

REVITALIZATION AS PROTECTION INSTRUMENT OF CULTURAL HERITAGE OF LIBRARIES

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Abstract. *Superior information technology and global network coverage - the Internet, have raised the issue of sustainability and library facilities in the 21st century. Architects across the globe endeavor to examine and improve the traditional concepts of designing a library in accordance with the complex needs of the contemporary society. In this paper, the tools for development and protection of the library buildings in the information age are presented. The goal is to shed light on the complex process of revitalizing the libraries that today, more than ever, are fighting for sustainability. In this endeavor, an analysis of the case study of some of the world-renowned libraries will be of particular importance.*

Key words: *libraries, cultural heritage, revitalization, sustainable development*

1. INTRODUCTION

The speed of the introduction of technological innovations dictates the adaptation of libraries to the new perception of reality. Changes that are constantly happening in all areas of human activity have led to the need to design buildings "whose interiors are flexible and modular, allowing them to easily adapt to new functions." [1] While traditional library spaces, characterized by stability and persistence are replaced by spaces that must respond to the imperative of "fluidity" and "the increasing fluidity of information embodied in physical spaces." [1]

According to Rizzo, modern libraries must "meet the changing functional requirements of the community, but also its enduring social and emotional needs." [2] That is why we often encounter revitalized libraries today, which offer a set of new services that should support collaboration between users. In this way, we are given a space that "fosters contacts between people with common interests and concerns" [3] and in which "the two main reasons why a user goes to a library - research on the one hand, and relaxation on the other - should be equally stimulated " [3] Furthermore, "library space makes it

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possible for people to learn, socialize, escape, and connect in ways that no other present-day space—private, governmental, or commercial—can." [4] This stems from the fact that "before we managed book collections, and today we're doing much more management of community spaces." [5]

The subject of this paper is the analysis and presentation of appropriate methods in the processes of library revitalization, through which adequate sustainability of these structures can be achieved, while preserving the original visual identity. The aim of this paper is to draw attention to the growing problem of abandoned libraries, and to point out the importance that these structures have in architectural, cultural and historical terms on contemporary society.

This paper will explain the new dimension of the library in relation to its historical status, as well as the process of revitalization in the service of cultural heritage protection, with an emphasis on library facilities. The comparative analysis of several libraries will determine whether there are common principles in the methodology of revitalizing library structures, especially with regard to new content programs in relation to traditional patterns of functional disposition, but also in typology and the level of design interventions. The paper is based on the following research questions:

- *What is the status of libraries in the modern, information age, which is characterized by changes in reading habits and user needs?*
- *What are the common principles in the process of revitalizing the library in terms of new programs?*
- *What are the common principles in the process of revitalizing a library in terms of design interventions?*
- *Can certain patterns and specific types (levels) of interventions in the process of library revitalization be carried out?*

At the end of the paper, the results of the conducted research will be presented and discussed, from which appropriate conclusions will be drawn and answers to the research questions posed will be given.

1.1. Protection of libraries as a cultural heritage

Revitalization in the broad sense of the word is *"any form of restoration, reconstruction and all measures aimed at rebuilding an object, area or city that has previously suffered a degree of degradation for various political, economic and social reasons."* [6] Considering that revitalization is carried out at the same time as conversion, we define them as *"methods of preserving and restoring structures of cultural and historical significance, returning them to reuse and transforming the original into a suitable contemporary purpose."* [7] In a world of rapid and continuous economic change, by revitalization of buildings, *"their usable value is preserved and increased and the requirements of modern use that set business, lifestyle and leisure use are fulfilled."* [8]

Transformation in the methodology of library design is an inevitable consequence of changing the needs of the modern reader, as well as the introduction of information technology into the organizational systems of library business. In today's society, *"public libraries should make every effort to demonstrate to the public the essential value of their spaces in and of themselves; should demonstrate that public library space is unique; and should explain, again and again, that public library space has a timeless value that transcends changes in technology"*. [4] The problem of transformation and preservation

of library structures as cultural heritage and their protection through the use of revitalization methods has been the subject of much scientific study and research. An important new dimension in relation to the historical status of the library - as a place of gathering knowledge, learning and gaining experience is the experimental development of learning spaces and new, interactive experiences. The tendency is a clear continuation of society's growing interest in an individualistic approach to learning and learning through creativity and play, which is characteristic of the contemporary society.

The role of the revitalization process is reflected in the satisfaction of a number of existential needs of the modern human - the more content in the library (including multimedia) there is, the more she/he will stay in it and be relieved of their daily tasks and duties. The orientation of the libraries towards the users is justified as well - they have to become the main roles in the building, even more important than the book itself, which in the past centuries was a symbol of the library:

Many historically renowned libraries have been reconstructed to allow for the continuous flow of contemporary library workflows, as well as to create inviting environments for visitors with new, modified reading habits. However, in order to protect the integrity and historical character of the library, the revitalization process is done through three steps.

- Analyzing the historical significance of the library and determining the characteristics of the library
- Assessment of existing situation and required level of interventions
- Adopting a series of library revitalization measures in the context of heritage protection

Factors to consider when revitalizing a structures are: compatibility with the historical context and integrity of the library, quality in design and functional utility.

2. COMPARATIVE ANALYSIS OF REVITALIZED LIBRARIES

On the basis of the data collected through the professional literature, an analysis of library facilities will be presented later. The aim of the revitalized structures analysis is to identify the commonalities and patterns of transformation and restoration of libraries as cultural heritage.

The research is based on a comparative analysis of four examples of successfully revitalized library facilities. The analyzed structures are structures of cultural importance, but due to changes in user needs and habits, they were almost unharmed or even out of function for a period of time, and then were included in the process of revitalization and returned for reuse as cultural heritage bearers. The analyzed library structures were selected based on the following criteria:

- structures are part of a country's cultural heritage and are of great importance in the preservation of culture
- structures recognized as representative of historically significant libraries have been restored using revitalization methods.

The analysis of each example involves identifying similarities and differences in practice with respect to functional and design changes. Comparisons of the revitalized library facilities were made on the basis of the analysis of new content programs, the morphology of the original structure, and the level of design interventions.

2.1. Boston Public Library, Massachusetts

In order for the Boston Public Library, and especially the Bates Hall Reading Room, to remain one of the most significant structures of national historical significance, the process of revitalization of this structure has been carried out. The design of the upgrade is of a monumental character and follows the classic design of the first-built "McKim" building. In doing so, all details had to be replaced with materials and elements that matched the original in material, color, texture, size, shape, profile, configuration and installation details.

The architectural form took precedence over the functional requirements in this library. Renaissance style stands in contrast with romantic architecture. The renovation of the exterior of the building entailed: changing the window systems, paving and landscaping, improving signal and lighting, outdoor furniture and bicycle paths and parking lots.

The works included the correction of structural defects, the redirection of pavements and the repair of concrete structures. As part of the facades, elements that visually resemble the Boston Municipal Building are integrated, as well as elements of Augustus St. Gaudens and Domingo More, the statue of Bela Pratt surrounding the entrance, and a bronze front door (Figure 1). The windows have been refurbished with new insulated glass. The backyard arcade roof got a new waterproofing system, the windows were repaired and modified. Large roof works were performed between 1947 and 1955, which resulted in the removal and conveyance of all tiles.

In addition to the careful reconstruction of the facades of the building (Figure 1), the existing landscape and site characteristics of specific external features, such as a courtyard arcade, a courtyard, including fountains, plants, paving, etc., are largely preserved. Also, new additions / changes to the site (such as the ramp for people with disabilities) have been designed to be unobtrusive and preserve all the original features of the site.



Fig. 1 Boston Public Library a) Old layout of the library [9], b) Renovated library, 2005 [10], c) Detail of "Bella Pratta" statue [11]

In addition to the changes in the exterior, the functionality of the building has been greatly altered. The interior space brings together different functional zones, which are not separated by walls, but are intertwined and interconnected, in order to allow fluid movement of users. As part of the renovation of this facility, two phases are observed. The first phase involves the redevelopment and refurbishment of the second floor of the Johnson Building, with the following spaces being created: a children's library, a teen area, a reference point, public restrooms and a reading and learning area.

In 2015, the second phase of the Central Library renovation began, comprising the first floor, the mezzanine, the lower level, and the reconstruction of the exterior of the

Johnson Building (Figure 2). The second phase relates to the remodeling of the following functional zones: entry floor, new books section, lobby, retail space, fiction collection, rental services, movie screening and music venues, Technology Center, exhibition gallery, various BPL art installations, interactive digital displays and new toilets; mezzanine, new public classroom and meeting room, updated lecture hall and Wifi support, "green room", lobby outside "Rab", new digital space for innovation and toilets.

As a result of these works, a new space was provided for *"400,000 books on open shelves and a conference space for 2000 people. The open shelves system increased the number of books in the library by 75% in the first two months."* [12] In addition, the revitalization process also included analysis of daylight, ambient lighting and special desktops lighting to meet a wide range of user reading needs. (Figure 2). The overall result is a space that is comfortable and provides a range of study conditions to meet the needs of Boston library visitors.



Fig. 2 Renovated Boston Public Library, 2015) Exterior view [13], b) Entrance to the Johnson Building [14], c) Renovated Interior View, Battes Hall Reading Room [15]

2.2. National Library of the Netherlands

The building for the National Library of the Netherlands contains not only the library but also the Museum of Literature, the Dutch Institute for the History of Art and various other related institutes (Figure 3). The aim of the revitalization of this library is to increase the level of functionality of the building, to provide accessible and attractive public facilities to the users, as well as to renewed accommodation capacities for various institutions located in the building. The purpose of the library, as a center of information and knowledge, is to provide materials and space for learning.

The process of revitalizing the building began in 1982. Since this year, this facility has been known as the National Library of the Netherlands. Ideas concerning the public role of the library were developed in the late 1970s. Since 1995, a new insight into the services of the new institute has expanded to a number of changes to the extension of the building.

The libraries were renovated, but now they have a spacious shelter, they have expanded the depot by adding new rooms to the existing volume of the building in another material and color. Catalog rooms, conference rooms, gallery, halls, restaurant, atrium stage were renovated. In addition, an event hall and an exhibition gallery opened (Figure 3). After the first phase of the reconstruction, a second phase followed, during which the possibility of additional extension of the extension, or the construction of a new entrance in the Museum of Literature (Figure 3) was examined. In the period 2001-2006, the National Archives Hall was opened, the Holocaust was opened, and the

premises of the Dutch Institute of History of Art and other institutes, as well as the offices of the Library's library, were carefully renovated.

In addition to these transformations, by equipping the interior with modern equipment and introducing information technology, the National Library of the Netherlands is beginning to support e-Depot, that is, a new model of electronic depository system.



Fig. 3 National Library of the Netherlands- a) a view of the main building [16], b) a view of the exterior of the library, viewed from the “Prince Bernard” viaduct [17], c) a view of the renovated interior [18]

2.3. Glasgow Women's Library, Scotland

In order for Glasgow Women's Library to respond to the growing interest of visitors to become users of this library, it was moved to the Mitchel facility in the West End, but subsequently re-examined in 2012, once again changed the seat of the library, this time to the Bridgeton Library. The reconstruction focused on meeting the spatial and functional requirements, opening new approaches and entrances, as well as discovering and accentuating some of the original interior features.

As part of the interventions in the exterior of the building, stone carvings, decorative fence details and engraved inscriptions were restored. On the south facade, a new elevator structure was built, lined with dark steel panels, into which were inscribed literary works (Figure 4).



Fig. 4 Glasgow Women's Library, Scotland - a) Exterior view of the building after revitalization b) Facade detail, c) Interior view after revitalization [19]

The main purpose of the revitalization of the interior of the building is to provide the facilities needed to host major events, screenings, talks, exhibitions and support services for women. A mezzanine with vertical wooden moldings was opened to organize an informal reading space. (Figure 4). The existing spaces of the library were also reconstructed by removing suspended ceilings, traditional lighting fixtures, carpets and service partitions.

Under the new program instead of warehouses, there is now a large meeting room, kitchen, bathrooms and gallery space. In addition, in the northern part of the building, a new two-level archive provides conditions for the storage of collections and exhibits, rare artifacts to be stored in a climate-controlled environment.

2.4. The State Library of Russia

The State Library of Russia, located in Moscow, was built in 1862 and is the largest library in the country and *“the second largest in the world regarding the number of copies it has (Figure 5).”* [20] There are around *“three hundred miles of shelves with more than forty-seven million books.”* [20]

Given that the National Library's collection of books has grown so much over time, the library's premises have become scarce, and during the 20th century a second building was built next to the museum, which by its volume had to meet the demands of new space capacities. However, this solution was not adequate either, since, in the case of the Russian State Library, *“to maintain inventories, by the standards, it is necessary to own not less than 110,000 square meters, and the library has only 60 percent of this space available.”* [20]



Fig. 5 State Library of Russia- a) Exterior view [21], b) Parterre design- Dostoevsky statue [22], c) Interior layout of the structure [23]

As part of the reconstruction, the following interventions were carried out:

- Construction of a new thirty thousand square meter facility
- Reconstruction of the old part of the building
- Interior reorganization
- Equipping the library with modern technology
- Digitization and integration of materials into the electronic library
- Joinery replacement
- Renovation of engineering systems and installations to improve the comfort of the building

The revitalization of the exterior of the building included an upgrade of the facility, in the form of a thirty thousand square meter depot, into which the bulk of the library stock is housed, was carried out. In addition, the facade of the "Mansion house of Shakhovskois" ensemble was reconstructed, with the construction of more than four thousand square meters, and the ensemble of the "Paskovo Dom" was restored.

Decorating the interior of the library was the most complex item of the revitalization of the State Library of Russia. The facility had to be primarily modified and upgraded

with new engineering systems: electrical installations, air-conditioning and ventilation systems, and two refrigeration plants were automated. In addition, automatic control of the system in case of fire was introduced.

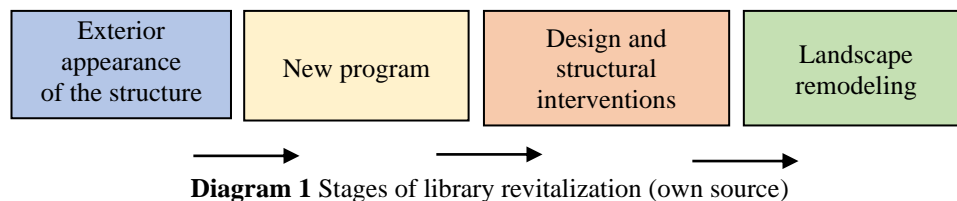
3. RESULTS AND DISCUSSIONS

The results of the conducted research are presented in a tabular form and are analyzed in detail within this chapter. Table 1 gives a comparative overview of basic data of revitalized industrial facilities.

Table 1 Summary of basic data of analyzed library structures (own source)

The name of the object	Location	Architect	Year	
			Foundations	Revitalizations
Boston Public Library, Massachusetts	Boston, Massachusetts	Charles FollenMcKim McKim, Mead & White firm	1852.	1947-1955; 2015.
National Library of the Netherlands	The Hague, The Netherlands	Arie Hagoort OD205	1798.	1983; 2010-2013.
Glasgow Women's Library, Scotland	Glasgow, Scotland	Collective Architecture	1991.	2012-2014.
State Library of Russia	Moscow, Russia	Vladimir Shchuko Vladimir Gelfreikh	1862.	1985-2000.

Diagram 1 shows the process or stages of revitalizing the analyzed libraries.

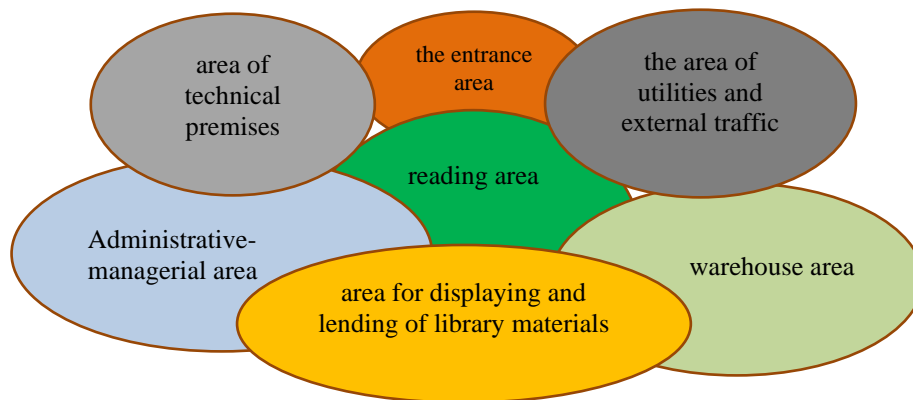


Not all library revitalization processes entail a change in landscape design. In the search for the ideal library, architects most often revitalize the exterior of the buildings and the interior spaces. The interventions implemented to revitalize the exterior of the Boston Public Library, the National Library of the Netherlands, the Glasgow Women's Library and the State Library of Russia are shown in Table 2.

Table 2 Presentation of data as interventions within the external appearance of analyzed libraries (own source)

The Name of the Library	Interventions within the external appearance of the structure
Boston Public Library, Massachusetts	<ul style="list-style-type: none"> ▪ change of window systems ▪ replacing the front door
National Library of the Netherlands	<ul style="list-style-type: none"> ▪ entrance hall upgrade ▪ expansion of the depot ▪ adding new premises to the existing building volume in a different material and color
Glasgow Women's Library, Scotland	<ul style="list-style-type: none"> ▪ construction of a hall leading to the depot ▪ new lift construction ▪ restoration of stone carvings, decorative fence details and engraved inscriptions ▪ carpentry replacement
State Library of Russia	<ul style="list-style-type: none"> ▪ the facility was upgraded in the form of a depot ▪ the facade of the "Mansion house of Shakhovskois" ensemble was reconstructed, ▪ the facade of the ensemble "Paskov dom" was reconstructed

In addition to its external appearance, in the 21st century, when the subject of library design became far more familiar, the functionality of libraries was specifically treated and reviewed. Disposition of rooms in libraries prior to the revitalization process was most often determined according to the list shown in Diagram 2.

**Diagram 2** Functional Zones of 20th Century Libraries (Own Source)

Today, only the focus of a functional organization is changing from the ground up, and the library building is seen as an institution that supports the increased need for users to work in groups, interact, meet and develop communication skills and a spirit of a community. Table 3 shows the program, which is included in the revitalization process into the functional characteristics of the libraries analyzed in the previous chapter. The table shows that the new contents offered by the revitalized libraries include: multipurpose

spaces, large event venues, screenings, talks, exhibitions and expanded archives to store the growing library stock.

Table 3 Comparative overview of the new program of revitalized library structure (own source)

The Name of the Library	New Content
Boston Public Library, Massachusetts	<ul style="list-style-type: none"> ▪ accommodation of users ▪ studio spaces ▪ comic book competitions
National Library of the Netherlands	<ul style="list-style-type: none"> ▪ expanded depot ▪ new facilities-gathering and meeting
Glasgow Women's Library, Scotland	<ul style="list-style-type: none"> ▪ venue for major events ▪ mezzanine, multipurpose and exhibition space ▪ meeting room ▪ new archive
State Library of Russia	<ul style="list-style-type: none"> ▪ cultural space ▪ museum space ▪ electronic material

Table 4 shows the interventions in the interior of the Boston Public Library, the National Library of the Netherlands, the Glasgow Women's Libraries, and the State Library of Russia. Based on this comparative analysis, it can be said with certainty that modern lighting, technological equipment and information technology, as well as special furniture models, are characteristics of revitalized library spaces.

Table 4 Comparative overview of the level of interventions in interiors of revitalized library structures (own source)

The Name of the Library	Interventions in the Interior
Boston Public Library, Massachusetts	<ul style="list-style-type: none"> ▪ modern lighting ▪ floors with new final layers of expensive marble ▪ interior decoration - paintings by John Singer Sargent, Edwin and Pierre Puvis de Chavannes ▪ equipping the library with digital and electronic devices
National Library of the Netherlands	<ul style="list-style-type: none"> ▪ renovation of the main entrance, staircase, halls, conference rooms, restaurants, catalog room and reading rooms, music institute ▪ new furniture and new information desks (1995-1996) ▪ technological equipment ▪ "e-Depot"
Glasgow Women's Library, Scotland	<ul style="list-style-type: none"> ▪ removal of suspended ceilings, traditional lighting, carpets and service bulkheads ▪ technological equipment
State Library of Russia	<ul style="list-style-type: none"> ▪ new engineering systems: electrical installations, air-conditioning and ventilation systems, automation of refrigeration plants and automation of fire-fighting systems ▪ modern lighting ▪ technological equipment ▪ special furniture models

As part of the revitalization process, some libraries have taken care of rearranging the parterre of the facility. From Table 5 it can be concluded that the tendency is to preserve the existing, historical appearance of the parterre. For this reason, two of the four analyzed projects for the revitalization of the analyzed libraries (the National Library of the Netherlands and the Glasgow Women's Library) are intended to preserve the landscaping completely, while at the Boston Public Library these interventions are to replace the damaged parts of the site and to add lighting that accentuates the library itself. With the National Library of the Netherlands, since the entry floor is not at street level, a ramp for disabled people is also planned.

Table 5 Comparative overview of the level of interventions within the remodeling of the partner environment (own source)

The Name of the Library	Ground Floor Remodeling - A New Landscaping
Boston Public Library, Massachusetts	<ul style="list-style-type: none"> ▪ damaged parts of the site (decorative and functional), materials, elements, details and decorations have been replaced with material and elements that correspond to the original in material, color, structure, size, shape, profile and installation details ▪ building a ramp for people with disabilities ▪ lighting that accentuates the corners of the building
National Library of the Netherlands	The revitalization project does not provide for changes to the landscaping
Glasgow Women's Library	The revitalization project does not provide for changes to the landscaping
State Library of Russia	The revitalization project does not provide for changes to the landscaping

Table 6 Overview of basic differences between library offerings before and after the revitalization process (own source)

Basic offer of analyzed libraries before revitalization	Basic offer of analyzed libraries after the revitalization process
Information retrieving	Information retrieving and creating
Individual work units	Setting up a framework for individual and group work
Librarians provide information on access to books	Navigators- computers, tactile surfaces, sound systems provide information on access to work material, books, tools and computers
The opening hours of the library referred to the period from 7am to 8pm, during working days	Libraries allow users an average of twenty hours a day, including weekends
Library space rule - peace and quiet	Today's libraries allow loud talk in almost all functional areas, and consider "noise" to be inspirational and a sign that the library "lives"

Based on the analysis of the characteristics of the library facilities, the basic difference between the library supply before and after the revitalization process can be stated (Table 6). The main innovation in contemporary library offer lies in setting up conditions for creating information and group learning activities, supported by various technological devices. Furthermore, modern libraries enable expressing creativity through conversation, socializing, whereby a point is made to the concept of seducing absolute order and silence.

4. CONCLUSION

Today's libraries must adapt to the many possibilities and be open to what may come in the future. Many libraries have been reconstructed to accommodate a growing number of books and to meet the real needs of readers. Examples of successfully revitalized libraries include the Boston Public Library, the National Library of the Netherlands, the Glasgow Women's Library and the State Library of Russia.

With regard to the first research question concerning the status of the library in the modern, information age, the answer lies in the fact that libraries are designed as places for learning, research, but also for interaction, meeting and gathering with other users. In other words, the role of the library in today's individualistic society is not only in providing information, but also in setting the framework for socializing and amusing people.

The answer to the second research question concerning common principles in the process of library revitalization, from the point of view of new programs, lies in changing reading habits and user needs which lead to the prediction of multipurpose spaces, spaces for large events, screenings, talks, exhibitions and expanded archives to store the growing library stock.

The third research question was: what are the common principles in the process of library revitalization, from the aspect of design interventions? First of all, based on the conducted analyzes, it can be said that the design interventions concern the exterior and interior of the structure as well as the landscaping. Interventions within the exterior include a detailed reconstruction of existing, historically significant facades, replacement of joinery and implementation of modern lighting, which accentuates the library facility itself. Design interventions in the interior are related to: the introduction of LED lighting, technological equipment, information technology and modern urban furniture. Within the new design of the library parterre, it seeks to preserve the features of historical sites as much as possible, with minimal interventions in the form of the addition of new urban furniture - a bench, a fountain and lighting.

With regard to the latest research question concerning the establishment of common principles in the practice of library renewal, unique transformation patterns were found common to all the analyzed libraries. They are about creating and predicting libraries that contain:

- flexible interior spaces, with a minimum number of walls and partitions
- learning spaces adapted to new teaching and learning methods
- spaces for individual or group work and learning
- rooms dedicated and/or adapted to the use of new media
- spaces intended to support the teaching process, spaces for socialization, children's wards, etc.
- rooms equipped with up-to-date furnishings, lighting, digital media and information technology

In today's society, characterized by never-ending memory shortages and low levels of concentration in learning, the question of a crucial nature is- will the effort of architects to create inviting space result in arousing the enthusiasm and the will for the spiritual and intellectual development of individuals?

The answers to these questions are neither simple nor straightforward. They depend on the willingness of the community to attach importance to libraries, as a cultural treasure, and to revitalize them, in line with the challenges, responsive trends and real, modified needs of society.

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23. Fig.5.c)https://www.i.reddit.com/r/AccidentalWesAnderson/comments/8hoizz/the_reading_room_of_the_russian_state_library_in/

REVITALIZACIJA KAO INSTRUMENT ZAŠTITE BIBLIOTEČKOG KULTURNOG NASLEĐA

Superiorna informaciona tehnologija i pokrivenost globalnom mrežom-Internetom, otvorila je pitanje održivosti objekata biblioteka u XXI veku. Arhitekta širom sveta nastoje preispitati tradicionalne koncepte projektovanja biblioteka i unaprediti ih, u skladu sa kompleksnim potrebama savremenog društva. U ovom radu biće predstavljeni instrumenti za razvoj i zaštitu objekata biblioteka u informacionom dobu. Cilj rada je da se rasvetli složeni proces oživljavanja biblioteka koje danas, više nego ikad, vode borbu za održivošću. U tom nastojanju, od posebne važnosti biće analiza studije slučaja nekih od svetski poznatih biblioteka.

Ključne reči: biblioteke, kulturno nasleđe, revitalizacija, održivi razvoj