

RECOMMENDATIONS FOR EFFECTIVE AND SUSTAINABLE PRESENTATION OF THE SIGNIFICANCE, FUNCTIONS AND HISTORY OF WATER MANAGEMENT ELEMENTS AND SYSTEMS

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Abstract

The aim of the work is to propose suitable ways of presenting industrial water management heritage with regard to its historical and technical value. The research combines literary research, field investigation and comparative analysis of various presentation methods. The results show the benefits of interactive elements, such as QR codes, games or physical models, to increase attractiveness and understanding. At the same time, shortcomings were identified, in particular poor maintenance and inappropriate processing of information materials. The preferred method of presentation, which is supposed to ensure accessibility and attractiveness to a wide range of visitors, is a combination of traditional and modern forms of presentation and an emphasis on quality content and regular maintenance.

Key words: Water element; historical water systems; QR code; information board; nature trail

Introduction

The aim of the presented work, which is part of a broader research on industrial heritage in the field of water management and water management structures, is to obtain data for the design of suitable forms of presentation of objects and their systems, or functional units, if they have been identified as potentially of historical significance or unique in terms of their technical and historical character.

Materials and methods

The methodology of the research work is based on a combination of qualitative methods focused on the analysis of the possibilities of presenting the cultural and industrial heritage of water management objects and their systems (Ryšková, Dzuráková et al., 2022). First, a literature search of expert sources and existing approaches to the interpretation of technical heritage was carried out. Subsequently, a field survey was carried out in selected locations, focused on the documentation and analysis of presentation forms. The research included processing a reflection of one's own experiences in solving the presentation of research project results from the calls for applied research of the Ministry of Culture of the Czech Republic (calls "NAKI II"), processing exhibition panels, catalogs and information materials (Sviták et al., 2022). The obtained data were evaluated by comparative analysis, which will allow comparing the benefits and limitations of individual methods.

Results

Results of the field research

Figure 1 shows an example of diversifying the information table with the aim of keeping the attention of visitors and those interested in information along the entire nature trail. Appropriate addition of tasks for children (bottom left in the picture), or a quiz or game (bottom right in the picture) will increase the attractiveness and maintain the attention and interest of a wider range of visitors to the nature trail. Figure 2 presents an example of a suitable placement of a QR code to obtain additional information about the issues presented on the panel at a height accessible to a wide range of visitors. At the same time, the size and color of the panel element are appropriately selected so that it attracts attention within all parts of the panel.

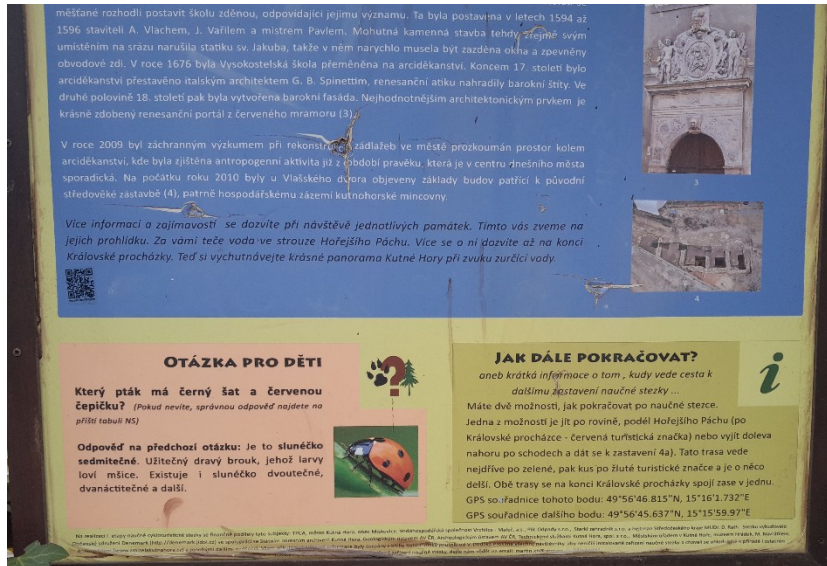


Fig. 1: Appropriate addition of the information board will increase the attractiveness and maintain the attention and interest of a wider range of visitors to the nature trail.

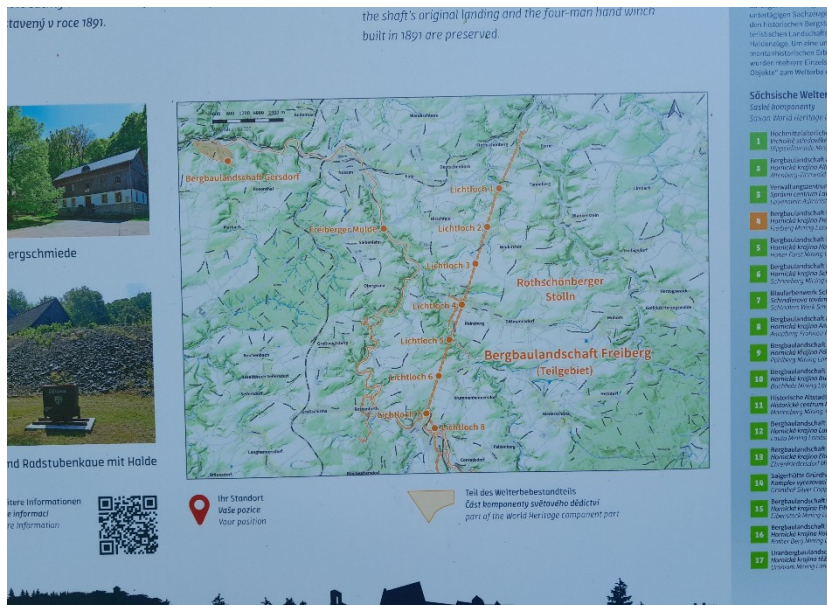


Fig. 2: Appropriate placement of the QR code at a height accessible to a wide range of visitors to access additional information about the presented industrial heritage.

Figure 3 shows examples of physical models, in the case of the model on the left also interactive ones. The model of the water management system of the city of Augsburg (Figure 3 left) in the visitor center, which complements other forms of presentation and allows the visitor to obtain clear information about the entire complex. The physical model of the water system (Figure 3 right) for the agglomeration of the city of Tainan (Taiwan) allows to perceive the spatial and height connection of individual objects of transport, purification and storage of water, water sources and user terminals, helps to locate the objects of the water museum, which visitors pass through, within the system. With a suitable aesthetic representation, it complements the concept of park landscaping of the entire museum.



Fig. 3: Examples of physical models of functional units of water management facilities located indoors and outdoors.

Identified deficiencies and problems

The first selected group of identified problems and shortcomings is related to insufficient maintenance, or even insufficient security of information boards, signs, models and other physical means of presentation. Figure 4 shows an example of damage to an information board, which made it difficult for visitors to perceive and read information. It often causes and attracts further vandalism and leads to a lack of interest in reading and obtaining further information. This is a waste of the initial investment.

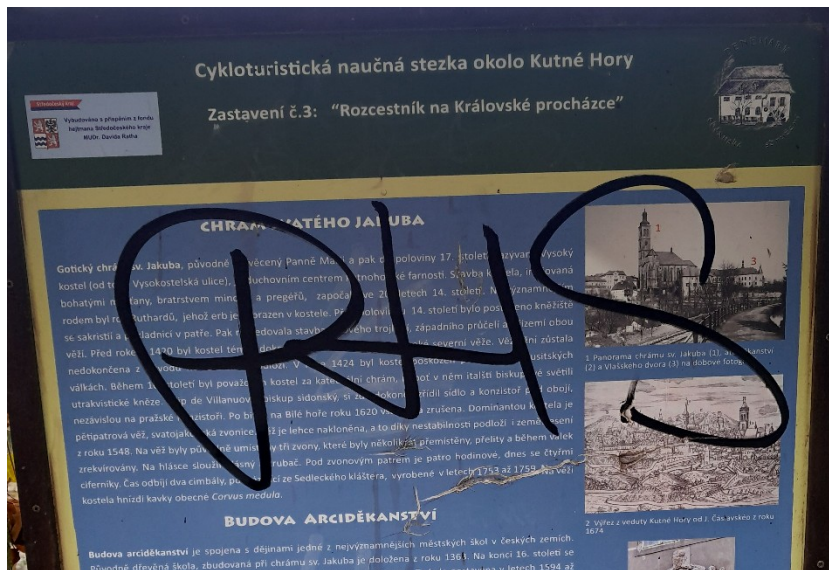


Fig. 4: Neglected maintenance of information boards.



Fig. 5: Example of inappropriate placement of QR codes with links to electronic materials on exhibition and information panels

The second selected group of shortcomings and problems is related to the inappropriately chosen concept of information materials and objects, the distribution of information sources within these materials and objects, which makes reading, scanning and perception difficult or impossible for certain groups of visitors. Which may lead to the practical non-use of the information offered. Figure 5 shows an example of inappropriate localization of QR codes within exhibition panels. The authors' intention was to enable access to websites with detailed and additional information on the presented issue through QR codes.

Discussion

The use of QR codes on nature trails, cultural monuments and nature reserves has generally proven to be a useful addition that allows information to be expanded with audio, video or interactive content without cluttering up physical boards. Practice and expert studies show that QR codes increase visitor engagement, especially when they offer clear added value, such as stories, sounds or game elements, and are part of a well-thought-out concept of the entire trail (Solima, Izzo, 2017). On the other hand, the mere presence of a QR code without explanation and attractive content usually does not lead to its use, because visitors often do not see a reason to scan it. Problems also arise due to technical limitations, such as poor signal, inappropriate location or user distrust. Research also confirms that QR codes work best as a supplement to classic information, not as a replacement for it, and that their effectiveness depends primarily on the quality of the content and the way in which it is presented to visitors (Voříšková, 2024).

Information boards at cultural and industrial heritage sites require regular and systematic maintenance to maintain their legibility, aesthetic value and information function in the long term. The basic principle is to use durable materials that can withstand weathering, UV radiation and temperature fluctuations. It is also important to install the boards correctly so that they are stable, safe and easily accessible for inspection and cleaning. Regular maintenance should include removing dirt, dust, biological deposits and any graffiti, ideally with gentle cleaning agents that do not damage the surface. Care also includes checking the legibility of the text and the condition of the graphics, as fading or mechanical wear may occur over time. It is necessary to continuously monitor damage caused by vandals or weather conditions and carry out repairs or replacement in a timely manner. Regular updating of the content is also recommended if historical knowledge or the interpretative framework changes. Maintenance should be planned at certain intervals, for example seasonally or annually, to prevent gradual degradation. The overall goal is to ensure that the boards remain a dignified and understandable information element of the cultural space.

Physical spatial models and electronically processed models allow those interested in the issue and visitors to convey information about the overall arrangement of industrial functional units, the interconnection of objects within these units, or the arrangement of technical and technological equipment of individual objects. When implementing physical models, it is necessary to adhere to the principles of visitor safety, durability and durability of the models (selection of appropriate materials, consideration of climatic influences), aesthetic effect and appropriate composition within the exhibition space.

Conclusion

Possible methods of presenting industrial heritage are quite diverse and combine traditional and modern approaches to make the information understandable to the widest possible audience. In addition to museum exhibitions, the traditional form is in situ presentation, i.e. making objects accessible directly in their original environment, supplemented by information boards. Educational trails that connect multiple locations and provide visitors with a comprehensive interpretation in the field also play an important role. Modern approaches include digital and interactive presentations, mobile applications, QR codes, audio guides or augmented reality, which allows the visualization of the original state of objects. The use of virtual reconstructions, which make monuments accessible to people who cannot visit them physically, is also increasingly common.

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Souhrn

Cílem práce je navrhnout vhodné způsoby prezentace industriálního vodohospodářského dědictví s ohledem na jeho historickou a technickou hodnotu. Výzkum kombinuje literární rešerši, terénní šetření a komparativní analýzu různých prezentačních metod. Výsledky ukazují přínosy interaktivních prvků, jako jsou QR kódy, hry či fyzické modely, pro zvýšení atraktivity a porozumění. Zároveň byly identifikovány nedostatky, zejména špatná údržba a nevhodné zpracování informačních materiálů. Preferovaný způsob prezentace, který má předpoklad zajistit dostupnost a atraktivitu širokému spektru návštěvníků, je kombinace tradičních a moderních forem prezentace a důraz na kvalitní obsah i pravidelnou údržbu.

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