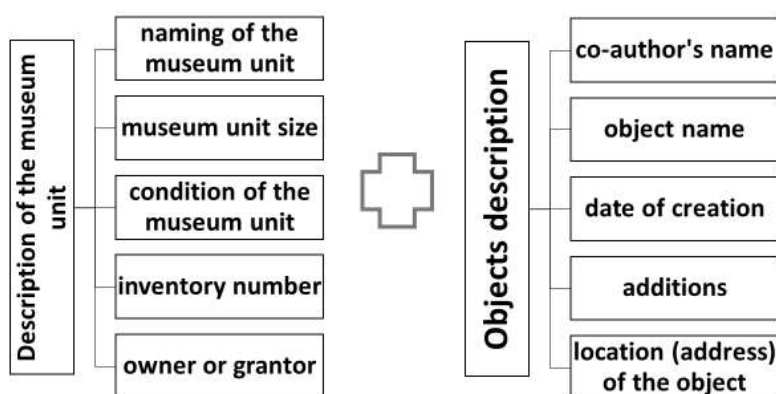


Fig. 4 Archive Organization Scheme in Accordance with the digital passports.

It is necessary to note another aspect related to the human factor. Until the database is more or less fully populated (the entire museum collection or at least a significant part of it), it cannot be effectively utilized. Thus, during the database population, museum staff face an additional burden, which is quite substantial, and the benefits of the new system are not immediately apparent. Nevertheless, if from the very beginning, employees work with a database-oriented mindset, and the entire team clearly understands that the conceptual capabilities of any information array, collected and systematized by a specific staff member, significantly increase when properly structured (and archived according to general standards) and integrated into a comprehensive network of relationships, many problems and errors can be avoided in the long term.

The uniqueness of a museum archive lies in its fleeting nature—it is as ephemeral as it is unique. The only known method to safeguard an archive from disappearing is to digitize it. In other words, a paper archive must inevitably have a digital, electronic alternative, especially considering the typical errors that occur during the creation of a museum database.

An electronic archive is not merely an electronic exhibition, a digital museum, or a repository of paper analogs. It represents an extension of possibilities—a modern approach to problem-solving, including those specific to museums.

For instance, electronic exhibitions can be created, which minimally correlate with the museum’s database and operate autonomously. These could include interactive games or educational tests for children based on the museum’s collection, without directly relying on the electronic archive. The scope of the electronic exposition depends on the specific goals set for it.

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This endeavor is a long-term project that may span years, but it is essential. By associating registration numbers (passport numbers) with museum artifacts in the existing paper catalog and subsequently in the electronic catalog, we can predict that the application of such a unified identifier will expand not only within the inter-museum context but also at the national and international levels. This way, the museum won't need a separate registry of registration numbers for individual storage units.

For the second decade now, both national and international projects aimed at expanding access to cultural heritage for the population and specialists have been successfully emerging worldwide. There are numerous platforms, applications, projects, and similar initiatives with growing content and possibilities.

Are museums compelled to change in the modern world? Undoubtedly, we are evolving, but is it happening rapidly and strategically enough? Are all changes beneficial for museums? Yes, if a museum has a well-thought-out strategy for modification and modernization even before its inception [9].

At present, the most challenging task is not attracting visitors or gaining attention, but retaining it. On one hand, we are inherently non-competitive because we are museums! On the other hand, without representation in the online space, we become less competitive. However, this presents a dilemma.

By providing the same opportunity as, let's say, the film industry—enjoying our product without leaving home, sitting on the couch, and munching popcorn—we deprive ourselves of the chance to interact with visitors face-to-face.

Exaggerated expectations, consumer attitudes, and the widespread consumption of intellectual fast food lead to a reluctance to work on ourselves. Yet, visiting a museum is also a form of work—an overcoming of boundaries and stereotypes. Who willingly wants to labor upon entering a museum, treating it as a place of «recreation»?

«It is necessary to immerse ourselves in the digital flow to remain relevant with each generational shift» and not lose the existing audience while also capturing new ones. This ensures that we keep up with the mentality of a modern successful brand—an informational and cultural resource.

Any museum, even the smallest one open to visitors, should have a website—a «business card» with promotional information. In recent years, the face of a museum directed towards the open information space has become an increasingly significant factor. To compete and thrive in the modern world, it is crucial for a museum to have such an 'internet face. After all, most people turn to the internet when seeking information, including researching museums and exploring their collections.

In the future, the number of virtual museum guests will surpass the count of physical visitors, and a central role in the museum's public relations system may be occupied by «Internet relations» [10].

Conclusion

When considering a museum website or a Facebook page as a means of communication with the public, we address one of the most pressing museum challenges: the issue of «gallery

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congestion». Prioritizing the creation of a digital archive becomes a key aspect of a contemporary museum's strategy. However, it is essential to understand that building an electronic archive is a long-term endeavor that requires time and effort. It is a minimum program. Transitioning to a fully functional database can take years, but it ensures survival.

The virtual museum website represents the face of the physical museum. Most people perceive us based on our online presence. Despite the experiences and practices of other museums, each institution adapts to the «new era» in its unique way.

Once again, defining the ultimate goal, tasks, and future strategy within the context of cutting-edge communication technologies is a top priority for modern museums. Now, a museum represented in the online space can seamlessly integrate into global platforms, media resources, virtual events, social networks, and mobile applications.

And importantly, the application of information technologies in creating a digital archive at the National Museum-Institute of Architecture named after A. Tamanyan undoubtedly strengthens the museum's brand in the market and fosters partnerships with online platforms and social networks. It makes architectural heritage more accessible and comprehensible to a wide audience, popularizes and preserves it for future generations, and contributes to education and research in this field.

References

1. Williams C. *Managing Archives. Foundations, Principles and Practice* // Chandos Publishing; 1st edition, 2006.
2. Johan Idema *How to Visit an Art Museum: Tips for a Truly Rewarding Visit*// Laurence King Publishing; Illustrated edition, 2014.
3. Hermina Din *The Digital Museum: A Think Guide* // American Association of Museums; Illustrated edition, 2007.
4. Polyakov T.P. *Museum exhibition. Methods and technologies for updating cultural heritage*, Moscow 2018.
5. ARMS W.Y.. *Digital Libraries*; Cambridge: The Mit Press, London, (Digital Libraries and Electronic Publishing), 2000
6. Gerasimov A.N., Elizarov A.M., Lipachev E.K. *Subsystem of Formation Metadata for Science Index Databases on Management Platform Electronic Scientific Journals*. Russian Digital Libraries Journal. 2015
7. Antopolsky A. B., Kalenov N. E., Serebryakov V. A., Sotnikov A. N. *About the unified digital space of scientific knowledge* //Bulletin of the Russian Academy of Sciences. 2019. T. 89, No. 7. pp. 728–735.P. C. Evans, A. Gawer *The Rise of the Platform Enterprise: A Global Survey*. The Center for Global Enterprise, 2016. The Emerging Platform Economy Series No. 1. 2016
8. Evans P. C., Gawer A. *The Rise of the Platform Enterprise: A Global Survey* //The Center for Global Enterprise, 2016. The Emerging Platform Economy Series No. 1. 2016.

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AN ELECTRONIC ARCHIVE AND DATABASE**

9. Parker G. G., Van Alstyne M. W., Choudary S. P. Platform Revolution: How Networked Markets Are Transforming the Economy – and How to Make Them Work for You //W.W. Norton & Company, 2016.
10. Debates in the Digital Humanities, ed. Matthew K. Gold. Minneapolis, 2012. URL: <http://dhdebates.gc.cuny.edu/>

References

1. Williams C. *Managing Archives. Foundations, Principles and Practice* // Chandos Publishing; 1st edition, 2006.
2. Johan Idema *How to Visit an Art Museum: Tips for a Truly Rewarding Visit*// Laurence King Publishing; Illustrated edition, 2014.
3. Hermina Din *The Digital Museum: A Think Guide* // American Association of Museums; Illustrated edition, 2007.
4. Поляков Т.П. Музейная экспозиция //Методы и технологии актуализации культурного наследия, Москва, 2018.
5. W.Y. ARMS. *Digital Libraries*; Cambridge: The Mit Press, London, (Digital Libraries and Electronic Publishing), 2000.
6. Gerasimov A.N., Elizarov A. M., Lipachev E. K. Subsystem of Formation Metadata for Science Index Databases on Management Platform Electronic Scientific Journals. *Russian Digital Libraries Journal*. 2015
7. Антопольский А. Б., Каленов Н. Е., Серебряков В. А., Сотников А. Н. О едином цифровом пространстве научных знаний. *Вестник Российской академии наук*. 2019. Т. 89, №7. С. 728–735.
8. Evans P. C., Gawer A. *The Rise of the Platform Enterprise: A Global Survey* //The Center for Global Enterprise, 2016. The Emerging Platform Economy Series No. 1. 2016.
9. Parker G. G., Van Alstyne M. W., Choudary S. P. Platform Revolution: How Networked Markets Are Transforming the Economy – and How to Make Them Work for You //W.W. Norton & Company, 2016.
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**ԱՐԴԻ ՏԵԽՆՈԼՈԳԻԱՆԵՐԻ ՆԵՐԴՐՈՒՄ ԹԱՆԳԱՐԱՆՈՒՄ: ՏՎՅԱԼՆԵՐԻ
ՇՏԵՄԱՐԱՆԻ ԹՎԱՅԻՆ ԱՐԽԻՎԻ ՍՏԵՂԾՈՒՄ**

Ե.Է. Վարդապետովա

Ալեքսանդր Թամանյանի անվան նարտարապետության ազգային թանգարան-ինստիտուտ

Թանգարանի և այցելուների շփման հարցում հիմնական նպատակը ինտերակտիվ հաղորդակցությունն է, և այսօր ամենաարդիականը ոչ թե նորագույն

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տեխնոլոգիաների գործիքային դերն է, այլ ավանդական թանգարանի ներուժը բարձրացնելու համար դրանք օգտագործելու հնարավորությունը: Ավելին, հատկապես հետաքրքիր է գնահատել, թե արդյո՞ք նոր տեխնոլոգիաների կիրառումն ի վիճակի է հիմնովին ազդել պահպանողական թանգարանային հաստատության վրա, վիրտուալ տարածքում բացել նոր հորիզոններ, փորձել ներկայացնել թանգարանի ապագան, անկասկած, սերտորեն կապվելով մշակութային էվոլյուցիայի ընդհանուր ընթացքի հետ: Մարդկանց թանգարանի նյութերին ու աշխատանքներին ծանոթացնելը, հետաքրքրություն արթնացնելը և նրանց մշտական այցելուներ և ընկերներ դարձնելը անխոս թանգարանի հաջող գոյատևման գրավականն է:

Այսպիսով թանգարանի առկայությունը սոցիալական ցանցում տեսանելի և շոշափելի է դարձնում նրա և՛ վիրտուալ, և՛ իրական էությունը: Թանգարանը և նրա հավաքածուները կարող են ներկայացվել նոր տեսանկյունից՝ պահպանելով սեփական ինքնությունը և արդիականությունը նոր լսարանի համար: Նորարարական տեխնոլոգիաների կիրառումը և ավտոմատացված համակարգերի ներդրումը կարող են զգալիորեն բարձրացնել թանգարանի առջև ծառայած խնդիրների լուծման արդյունավետությունը, որոնց նա բախվում է իր կյանքի ընթացքում:

Բանալի բաներ. թվային արխիվ, թվային պատճեններ, թանգարանային տվյալների բազայի առանձնահատկություններ, թղթային փաստաթղթերի հավաքածու, թանգարանային միավորի անձնագիր, գոյատևման ռազմավարություն, ցանցային փոխազդեցություն:

ВНЕДРЕНИЕ НОВЕЙШИХ ТЕХНОЛОГИЙ В МУЗЕЕ. СОЗДАНИЕ ЭЛЕКТРОННОГО АРХИВА И БАЗЫ ДАННЫХ

Е.Э. Вардапетова*Национальный музей-институт архитектуры имени Александра Таманяна*

В вопросе коммуникации музея с посетителями основная цель – это интерактивная коммуникация, и на сегодняшний день наиболее актуальна не инструментальная роль новейших технологий, а возможности их использования для усиления потенциала традиционного музея. Более того, особенно интересно оценить, способны ли технологии принципиально повлиять на консервативный музейный институт, открыть новые горизонты в виртуальном пространстве, попытаться представить будущее музея, без сомнения, тесно связанное с общим ходом культурной эволюции. Познакомить людей с музеем, создать у них привязанность, сделать их постоянными посетителями и друзьями музея - одна из неизменных целей его успешного существования .

Т.о. присутствие музея в социальной сети делает зримой и осязаемой как виртуальную, так и реальную его ипостась. Музей и его коллекции могут быть

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представлены в новой перспективе, сохранив при этом свою индивидуальность и актуальность для новой аудитории. Применение инновационных технологий, внедрение автоматизированных систем позволяет значительно повысить эффективность решения задач с которыми сталкивается музей на протяжении всей жизни.

Ключевые слова: цифровой архив, цифровые копии, особенности музейной базы данных, фонд бумажных документов, паспорт музейного подразделения, стратегия выживания, актуальность, сетевое взаимодействие.

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