FROM MEDIA TO CULTURAL LITERACY

Digital Cultural Heritage in the Context of Generative Artificial Intelligence

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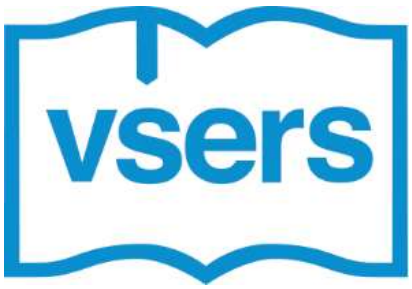

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Content

Authors' Foreword

We live in an era that is changing not only the way we access information, but also the way we understand culture, memory, and our own social experience. Digital technologies, online platforms, and most recently, generative artificial intelligence are fundamentally transforming the environment in which media and cultural content are created, disseminated, and interpreted. What was until recently understood primarily as a matter of technical progress is now emerging as a much deeper civilizational, pedagogical, and cultural challenge. It is no longer just about how quickly we can search for, store, or share information, but whether we still understand its origin, meaning, context, and consequences.

The present monograph was born out of the conviction that the discussion on media literacy can no longer remain confined solely to the analysis of media and their content. The current digital environment forces us to think more broadly: about cultural heritage as a living space of memory, identity, and social continuity; about education as the place where the capacity to critically understand the world is formed; and about artificial intelligence as a tool that can assist, but also distort, simplify or strip meanings from their original framework. For this reason, in this publication, we strive to bridge media literacy with cultural literacy and demonstrate that in the digital age, the two cannot be understood in isolation.

The motivation for addressing this topic was also the experience of increasing information overload, the weakening of trust in sources, the rise of synthetic media, and the ever-frequent questions posed not only by experts but also by educators, students, professionals in memory and cultural institutions, and the wider public. How do we distinguish between authentic and generated content? How do we work with cultural heritage in an environment where the past can be not only digitized but also synthetically augmented? What competencies will be necessary for users to avoid becoming passive consumers of attractive outputs and instead be able to question their origin, credibility, boundaries, and ethical implications? These questions are not marginal. They touch the very core of education, cultural policy, and social responsibility.

Consequently, this monograph was not written as a technologically enthusiastic text that uncritically celebrates new tools, nor as a defensive reaction rejecting digital transformation. Our intention was to seek a balanced and professionally grounded perspective – in order to show that technology itself is neither a guarantee of progress nor a source of decline. What remains decisive is the manner in which institutions, schools, the media, and individuals use it, the rules they establish, the values they promote and the extent to which they remain faithful to the demands of criticality, transparency, and respect for cultural context.

In the presented work, we therefore connect theoretical foundations with research findings and practical implications. We do not focus solely on definitions of cultural heritage and media literacy, but also on their intersection in education, the media, museum and archival institutions, and broader digital culture. Particular attention is paid to generative artificial intelligence, as it is this technology that most significantly tests the boundaries between documentation, interpretation, and synthesis today. It is becoming clear that the future of literacy will not depend solely on the ability to work with technology, but especially on the ability to ask who produces meaning, what data it is based on, whom it serves, and what images of the past and present it creates.

Our ambition was not to provide definitive answers. Such an ambition would be dishonest in such a dynamically changing environment. The goal of this monograph is to open a space for thoughtful discussion, identify key dilemmas, summarize fundamental knowledge, and offer a framework that may be useful for further research and practice. We believe that the publication will be beneficial not only to the academic community but also to educators, students, employees of cultural and memory institutions, media professionals, and all those who perceive cultural heritage as a living part of society, not as a closed relic of the past.

If the digital transformation of culture and education is to be meaningful, it should not be built solely on speed, efficiency, and attractiveness. It must also be built on responsibility – on the ability to preserve connections, protect authenticity, develop critical thinking, and create space for genuine understanding. It is in this spirit that we present this monograph to the professional and wider public.

Introduction

Cultural heritage is one of the fundamental pillars of a society's collective memory and a paramount source of cultural identity for individuals and communities alike. It represents a set of values, meanings, experiences, and expressions that have emerged throughout historical development and are passed down between generations – as a testament to the past, but also as a living component of the present. At present, cultural heritage can no longer be understood merely as a static collection of artifacts, monuments, or traditions. It is a dynamic space for interpretation, selection, reappraisal, and the social negotiation of meaning. For this reason, the issue of cultural heritage is becoming an inseparable part of broader discussions on media, education, digitalization, and new technological forms of cultural mediation.

The digital transformation of recent decades has fundamentally changed the way cultural heritage is preserved, accessed, interpreted, and utilized. The digitalization of archives, library funds, museum collections, and architectural monuments has opened new possibilities for the protection, documentation, and popularization of cultural values. At the same time, however, it has raised new questions: who decides what will be digitized, how an object will be described, in what context it will be presented to the user and what meaning will be attributed to it? Therefore, digital cultural heritage cannot be reduced to the technical conversion of analog objects into digital form. It is a complex environment where technology, memory, institutional authority, curatorial decisions, pedagogical interests, and broader cultural and social frameworks intersect.

In this context, media literacy acquires particular significance. In contemporary scholarly literature, it is no longer understood merely as a technical ability to use media, but as a set of critical, interpretive, ethical, and civic competencies that enable individuals to navigate a complex information environment. A media-literate person is not just a user of technology; they are an actor capable of recognizing manipulative strategies, analyzing media content, assessing its credibility, understanding its social impact, and engaging responsibly in public communication. Particularly in a digital environment characterized by the speed of content dissemination, polarization, algorithmic selection, and the

increasing production of synthetic media, media literacy becomes a key condition for social resilience.

Nevertheless, it is becoming evident that media literacy alone is no longer sufficient to describe the current state of affairs. Generative artificial intelligence is fundamentally altering the nature of the digital environment. Today, users are increasingly faced not only with ready-made content to analyze but are entering the process of its creation, modification, and distribution. Texts, images, sounds, or audiovisual representations are no longer solely the result of human authorship; they can be products of systems that generate new outputs based on probabilistic modeling, vast datasets, and machine inference. In such an environment, it is no longer enough to ask whether the content is true or manipulative. One must also ask about its provenance, the context of its creation, the relationship between document and synthesis, between interpretation and fabulation, and between professional curation and the automated production of meaning. This is precisely where the transition from media literacy to cultural literacy begins.

In this sense, cultural literacy does not represent a mere knowledge of cultural facts, canons, or symbols. Its core is the ability to understand culture in its historical, social, and value-based context; to recognize mechanisms of representation; to understand the relationship between heritage, identity, and power; and to be able to critically engage in the process of interpreting cultural content. In connection with digital cultural heritage and **generative artificial intelligence (hereinafter referred to as GenAI)**, this competence acquires an even more urgent significance. The user must not only "read" the media but must also be able to read interfaces, databases, metadata, curatorial selections, generated outputs, and the technological assumptions upon which their authority is based. Otherwise, there is a risk that a synthetically created, fluid, and persuasive output will replace the complex but honest work with historical and cultural reality.

The present monograph stems from this need for a broader, interdisciplinary, and critical grasp of the subject. Its aim is to show that issues of cultural heritage, media literacy, education, and generative artificial intelligence do not constitute separate fields but are mutually dependent components of a single social reality. The goal of the work is therefore to analyze cultural heritage in the digital age, explain the development and

current understanding of media literacy, highlight their mutual interconnectedness in educational and cultural environments, and simultaneously offer a critical reflection on the new opportunities and risks brought to this field by GenAI. An important ambition of the monograph is not only to identify theoretical foundations but also to formulate practical recommendations for schools, universities, memory and cultural institutions, the media, and other professional environments that work with cultural content.

The structure of the work reflects these objectives. The introductory chapters are dedicated to cultural heritage in its tangible, intangible, and digital forms, its relationship to cultural memory, identity, and sustainability, as well as the significance of digitalization for society. Subsequently, attention shifts to media literacy as a social phenomenon – its definitions, developmental shifts, models, and its link to critical thinking. The next part of the work explores the educational dimension of these issues, particularly the possibilities of bridging media and cultural literacy in school, university, and institutional settings. Practically oriented chapters then analyze the interpretation of cultural heritage in the media, the risks of disinformation and deepfake technologies, and the broader context of using digital tools for the accessibility and protection of heritage. A significant part of the work consists of an empirical line – bibliometric research mapping and the evaluation of expert interviews focused on the relationship between media literacy, cultural heritage, digitalization, and GenAI.

Importantly, the monograph does not advocate for technological determinism. It does not operate on the notion that technology itself will bring about the democratization of access to culture, an increase in the quality of education, or an automatic strengthening of cultural participation. On the contrary, it assumes that any technological innovation can only become an asset if it is accompanied by responsible curation, high-quality metadata, transparent labeling of synthetic outputs, respect for provenance, and clearly formulated pedagogical and ethical rules. Without these, even the most advanced tools can become a source of reduced meaning, decontextualization, and a false sense of authenticity.

The present work aims to contribute to ensuring that the discussion on cultural heritage in the digital age is conducted not only at the level of object protection or technological possibilities but also at the level of responsibility for meaning. After all, cultural heritage

is not just a collection of what has survived from the past. It is also the way a society understands itself, how it creates a relationship with past generations, and how it defines the values it wishes to carry into the future. In the context of digital transformation and generative artificial intelligence, this question becomes even more pressing. It is therefore all the more important to develop forms of media and cultural literacy that are capable not only of working with technology but also of setting its critical boundaries.

1 CULTURAL HERITAGE IN THE DIGITAL AGE

Cultural heritage represents one of the fundamental pillars of a society's collective memory and a significant source of identity for individuals and communities. It encompasses a set of tangible and intangible values that have emerged throughout historical development and serve as carriers of cultural, social, religious, artistic, and symbolic meanings. Through cultural heritage, society maintains continuity between the past, present, and future; this process is not static but is subject to constant reinterpretation depending on the current social, technological, and cultural context. Cultural wealth is as old as humanity itself. It is contained daily in the thoughts of mothers and fathers, teachers and educators, and all those who care about the spiritual and physical growth of a human being (Gejdoš, 2012).

At present, the concept of cultural heritage is understood much more broadly than in the past. Education also plays an irreplaceable role in the process of developing human awareness, serving as a primary source of information necessary for life in society (Gejdoš, 2016; Kačírek, 2016). In addition to traditional emphasis on architectural monuments, works of art, or archaeological sites, it also includes intangible cultural expressions such as language, oral traditions, customs, rituals, craftsmanship, and collective forms of memory. At the same time, the issue of digital cultural heritage is coming to the fore, arising as a result of the digitization of existing artifacts, as well as the outcome of purely digital cultural practices and media forms.

The significance of cultural heritage extends beyond the preservation of the past. It becomes an active tool for education, cultural participation, social inclusion, and sustainable development. Cultural heritage has the capacity to shape the value orientations of society, support intergenerational dialogue, and strengthen a sense of belonging. Furthermore, in the digital age, it acquires new functions through modern technologies that fundamentally change the methods of its documentation, interpretation, accessibility and protection.

The aim of this chapter is to introduce the basic theoretical foundations of the concept of cultural heritage, its historical development, current definitions, and forms, as well as to

highlight its significance in the context of a changing society and technological progress. Special attention will be paid to the connection between cultural heritage and the digital environment, which brings new challenges as well as opportunities for its preservation and further development.

In recent years, a significant increase in interest in cultural heritage can be observed, not only within the professional and scientific community but also among the wider public. This trend is reflected in the growing number of professional conferences, research projects, and grant calls at both national and international levels. A symbolic confirmation of this development was the designation of 2018 as the European Year of Cultural Heritage by the European Parliament, which aimed to highlight the diversity and richness of European heritage as a significant pillar of shared identity and cultural awareness. Cultural heritage represents a multifaceted concept whose interpretation varies depending on individual, social, and professional perspectives. Scholarly literature and strategic documents offer various definitions; however, they agree that heritage cannot be understood as a static relic of the past. According to *The Concept for the Care of Traditional Folk Culture in the Slovak Republic*, cultural heritage represents an irreplaceable wealth that documents the historical development of society, its spiritual, cultural, scientific, and technical values, as well as the lives of nations, minorities, and individuals active in the territory of Slovakia. A fundamental feature of cultural heritage is its living character – it constantly evolves in the present while simultaneously creating prerequisites for future social development through the transmission of proven knowledge, experience, and values (Bitušíková, 2017; Kačírek, 2016; European Commission, 2023).

1.1 Definitions of Cultural Heritage

Cultural heritage represents a significant part of social wealth and plays a key role in shaping the identity of individuals and communities. Its understanding is derived from the concepts of culture and heritage. Culture, derived from the Latin *colere* (to “cultivate”, to “inhabit”), is understood in the broadest sense as a system of symbols through which society interprets the world and creates its own value framework. Cultural heritage represents the continuity of selected elements of culture that are considered worthy of

preservation and transmission through the process of social selection. The scholarly study of cultural heritage is the subject of heritology, a term derived from the English word *heritage*. For cultural heritage to become a tool of identification, it must first be recognized and accepted by the community itself, which perceives it as a specific and significant element of its own culture. This process of identification is subsequently supported by legislative and institutional mechanisms at national and international levels, particularly in cases where the existence of heritage is threatened and requires special protective measures (Kačírek, 2016; Gerec, 2024).

The European Commission (2023) defines European cultural heritage as a vast and diverse mosaic of cultural, artistic, and creative expressions. It is a valuable legacy shaped by the activities of previous generations of Europeans, which contemporary society inherits while also bearing responsibility for its preservation and transmission to future generations. This concept encompasses a wide range of tangible and intangible elements – from natural sites, architectural and archaeological monuments, museums, and works of art, through historical towns to literary, musical, and audiovisual works, as well as the knowledge, customs, traditions, and cultural practices of European inhabitants.

The *Declaration of the National Council of the Slovak Republic on the Protection of Cultural Heritage* from 2001 contains an official definition of cultural heritage, presenting it as an irreplaceable value for the state and its inhabitants, as it documents the historical development of society and its philosophical, religious, scientific, technical, and artistic direction. At the same time, it is a testament to the level of education and cultural development of the Slovak nation, as well as other nations, national minorities, ethnic groups, and individuals who have been active in the territory of the Slovak Republic in the past or present.

Individual forms and components of cultural heritage have equal status and together form an inseparable part of the cultural heritage of Europe and all of humanity.

1.2 Classification of Cultural Monuments

Dudáš (2022) defines the classification of cultural monuments in terms of their nature, the typological classification of immovable cultural monuments, the typological

classification of movable cultural monuments, the chronological perspective of cultural monuments and the expression of their evidentiary value.

1.2.1 Classification by Nature

By an **immovable cultural monument**, we understand a structure or plot of land that is firmly attached to the ground via a foundation. A typical example is architecture in the form of castles, churches, manor houses, villas, or palaces. However, this category also includes smaller objects with solid foundations, such as memorials or columns with statues.

On the other hand, a **movable cultural monument** is defined as an object or item that is not permanently fixed to the ground and can be freely relocated or easily dismantled. This primarily involves furnishings and artistic equipment, including altars, pulpits, baptismal fonts, organs, or bells in sacred spaces (Dudáš, 2022; Kačírek, 2016).

1.2.2 Typological Classification of Immovable Cultural Monuments

- monuments of burgher architecture (houses, villas, palaces),
- manor houses and mansions (*kaštiele a kúrie*),
- sacred monuments (churches, prayer houses, chapels, synagogues),
- castles and fortifications (including castle ruins, hillforts, small castles/forts, fortifications),
- monuments of folk architecture (houses, agricultural and production buildings),
- technical monuments (industrial heritage),
- sepulchral monuments (cemeteries, mausoleums, tombstones, graves, crypts),
- historical monuments (memorial sites and houses, memorial plaques),
- artistic monuments (stone columns, statues, and mural paintings),
- archaeological monuments (hidden or excavated archaeological sites),
- historical parks and gardens.

1.2.3 Typological Classification of Movable Cultural Monuments

- altars and their components,

- pulpits,
- baptismal fonts,
- organs,
- iconostases,
- bells,
- sacred furniture,
- chandeliers and candlesticks,
- independent hanging paintings,
- free-standing statues,
- liturgical objects (chalices, patens, bowls, monstrances, reliquaries, etc.),
- monuments of Jewish culture (Torahs, menorahs, etc.),
- others (books, maps and graphics, textiles, etc.).

1.2.4 Chronological Classification of Cultural Monuments

Monuments of the Prehistoric Period

- Monuments of the Old Stone Age (Paleolithic) 2.5 million – 8,000 BCE
- Monuments of the Middle Stone Age (Mesolithic) 8,000 – 6,000 BCE
- Monuments of the New Stone Age (Neolithic) 6,000 – 4,000 BCE
- Monuments of the Late Stone Age (Eneolithic/Chalcolithic) 4,000 – 2,000 BCE

Monuments of the Ancient Period

- Monuments of the Bronze Age 2,000 – 800 BCE
- Monuments of the Iron Age 800 – 0 BCE
- Monuments of the Roman Era 0 – 400 CE

Monuments of the Middle Ages

- Monuments of the Migration Period 500 – 700 CE
- Monuments of the Early Slavic Period 600 – 800 CE
- Monuments of Great Moravia 9th – 10th century
- Monuments of Romanesque art and architecture 11th – 1st half of the 13th century

- Monuments of Gothic art and architecture 2nd half of the 13th – early 16th century

Monuments of the Early Modern and Modern Periods

- Monuments of Renaissance art and architecture 16th – 17th century
- Monuments of Baroque art and architecture 18th century
- Monuments of Classicist art and architecture 1st half of the 19th century
- Monuments of Historicism and Eclecticism 2nd half of the 19th century
- Monuments of the Art Nouveau period turn of the 19th and 20th centuries

Monuments of the Modern Era

- Monuments of Modernism and Functionalism 1920s – 1940s
- Monuments of Socialist Realism 1950s

1.2.5 Classification of Cultural Monuments by the Expression of Their Evidentiary Value

Direct expression of value – is tied to the visual and technical aspects of the monument. This involves its architecture, fine arts and artisanal craftsmanship, urban integration into the landscape, or its unique technical character.

Indirect expression of value – is related to historical memory and intangible contexts. The value of the monument in this case lies in its connection to a significant historical event or a personality from cultural, scientific, and political life (e.g., the birthplaces of prominent figures or sites of key historical turning points) (Dudáš, 2022).

1.3 Tangible and Intangible Cultural Heritage

Tangible and intangible cultural heritage represents an exceptionally complex and dynamic phenomenon that takes on diverse forms – from inconspicuous manifestations of everyday culture to universally admired and institutionalized monuments. It is a living system whose individual components change over time, disappear, and regain meaning depending on the social consensus, values, and interpretive frameworks of a given era. Therefore, cultural heritage cannot be understood as a closed set of artifacts, but as a

process of continuous re-evaluation of what is considered worthy of protection, preservation, and interpretation. The historical perspective on the boundaries of cultural heritage has transformed significantly, particularly since the second half of the 19th century. What was perceived in the past as ordinary artisanal production is often considered today to be a work of art with high cultural value. At the same time, entire social groups – women, minorities, or non-European cultures – were marginalized for a long time, and their creations were excluded from the official canon. A significant re-evaluation of these boundaries was brought about by the events of the early 20th century, especially by the First World War as well as by the rise of modern and avant-garde art, which fundamentally challenged traditional aesthetic and value criteria (Ragač, 2017; Kačírek, 2016; Dudáš, 2022).

The territory of Slovakia is characterized by an exceptionally rich and diverse cultural heritage, formed over centuries by various ethnic, cultural, and social influences. It represents a significant record of the country's civilizational development and its integration into the broader European cultural space, reflecting the multicultural character of the territory as well as the distinctiveness of the local natural and historical environment. Tangible and intangible monuments constitute a significant part of this cultural heritage. Architectural monuments, including sacred, residential, and public buildings from various historical periods hold a key position. Movable and immovable monuments are complemented by intangible cultural heritage, represented by traditional customs, rituals, crafts, music, dance, and linguistic expressions, which are systematically recorded and protected (Kačírek, 2016; Bitušíková, 2017).

Dudáš (2022) presents Slovak cultural heritage as a complex set of intangible and tangible values protected by a specific legal framework. While the intangible component primarily consists of spiritual manifestations such as language, literature, musical, dramatic, and dance arts, customs, or local toponymy, the tangible part encompasses a broad spectrum of physical monuments. This category includes not only archival and library funds, audiovisual works, and museum or gallery collections, but also architecture, archaeological sites, historical gardens, and technical monuments. Given the diversity of these components, each one of them has a specific protection regime in Slovakia, governed by its own law or decree. From an organizational perspective, the vast majority

of these agendas fall under the purview of the Ministry of Culture of the Slovak Republic. The only exception is the field of archival heritage, whose protection and accessibility fall under the responsibility of the Ministry of Interior of the Slovak Republic as the central state administration body.

UNESCO (The United Nations Educational, Scientific and Cultural Organization) is a specialized agency of the United Nations for education, science, and culture. It was established on the basis of the UNESCO Constitution, adopted on November 16, 1945, in London and the UNESCO Constitution came into force in 1946. The former Czechoslovakia was among the founding states. The impetus for the organization's creation was the experience of the Second World War and the effort to prevent similar conflicts by promoting mutual understanding, education, and cultural cooperation. UNESCO's fundamental mission is to contribute to the maintenance of international peace by fostering collaboration in the fields of education, science, and culture, promoting human rights, and strengthening the rule of law. The organization is founded on the conviction that lasting peace cannot be secured solely by political and economic agreements but must be based on the intellectual and moral solidarity of humanity (Kučová, 2009; UNESCO, n.d.).

The protection and development of cultural heritage, with a special emphasis on intangible cultural heritage at the regional, national, and international levels, are among the key missions of National Centre of Culture and Further Education (*Národné osvetové centrum*). This institution systematically engages in the identification, documentation, preservation, and protection of cultural values, while simultaneously supporting their creative utilization and active promotion. It carries out these activities primarily through the announcement and professional guarantee of nationwide progressive competitions and showcases, as well as by organizing festivals, workshops, creative studios, conferences, seminars, and other professional and educational activities (Mendel, 2017).

1.3.1 Tangible Cultural Heritage

Tangible cultural heritage encompasses material records of human activity, i.e. objects and items that have come into existence as a result of human creative, social, technical,

or artistic activity. These records represent the concrete and graspable form of a society's cultural memory.

In terms of institutional and content classification, tangible cultural heritage can be divided into several fundamental funds. These primarily include the heritage fund (*pamiatkový fond*), which encompasses cultural monuments, heritage areas, and archaeological sites; the collection holdings (*zbierkový fond*), represented by collection items and objects preserved in museums and galleries; the archival fund, consisting of archival documents and collections managed by archives; as well as the library fund, which is made up of historical library documents and literary works housed in libraries. Tangible cultural heritage also includes cinematography, television, and audiovisual production, which is managed by institutions such as the Slovak Film Institute or public service media.

In terms of expressing evidentiary value, tangible cultural heritage can be divided into objects with direct and indirect expressions of value. The direct expression of value is usually tied to visual perception and the aesthetic or technical qualities of the object, such as landscape, urban, architectural, artistic, artisanal, or technical values. The indirect expression of value is primarily tied to historical memory, significant events, or personalities with which the given object or place is associated, such as public spaces, birthplaces and memorial houses, or memorial sites.

From a chronological perspective, tangible cultural heritage can be divided according to individual historical periods. The oldest monuments date back to prehistory, specifically to the Stone Age, which includes the Paleolithic (Old Stone Age), Mesolithic (Middle Stone Age), Neolithic (New Stone Age), and Eneolithic (also known as the Late Stone Age or Chalcolithic). This period is followed by monuments of antiquity, primarily from the Bronze Age and the Iron Age, including the Hallstatt and La Tène cultures, as well as monuments from the period of Roman rule.

A significant part of tangible cultural heritage consists of monuments of the Middle Ages, which include records from the Migration Period, the Early Slavic Period, the Great Moravian period, as well as monuments of Romanesque and Gothic art and architecture. The Middle Ages are followed by the early modern and modern periods, represented by

Renaissance, Baroque, and Classicist art and architecture, and later by Historicism, Eclecticism, and Art Nouveau. In this context, Homolová (2018) highlights wooden sacred architecture as a specific and unique heritage of our ancestors. The developmental line is concluded by the modern stage of the 20th century, which includes monuments of Modernism, Functionalism, and Socialist Realism.

The fundamental attributes of cultural heritage include its origin in the past, its limited nature and varying degrees of preservation, its ability to convey evidentiary value about past societies, as well as the existence of a public interest in its protection, preservation, and presentation. An inseparable part of the protection of cultural heritage is its legal grounding, both at the national and international levels.

1.3.2 Intangible Cultural Heritage

The 2003 Convention for the Safeguarding of the Intangible Cultural Heritage established, among other things, the creation of a significant UNESCO tool – the Representative List of the Intangible Cultural Heritage of Humanity. This list includes exceptional manifestations of traditional culture, such as customs, rituals, practices, oral traditions, festive events, artistic expressions, and specific skills including traditional craftsmanship, whose inscription represents a form of international recognition of their value. As of February 2025, the list registers 788 elements originating from 150 countries worldwide. The accession of the Slovak Republic to the Convention for the Safeguarding of the Intangible Cultural Heritage in 2006 provided an impulse for the increased interest by state institutions in the systematic protection of this type of heritage. As early as in 2007, the Government of the Slovak Republic approved the *Concept for the Care of Traditional Folk Culture* and followed up in 2015 with its update through the *Concept for the Care of Traditional Folk Culture until 2020* (UNESCO, n.d.).

These strategic documents anticipated not only the integration of topics related to regional education and traditional folk culture into school educational programs but also the creation of a central database of information on folk culture and the implementation of further systematic measures in the area of its protection. These steps also included the creation of national lists of intangible and living cultural heritage. These activities were followed by the adoption of the *Concept for the Sustainable Development of Intangible*

Cultural Heritage and Traditional Folk Culture for 2020–2025, approved by the Government of the Slovak Republic at the end of 2019, which reflects the expanded thematic frameworks of the UNESCO Operational Directives and simultaneously responds to the goals of the UN Agenda 2030 (UNESCO, n.d.).

Currently, the Slovak Republic is represented on the Representative List of the Intangible Cultural Heritage of Humanity by nine elements of living heritage:

1. **Fujara and its music** (inscribed in 2005, 2008)
2. **Music of Terchová** (inscribed in 2013)
3. **Bagpipe culture** (inscribed in 2015)
4. **Puppetry in Slovakia and Czechia** (inscribed in 2016)
5. **Multipart singing of Horehronie** (inscribed in 2017)
6. **Blaudruck/Modrotlač** (resist block printing and indigo dyeing in Europe) (inscribed in 2018)
7. **Drotárstvo** (wire craft and art) (inscribed in 2019)
8. **Falconry, a living human heritage** (inscribed in 2021)
9. **Lipizzan horse breeding traditions** (inscribed in 2022)

1.3.3 Digital Cultural Heritage

The European Commission (2024) states that the development of digital technologies is significantly accelerating the transformation of cultural heritage. The need for its protection, preservation, and accessibility in the context of the current digital era is coming to the fore. The digital environment creates new conditions for preserving cultural values and adapting them to the needs of modern society. Modern technologies, such as data processing, artificial intelligence, three-dimensional modeling, or extended and virtual reality (XR) bring unprecedented possibilities for reviving and interpreting cultural heritage monuments. Virtual museums allow visitors to perceive artworks in a broader context and mediate experiences with objects and sites that are physically inaccessible or protected. At the same time, digitalization leads to the simplification and expansion of online access to cultural resources, thereby increasing their availability to the general public. A significant role in this process is also played by the European Commission, specifically by the Directorate-General for Communications Networks,

Content and Technology that ensures the coordination of policies and the financing of measures that complement the cultural policies of Member States. These activities focus primarily on supporting the digitization of cultural heritage, developing online access to cultural material and on a long-term digital preservation (UNESCO, n.d.).

Figure 1 Process model: From artifact to identity

Phase	**Activity**	**Tools / Institutions**
1. Identification	Recognition of value by the community	Field research, Heritology
2. Documentation	Fixation of the state (analog/digital)	3D scanning, Archival research
3. Protection	Legislative and technical provision	Monuments Board, UNESCO, AI monitoring
4. Interpretation	Adding meaning in the context of the era	Curation, Education, Reinterpretation
5. Transmission	Transfer to subsequent generations	Schools, Family, Digital platforms

Note: This model demonstrates how an object becomes a part of collective memory through heritology.

Figure 2 Systematic classification of cultural heritage

CH Category	Main components	Examples / Institutions
Tangible (Material)	Monument, collection, archival, and library funds.	Castles, paintings, historical documents, monument reserves.
Intangible (Living)	Oral traditions, rituals, music, dance, craftsmanship skills.	Fujara, *Modrotlač* (Blueprint), Čičmany patterns, traditional knowledge.
Digital	Digitized artifacts, born-digital objects, metadata.	3D models of monuments on Slovakiana, digital archives, virtual museums.

1.3.4 Artificial Intelligence as a Catalyst for Digital Transformation in the Cultural Heritage Sector

In the last decade, the cultural heritage sector (GLAM – Galleries, Libraries, Archives, Museums) has been undergoing a paradigmatic shift. Artificial intelligence is no longer just a futuristic concept but is becoming an integral part of the processes of digitization, archiving, and making historical artifacts accessible. As stated by Fiorucci et al. (2020), machine learning enables data processing on a scale that is physically unfeasible for human experts, thereby opening new doors for the interpretation of our past.

1. Automation of digitization and image recognition

The key area of AI application is Computer Vision. When processing extensive archival funds, algorithms can automatically categorize photographs, identify the faces of historical figures, or recognize specific architectural elements in historical drawings.

Text processing (OCR and HTR): Modern systems utilizing Deep Learning have advanced significantly in the field of Handwritten Text Recognition (HTR). According to Muehlberger et al. (2019), platforms such as Transkribus allow medieval manuscripts to be transcribed with high accuracy, making digitized documents fully searchable and not just captured visually.

2. Predictive maintenance and restoration

Generative AI plays an important role in the physical protection of monuments. Through the analysis of sensor data (humidity, temperature, vibrations), predictive models can alert to the risk of material degradation before visible damage occurs.

In the field of digital restoration, Generative Adversarial Networks (GANs) are utilized. Based on historical patterns, they can reconstruct missing fragments of damaged frescoes or statues. However, it is important to emphasize the ethical dimension – the boundary between professional reconstruction and digital fabrication must remain clearly defined.

3. Personalization of the visitor experience

In the environment of museums and galleries, AI is turning the passive viewer into an active participant.

Chatbots and curatorial systems: Natural Language Processing (NLP) algorithms enable the creation of intelligent guides capable of answering visitor questions in real time.

Immersive technologies: The integration of AI with Augmented Reality (AR) allows historical scenes to be "brought to life" directly within the space of a monument based on historically accurate data.

4. Ethical and methodological challenges

The implementation of AI also brings risks. Algorithmic bias can lead to incorrect interpretations of history if the training data is incomplete or Eurocentric. Furthermore, the question of the "authenticity" of digitally complemented works arises. Researchers such as Lopatovska (2020) point out that institutions must maintain transparency

regarding what constitutes an original historical fact and what is the result of an AI generative process.

1.4 Cultural Heritage in the Educational Process

Cultural heritage can in this sense be understood as a social construct that combines the preservation of tradition with innovation, stability with dynamism, and reproduction with creativity, thereby acquiring new meanings and contributing to the formation of collective identity. The common denominator of professional approaches is the emphasis on its transgenerational character – heritage connects past, present, and future generations through the active transmission of knowledge about both tangible and intangible culture (Bitušíková, 2017).

According to Fredrik Holmberg (2019), when teaching myths, fairy tales, or the works of William Shakespeare in the context of popular culture, it often becomes apparent that students have an extensive, albeit unrecognized, knowledge of cultural heritage. Many young people today are familiar with classical literary motifs through media adaptations, often more so than previous generations. An example is the animated film *The Lion King*, which represents a modern reinterpretation of *Hamlet*, or the *Harry Potter* series, in which thematic parallels with Shakespeare's tragedies can be identified.

Contemporary approaches to cultural heritage emphasize that its presentation in the digital media space must transcend the level of passive, mindless entertainment. For the successful protection and for the development of cultural memory, an innovative interconnection of media practice and cultural education is essential, one that fosters a deeper understanding and active reflection on historical legacies among the current generation (Pitoňáková, Kubala, 2025).

Education in the field of cultural heritage should lead to a change in the perception of its value and to the ability of young people to independently recognize and protect elements of local traditions within a broader national and European context. According to Homolová (2024), the local region and its landscape relief play a key role in the educational process, forming an authentic living space where the individual works, creates, and carries out leisure activities on a daily basis. The knowledge of heritage is

closely linked to cultural history, but its teaching primarily has a value-based dimension that promotes responsibility for the protection of both tangible and intangible heritage. The key objective is not only knowledge of the past but also an understanding of continuity and changes in culture. Activating teaching methods play an important role in forming an active relationship with heritage (Gomóła, 2022).

The use of information and digital technologies in the education and presentation of cultural heritage is also developing in a dynamic way. Besides digitization and 3D modeling, this process includes applications based on geo-media, QR codes, mobile platforms, or educational digital games. These tools enable innovative forms of learning and international cooperation, particularly within European educational initiatives. The expansion of educational activities is also closely related to the development of basic research in the field of cultural heritage (Bitušíková, 2017).

1.5 Digitalization of Cultural Content and Its Significance for Society

In contemporary media and professional discourse, increasing attention is drawn to the impact of globalization processes, which are amplified by the development of modern digital communication technologies (Hellerová & Urban, 2025; Stacho, 2024a, 2024b, 2025; Hlásny & Stacho, 2024; Horváth, Hlásny & Stacho, 2025; Hlásny, 2024). These tendencies have a significant impact on society's relationship with traditions and they lead to their problematization, both in the area of tangible and intangible cultural expressions (Hlôšková, 2017).

Digitalization is a process in which analog information – such as printed texts, photographs, illustrations, or maps – is converted into digital form using a binary code. The goal is to make the content accessible to the general public without damaging the originals and to enable its display and processing on computers. Digitalization thus allows for the preservation and dissemination of historical library funds or graphic materials, while the digitized data can be converted back into its original analog form (Žabková, 2013).

The digital revolution has fundamentally changed the way we approach cultural heritage and has significantly contributed to its globalized accessibility. Thanks to high-quality

digital images, three-dimensional models, audiovisual records, and immersive applications, distant cultures and monuments are becoming accessible to a broad audience regardless of geographical location. Continuous technological progress in the field of visualization techniques, 3D scanning, as well as newer methods such as 3D printing or laser cutting, enables the precise capture and representation of cultural values at various scales – from ornamental details to complex models of objects, buildings, or entire sites. Cultural heritage represents a connection with past societies and encompasses complex relationships, processes, and meanings. Digital tools play an important role not only in systematizing the vast amounts of data required for professional research and documentation but also in making them accessible and interpreting them for the lay public (Economou, 2015; UNESCO, n.d.).

The digital preservation of cultural memory possesses a paradoxical nature: its subject is the past, while its goal is future access to information. This contradiction is further deepened by the environment of constant, open, and multidimensional change in which digital information exists. Continuous technological transformation has two sides – progress and obsolescence. On the one hand, technological development brings regular hardware and software changes, often associated with significant innovations. On the other hand, it leads to the rapid obsolescence of older technologies, which cease to be supported and become dysfunctional or unusable. Consequently, a situation may arise where we can preserve the digital data itself, but we are no longer able to process or reinterpret it in its original form. Even in cases where it would be technically possible to maintain older technologies, the pressure for efficiency, performance, and cost naturally leads us to replace them with newer solutions. Obsolescence has therefore become one of the key problems in digital preservation (Thibodeau, 2012; Economou, 2015).

In his study, Uzelac (2025) states that cultural heritage represents a complex concept encompassing significant experiences across various dimensions of human existence. Current research highlights the intensive digital transformation of the cultural heritage sector, with special attention paid to LAM institutions (Libraries, Archives, and Museums). These institutions manage diverse forms of tangible and intangible heritage, including digital objects, and face new challenges and opportunities associated with evaluating the impacts of digital cultural initiatives, particularly in the European context.

A review of scholarly literature indicates that digital cultural heritage is a multi-layered and dynamic concept that cannot be unambiguously defined by a single universal formulation. In recent years, academic discourse has focused on various aspects of this issue, such as the challenges of digital transformation in memory institutions, the intersection of digital humanities with artificial intelligence, the use of linked data, participatory approaches including crowdsourcing, and the presentation of cultural heritage through social media (Mishra, 2024; Kačírek, 2016).

21st-century society is characterized by a significant trend toward comprehensive digitalization. Diverse forms of content – from public administration information to objects protected by intellectual property rights – are increasingly becoming part of online platforms and new business models that allow access to these resources regardless of location and time, according to the needs of individual users. At the same time, digitalization has brought a fundamental change in the way content is made accessible, as it allows for its utilization without a loss of quality and with minimal restrictions, making this access available to anyone with the necessary technical equipment (Bednárik, 2017).

The aging of historical buildings, including cultural heritage sites, represents a significant global problem. Monitoring their technical condition, especially regarding surface degradation, is exceptionally demanding, as degradation processes occur slowly and often lack clear comparative criteria between different forms and stages of damage. Material degradation typically begins on the surface of a building, and if it gradually penetrates deeper layers, it can lead to the damage of structural elements and a deterioration of the overall static and functional integrity of the object. In recent years, AI-supported inspections have proven to be a promising tool for identifying cracks in cultural heritage structures. Research in this area confirms that methods based on deep learning and computer vision achieve a high degree of accuracy in recognizing damage to masonry and other structural elements of historical buildings. Some studies have focused on developing specialized models designed directly for crack detection in historical buildings, achieving success rates exceeding 90%. Other approaches have utilized the combination of synthetic image data and convolutional neural networks in order to compare damage patterns, which can subsequently be used by experts in statics and

monument restoration to evaluate the actual technical condition of the structures (Mishra, 2024; Uzelac, 2025).

Scheme of Digital Transformation

Figure 3 Technology Impact Model

$$\text{IT Contribution} = \frac{\text{Accessibility (Slovakiana)} + \text{Immersion (VR/XR)}}{\text{Physical wear and tear of the original}}$$

The Technology Impact Model defines the contribution of information technologies in the field of cultural heritage as directly proportional to the increase in the accessibility and quality of immersive experiences (VR/XR), with the key motivating factor being the protection and elimination of physical wear and tear of original artifacts.

Logical Module of Digital Challenges:

- **Input:** Analog artifact (e.g., a historical building).
- **Processing:**
  - AI inspection (crack detection).
  - 3D modeling and laser cutting.
  - Deep Learning for condition analysis.
- **Output:**
  - Virtual museum (general public).
  - Digital archive (scientific community).
- **Feedback/Risk:** Technological obsolescence (hardware ceases to support old formats).

1.6 Cultural Memory, Identity, Sustainability, and Their Accessibility

Cultural memory is a set of contents, symbols, media, and institutionalized forms through which the society preserves, mediates, and interprets a collective representation of the past. It is created intentionally and artificially within cultural and social structures and functions as a tool for shaping a collective identity. It is realized through media, rituals, and memory carriers, fulfilling the generative and constructive function in culture. Unlike

an individual memory or traditions, it also encompasses the processes of selection, forgetting, and suppression, and it exists in both scriptural and non-scriptural cultures (Ondrejovičová, 2005).

Individualism-oriented cultures emphasize personal uniqueness and they understand an individual's identity as a result of their own abilities and decisions. Typical features include the prevalence of the nuclear family, the early independence of young people, and an emphasis on personal responsibility. Social ties are looser, work tasks often take precedence over interpersonal relationships, and professional success or failure is directly tied to individual performance. Conversely, collectivist cultures perceive human identity as part of a broader social network. They are characterized by multi-generational families, strong group affiliation, and long-term membership in social groups that provide individuals with support in exchange for loyalty. In the workplace, relationships take precedence over tasks, and management relies on group cooperation and in-group ties (Lašáková, 2005; Gerec, 2025a).

Cultural sustainability has gradually established itself as a significant component of societal growth and development strategies. The concept of sustainability responds to social needs provoked by the dynamic changes of the 20th century and it highlights that this is a long-standing idea, not a new phenomenon. Sustainable development is traditionally understood through economic, social, and environmental pillars, aiming to ensure the well-being of the current generation without compromising the ability of future generations to meet their own needs. The ethics of sustainability emphasizes the responsibility toward the future and the need to consider the rights and interests of subsequent generations. In the context of globalization and digitalization, states face the challenge of balancing the economic, social, and environmental impacts of development. Consequently, other areas such as health, social equality, education, or ecological awareness are gradually being integrated into the concept of sustainability. Contemporary approaches expand the sustainable development model by adding a cultural pillar, which reflects the importance of culture in shaping identity, social cohesion, and the long-term stability of society. Cultural sustainability thus becomes the key factor supporting the balanced and sustainable development of countries (Németh, 2023).

Making cultural heritage accessible represents a long-term and never-ending process, the significance of which has been significantly strengthened in recent decades thanks to digitalization technologies. Initially, digitalization was primarily oriented toward the visual presentation of selected objects, often without broader systemic integration. In the Slovak context, this development was accompanied by fragmented solutions, departmental insularity, and technological limitations. However, a gradual technological progress and a change in approach have enabled the implementation of extensive national and international digitalization projects. These have made millions of cultural objects accessible and created prerequisites for their long-term protection and presentation, particularly through platforms such as Slovakiana. Yet, the significance of accessible cultural heritage extends beyond its documentary and preservation functions. It has the potential to fundamentally influence the way society perceives its own identity and history (Ragač, 2017; Kačírek, 2016).

2 MEDIA LITERACY (AS A SOCIAL PHENOMENON)

Media literacy as a social phenomenon represents a dynamic and multidimensional concept that combines technical skills, cultural caution, critical thinking, and the ability to participate in a digital society in an active way. The analysis of various definitions, European models, and modern approaches demonstrates that the concept of media literacy has evolved from an original focus on technical skills to a broader concept encompassing analysis, critical thinking, and the creative interpretation of media. From the perspective of research and practice, it is therefore crucial to: 1. perceive media literacy as a dynamic system responding to technological innovations and social changes; 2. integrate critical thinking into educational programs so that individuals can identify and resist disinformation; 3. support lifelong learning and multidisciplinary cooperation among schools, universities, public institutions, and civil society with the aim of creating a sustainable model of media literacy.

Media literacy represents one of the key phenomena of our information and digital society. In an era where information flows are extremely fast, interconnected and often susceptible to manipulation, acquiring critical competencies that enable people to correctly interpret, analyze, and respond to media content is exceptionally important (Vrabec, 2014). It is a complex concept that includes a set of knowledge and skills necessary for the correct identification, interpretation, and critical evaluation of media content. This competence involves not only the ability to read and understand printed materials but also to navigate digital and audiovisual media, the ability to distinguish between verified and disinformation sources, and the art of creating one's own media products (Orbánová, 2015). This multidimensionality is particularly important given the dynamics of the digital era, where traditional media are constantly transforming and new forms of communication are emerging, for example through social networks and interactive platforms, or communication with elements of coaching and counseling (Štefáková a kol., 2026; Štefáková a kol., 2025; Gerec, 2025b; Kováč, 2021; Stachoň, 2015; Vallová, 2014; Jenkis et al., 2009).

The media environment is subject to constant evolution as a result of rapid technological innovations and the diversification of platforms. This causes static educational materials

to quickly become obsolete, and media discourse must constantly adapt to new digital procedures, increasing multimodality, and changing audience engagement strategies (Leláková, 2025).

In the following sections, we will analyze the fundamental definitions of media literacy, describe the various models applied globally and particularly in Europe, and also outline how media literacy and critical thinking are interconnected. In conclusion, we will attempt to summarize the main findings and offer an overview of the primary trends emerging in the field of media literacy in the current digital era.

2.1 Definitions and Development of Media Literacy

2.1.1 Definition of Media Literacy

According to the definition by the European Commission, media literacy "concerns different media and distribution methods. It is a crucial skill for all citizens of all ages as it empowers them and raises their awareness. It also helps counter the effects of disinformation campaigns and fake news spreading through digital media". (European Commision, 2025).

This definition goes beyond mere technical mastery of media and emphasizes the need for a critical approach to content and an awareness of its impact on the social and cultural environment.

The definition of media literacy in professional discourse has gradually shifted from a simple understanding of working with media to a complex set of cognitive, social, and ethical competencies. In addition to the European Commission's definition, which emphasizes the ability to access information, analyze it, and evaluate its impact, media literacy must also be perceived within a broader context of literacies (Pérez-Tornero et al., 2010).

In the digital era, where disinformation spreads rapidly and often without verification, media literacy is an essential tool in the fight against fake news and hybrid threats. The ability to verify sources, compare information from multiple channels, and critically

evaluate content is key to maintaining the credibility of public discourse (Beran Sládkayová, Zošáková, 2025; Jenkis et al. 2009). To support this aspect, not only formal educational programs are being developed, but also unstructured and informal educational activities that offer opportunities for the continuous improvement of citizens' media competencies (Vrabec et al., 2023).

According to the Ministry of Education of the Slovak Republic, media literacy is part of a system of key literacies that overlap and develop in progressive levels. The document emphasizes that media literacy cannot be separated from digital, information, and civic literacy, as they all jointly contribute to an individual's ability to function critically in modern society (The Ministry of Education, Research, Development and Youth of the Slovak Republic, 2015).

Research focused on youth simultaneously confirms that the media have a fundamental impact on shaping the values, identity, and social relationships of young people. Media literacy therefore appears to be an essential competence for their healthy psychosocial development and for an active participation in society (IUVENTA, 2012).

Contemporary theoretical approaches identify that media literacy cannot be understood as a singular or homogeneous ability. The concept of "one literacy and multiple intelligences" emphasizes that media literacy manifests through various types of intelligences – linguistic, visual, social, interpersonal, or digital – and its development depends on the individual cognitive predispositions of individuals (Belvončíková, Ciderová, 2022). This perspective expands traditional definitions of media literacy with a personalized and multidimensional aspect.

At the same time, media literacy is increasingly interpreted as a practical capability that individuals actively utilize in everyday life. It is not merely about knowing media processes, but about the ability to apply this knowledge when making decisions, evaluating information, protecting privacy, or participating in the online environment (McDougall, 2025). Such an understanding shifts media literacy from theoretical knowledge to active social practice.

The significance of media literacy is simultaneously normatively anchored in issues of democracy, civic engagement, and social responsibility. Authors emphasize that media literacy is a prerequisite for an informed decision-making, resilience to manipulation, and the ability to navigate a complex media environment (Rek, 2025).

Empirical research confirms the presence of the so-called certainty paradox in media literacy, where students (referred to as digital natives) significantly overestimate their abilities to identify disinformation content. Conversely, educators (digital immigrants) demonstrate a higher degree of actual procedural competence despite their lower initial self-confidence in the digital environment (Kubala, Pál, 2025).

2.1.2 The Evolution of the Concept – From Digital Literacy to Media Literacy

Historically, the term "digital literacy" was primarily understood as a set of technical skills that enable users to access digital devices and information. Gradually, experts realized that access to technology alone is not enough – individuals must also be able to critically evaluate and interpret this information. This transition from a narrow focus on technical skills to a broader concept of media literacy is a consequence of the development of new digital technologies and their growing role in our everyday reality (Pérez-Tornero et al., 2010).

In the Slovak context, media education is defined as a cross-cutting theme of lifelong learning, the aim of which is to develop media competence – the ability to critically, selectively, and responsibly use media and their products (ŠPÚ, 2020). Despite this, research points to persistent shortcomings, particularly in the ability of young people to distinguish between news, commercial, and manipulative content, to identify disinformation, and to understand the functioning of media institutions (Koprena, 2020). These findings support arguments for strengthening systematic media education, especially at the secondary education level.

In the context of the rapidly changing digital environment, the concept of media literacy is gradually transforming into the concept of "new media literacy". This approach reflects changes in media formats, algorithmically driven information flows, and the growing importance of social media (Devrim, 2025). New media literacy encompasses the abilities

to search, filter, and evaluate information within digital platform environments, as well as an understanding of content personalization mechanisms.

Part of this development is also the expansion of media literacy to include advertising literacy, which focuses on the ability to identify and critically evaluate commercial messages in both traditional and digital media. Digital advertising often utilizes hidden forms of promotion, influencer marketing, and personalized algorithms, which places increased demands on the critical thinking of users (Vereščun et al., 2022).

With the boom of the Internet and social networks, a transformation of communication formats also occurred. Traditional media, such as print, television, or radio, are giving way to digital media, which offer interactive and participatory possibilities. Such transformative dynamics forced experts to redefine the concept of literacy and to include new competencies, such as the ability to uncover disinformation, analyze media content in the context of social relations, and develop the capacity for creative communication (Pérez-Tornero et al., 2010).

Participatory culture also requires that media literacy reflects the needs of various, often non-homogeneous groups of users. The concept of media policy for "unknown audiences" highlights the fact that media audiences are not uniform and traditional educational models often overlook the specific cultural, linguistic, or social contexts of users (Rožukalne et al., 2023). Inclusive approaches to media literacy are therefore essential for reducing the participation gap in digital society.

2.2 Models of Media Literacy

Several models and approaches to media literacy are presented in the literature, reflecting various aspects and goals of education in this field. In this section, we analyze models developed in the European context, followed by the presentation of a five-resource model of critical digital literacy, which seeks to integrate elements of critical thinking into traditional competencies.

2.2.1 Models in the European Context

According to research published in papers on trends and models of media literacy in Europe, there are four fundamental models that have been developed over the past decade:

- **Model focused on overall connectivity and access:** This model emphasizes ensuring access to media technologies for all users. The underlying idea is that the availability of technologies will enable further development of competencies in the field of media literacy.
- **Model focused on promoting basic skills in computer and internet use:** In this model, the priority is the development of operational capabilities and the acquisition of basic technical skills that are essential for working with digital media.
- **Model focused on developing skills for specific groups:** The goal of this approach is to address the specific needs of marginalized or specific groups, identifying differences in access to and use of media among various demographic segments.
- **Model focused on increasing the quality of digital technology use:** This model goes beyond basic technical skills and focuses on the development of critical thinking, communication, and a creative approach when using media resources. The goal is for users to be able not only to use technologies but also to analyze and evaluate the content of media messages (Pérez-Tornero et al., 2010).

2.2.2 The Five-Resource Model of Critical Digital Literacy

Another approach is a model based on the theory of Luke and Freebody (1990), adapted for the digital era. This model encompasses five key resources for critical digital literacy, with each resource representing a different dimension necessary for a complete understanding of media content:

1. **Decoding:** The ability to understand the structures and conventions of digital media, and to recognize visual, audio, and textual elements and their meanings.

2. **Meaning Making:** The ability to reflexively process information, create one's own meaning, and evaluate the quality and accuracy of information, including tracing the origin of messages.
3. **Using:** Practical skills that enable the effective use of media in a social and civic context – from communication to the creation of one's own content.
4. **Analyzing:** The critical evaluation of content with an emphasis on understanding the broader social and political context, and identifying ideological influences and power dynamics.
5. **Persona:** The ability to manage and build one's own online identity, reputation, and method of presentation on digital platforms (Livingstone, 2004).

Visualization – Overview of the Five Resources of Critical Digital Literacy

Figure 4 Five resources of critical digital literacy and their key skills (Authors' own elaboration; Livingstone, 2004)

Resource	Description	Key Skills
Decoding	Understanding digital structures and conventions	Identification of modes, operational frameworks
Meaning Making	Reflexive processing and creation of meaning	Critical evaluation, tracing origin
Using	Practical utilization of media in social and civic environments	Effective communication, content creation
Analyzing	Critical analysis of the social and political context	Evaluating power, ideological influences
Persona	Managing one's own online identity and reputation	Self-presentation, image management

2.3 The Relationship Between Media Literacy and Critical Thinking

2.3.1 The Significance of Critical Thinking in Media Literacy

Critical thinking represents one of the most important components of media literacy, as it enables individuals not only to receive information but also to systematically analyze,

evaluate, and interpret it. The capacity for critical thinking is essential in uncovering disinformation and manipulation, which directly affects the quality of civic discussion and democratic processes (Šupšáková, 2016). Research examining the relationship between the motivation to use social networks, media literacy, and critical thinking has found a significant positive correlation between these variables – meaning the more individuals are motivated to actively use digital media, the better they demonstrate critical thinking skills (Galindo-Domínguez et al., 2025).

European strategic documents view critical thinking as the foundation for protecting citizens against manipulation, propaganda, and disinformation. The European Union recommendation emphasizes that media-literate citizens can identify the difference between facts, opinions, and advertising, understand the economic and political background of the media, and are aware of their social impact (European Union, 2010).

The Slovak academic context also represents a significant contribution to media literacy research. The *International Journal of Media and Information Literacy* has created a space for systematic research on media and information literacy in the Central European region and has strengthened scientific reflection on this issue in Slovakia as well.

Empirical research highlights differences in the level of media literacy among individual age groups. A study focusing on seniors in Slovakia shows that although they possess basic digital skills, their ability to critically analyze media content and recognize disinformation is often limited (Hossová Prostináková, 2023). This indicates the need for targeted media education for older age groups.

Research findings confirm that the development of critical thinking is closely tied to the active use of digital media. A study by Galindo-Domínguez et al. (2025) shows that individuals with a higher level of media literacy achieve better results in the analytical evaluation of information, which increases their resilience to disinformation.

In the digital world, critical thinking gains importance because it allows students to understand the complexity of language and its role in shaping human experience in a deeper way. Digital literacy is becoming a necessary prerequisite for the effective

integration of contemporary multimedia forms of communication, which are central to the media domain (Leláková 2024).

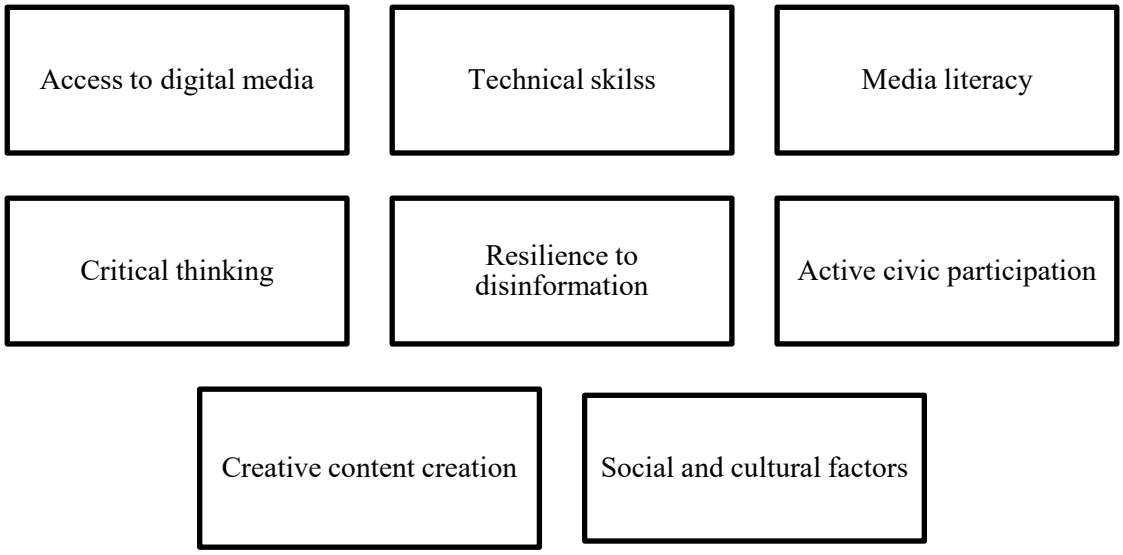
From a pedagogical perspective, media education plays a significant role in shaping critical thinking from an early age. Media education as a cross-cutting theme encourages discussion, the analysis of media texts, and reflection on one's own media experiences, thereby contributing to the development of higher cognitive processes (Paleschová, 2010; Bielčiková, 2021).

The significance of media literacy for the development of critical thinking is also confirmed by research conducted at Slovak universities. Students perceive media literacy as the key factor in their ability to analyze information, evaluate its credibility, and reflect on their own media behavior (Hujarová, 2025). The results suggest that the systematic integration of media literacy into higher education increases students' analytical abilities and their resilience to disinformation.

2.3.2 Shared Determinants

Media literacy and critical thinking are closely intertwined regarding social determinants such as education, cultural background, and social environment. Educational institutions that implement media literacy into their curricula not only increase technical skills but also foster reflexive and critical thinking among students (Šupšáková, 2016). This combination of skills contributes to the formation of civic attitudes that are resilient to disinformation and promote a responsible approach to media content.

Figure 5 Table of technical skills



This table illustrates how technical skills, acquired through access to digital media, facilitate the development of media literacy, which subsequently fosters critical thinking and resilience to disinformation, ultimately leading to active civic participation. (Pérez-Tornero et al., 2010; Galindo-Domínguez et al., 2025).

2.3.3 Practical Implications and Educational Strategies

Research emphasizes that integrating media literacy into school and university education has a direct impact on the development of critical thinking. Students who actively participate in educational activities focused on analyzing media content demonstrate better skills in decoding and interpreting information. Therefore, educational strategies should focus not only on practicing technical skills but also on developing analytical and creative abilities that enable students to effectively face the challenges of the modern digital era (Galindo-Domínguez et al., 2025). In a professional context, media literacy is increasingly understood as part of a broader triad of literacies – media, information, and digital. This model is particularly relevant for the journalistic profession, which must possess the ability to acquire information, critically analyze it, and communicate effectively in the digital media environment (Matušková, 2024).

International organizations also point to the growing influence of algorithms, social networks, and artificial intelligence, which shape the information environment without users fully realizing it. Therefore, it is essential to develop media and information literacy as a lifelong process that promotes ethical behavior, the critical evaluation of sources, and active civic engagement (Pérez-Tornero & Varis, 2010). The new technological environment simultaneously brings the phenomenon of synthetic media and generative artificial intelligence, which allow the creation of realistic but artificially generated images, videos, and texts. These tools fundamentally complicate users' ability to distinguish between authentic and manipulated content and create new demands for the development of media literacy, critical thinking, and digital ethics in the environment of the current information society (Filip, 2025b).

The World Economic Forum emphasizes that media literacy in the 21st century extends beyond the scope of education and becomes a strategic tool for social resilience. In the context of growing societal polarization, the spread of disinformation, and a crisis of trust in the media, the development of media literacy is crucial for maintaining democratic values and social cohesion (World Economic Forum, 2025).

These challenges confirm the need for a systematic and multidisciplinary approach to media literacy, one that combines technical skills with critical thinking, ethical reasoning, and the ability to reflect on one's own media behavior.

The new challenges of the digital era are also reflected in the need to consider specific audiences that are not sufficiently covered by existing educational strategies. Seniors, socially disadvantaged groups, or less active users of digital technologies are exposed to an increased risk of disinformation and manipulation, which reinforces the importance of inclusive media policy and targeted education (Rožukalne et al., 2023; Hossová Prostináková, 2023).

Visualization – Table of Changes in Media Literacy Over Time

Figure 6 Evolution of the concept of media literacy and key characteristics (Authors' own elaboration; Pérez-Tornero et al., 2010)

Period of time	Concept	Focus
2000 – 2005	Digital literacy	Technical skills, access to digital devices
2005 – 2010	Expanded digital literacy	Includes cultural elements, basic analysis of media content
2010 – present	Media literacy	Critical analysis, creativity, participatory approach

The increase in the use of social networks and interactive digital platforms has significantly influenced not only the method of communication but also the very content of information. Studies have found that there is a significant positive relationship between the use of social networks and the development of media literacy – individuals who are more engaged in online communication demonstrate a higher degree of critical thinking and the ability to analyze media content (Galindo-Domínguez et al., 2025). This phenomenon is an important indicator for further development of educational strategies aimed at reducing the participation gap and facing the ethical challenges of the modern digital era.

Future prospects indicate that media literacy will play an even more important role in society. Perspectives for further development are related to:

- **Adapting educational programs** to reflect new technological and social trends.
- **Developing multidisciplinary approaches** that combine technical, cultural, and critical aspects.
- **Focusing on lifelong learning** so that individuals can keep pace with the ever-changing media environment (Šupšáková, 2016).

These trends imply that media literacy, considered as a complex system, not only increases individual capacity to understand and utilize media but also contributes to strengthening democratic processes and active civic participation.

The future of media literacy is moving towards adaptive models of new media literacy, which respond to the algorithmic environment, artificial intelligence, and constantly changing forms of digital communication (Devrim, 2025). Media literacy thus becomes a lifelong competence that transcends formal education and plays the key role in maintaining democratic processes and social stability (Rek, 2025).

Various models of media literacy offer different approaches – from ensuring access to technologies to the development of critical and analytical skills, with each model responding to the specific needs of different groups (Pérez-Tornero et al., 2010). The positive relationship between the use of digital technologies, media literacy, and critical thinking underscores the importance of integrating these competencies into educational programs, which increases resilience to disinformation and supports active civic engagement (Galindo-Domínguez et al., 2025). The dynamics of media literacy are simultaneously influenced by technological innovations, the transition from traditional media to digital platforms, and cultural changes, requiring the flexible adaptation of educational strategies and approaches (Pérez-Tornero et al., 2010).

Given the rapid development of digital technologies and the emergence of new forms of participatory culture, it is essential to support lifelong learning and a multidisciplinary approach to media literacy. Such an approach not only enables individuals to better understand the dynamics of the media environment but also provides them with the tools for active and responsible participation in society. Media literacy is becoming an inseparable part of modern society, influencing personal education, professional development, the quality of civic participation, and democratic processes.

In this chapter, we focused on media literacy as a complex and multidimensional competence essential for the functioning of an individual in contemporary digital society. Based on scholarly sources and relevant documents, we reflected on the shift from a technical understanding of working with media towards an emphasis on critical thinking, the evaluation of media content, and an awareness of its social consequences. We paid

special attention to the significance of media literacy in the fight against disinformation and fake news, which represent one of the main challenges of the digital era.

Simultaneously, we emphasized the connection between media literacy and other key literacies, such as digital, information, and civic literacy, thereby underscoring its interdisciplinary character. We also discussed the importance of media literacy for youth in the context of shaping identity, values, and social relationships. In conclusion, we identified media literacy as a practical capability applicable in everyday life and as an important prerequisite for informed decision-making, civic engagement, and the democratic functioning of society.

3 THE EDUCATIONAL DIMENSION (SCHOOL MEDIA EDUCATION, MUSEUMS, AND UNIVERSITIES)

3.1 The Protection of Cultural Heritage as a Curricular Challenge in Education and Arts Education

In this chapter, we focus on the intersection of media and cultural literacy within the educational environment, analyzing the possibilities of integrating these competencies into curricula and cultural institutions. The previous chapters focused on the definition and significance of media literacy, where we examined how students respond to media messages and what competencies resulted from this (Lincényi, 2013). A the same time, cultural literacy was analyzed in detail; it represents an individual's ability to understand, interpret, and critically evaluate cultural expressions and heritage, thereby contributing to their overall education (Vrabec, 2013). Contemporary research in the field of media education identifies the so-called educational turn, which is manifesed not only in the school environment but also in broader cultural and artistic institutions. This shift means that media, film festivals, museums, or galleries no longer act exclusively as presentation platforms, but increasingly assume an educational function, purposefully developing the media and cultural literacy of their visitors. Environments designed in this way enable learning through experience, interpretation, and critical reflection on media-mediated cultural content (De Valck, Marijke, 2025). The transformation of cultural and memory institutions is also significantly evident in the library environment, where a shift is occurring from traditional fund management to an active educational and community function. Modern libraries are profiling themselves as centers of digital education, support for information literacy, and lifelong learning, while the professional profile of the librarian is also changing towards a facilitator of digital and community activities (Majerová, Filip, 2024). In the school context, this trend aligns with the principles of critical media literacy, which emphasizes the need not only to understand media texts but also to analyze power relations, ideologies, and social inequalities that are reproduced in the media. Media education is thus moving from technical work with media to a deeper critical and civic dimension, which simultaneously strengthens the cultural literacy of students (Kellner Douglas, Share, 2019).

Expanded Developmental and Systemic View of Media Literacy

Contemporary empirical research emphasizes that media literacy should not be understood as a one-time educational intervention but as a long-term developmental process that forms as early as preschool age and continuously develops throughout the educational cycle. Early childhood media education plays a fundamental role in shaping basic attitudes toward media, with an emphasis primarily placed on developing the ability to distinguish reality from fiction, to understand visual and auditory stimuli, and to develop elementary critical thinking (Maltseva, 2023).

In the environment of primary schools, media literacy gradually expands to include the ability to consciously work with information, analyze media messages, and identify their educational, entertaining, or manipulative character. Research reflects that effective media education in primary education is conditioned by suitable pedagogical settings, which include the systematic integration of media content into teaching, the promotion of discussion, and the development of pupils' reflective thinking (Yeganyan, Kilerjan, 2021). Media education conceived in this way creates prerequisites for the development of cultural literacy, as pupils learn to interpret media-mediated cultural symbols and values.

At the level of secondary and vocational education, media literacy is increasingly linked with digital literacy and active content creation. Research focusing on the use of social media in education points out that platforms like Instagram can serve as an effective tool for developing students' analytical and creative competencies, provided they are used purposefully and methodically guided by educators (Ulfa, Lubis, 2025). Through the creation of visual and textual content, students acquire not only technical skills but also the ability to critically evaluate the meaning, aesthetics, and cultural context of media outputs.

At the same time, however, it is confirmed that the uncontrolled and unstructured use of social media can negatively affect students' academic performance. Empirical findings from the secondary school environment suggest that the excessive use of social networks without a clear educational framework leads to reduced concentration, weakened study habits, and a decline in school performance (Abanyam, Bassey, Opoh, 2025). This

contradiction emphasizes the need for media literacy as a regulatory tool that allows students to reflect on their own media behavior and responsibly manage it.

The modernization of the curriculum in the field of media should be based on an analysis of the needs of students and graduates, who in practice primarily require knowledge in the areas of new media, graphic design, and digital marketing. The emphasis is shifting to interactive e-materials that allow for the regular updating of terminology (Leláková 2025).

From an institutional perspective, the role of school leadership and educational institutions is increasingly coming to the fore. Innovative approaches to the professional preparation of future school leaders reflect the need to develop their competencies in the area of media education, strategic planning of digital education, and support for interdisciplinary projects (Alimova, 2025). School leaders play a key role in creating conditions for the systematic integration of media and cultural literacy into school curricula and long-term development strategies.

From the perspective of educational systems, media literacy is increasingly understood as a cross-cutting competence that goes beyond the scope of a single subject. Conceptions of media education in the European area emphasize the importance of the institutional anchoring of media education in national curricula, as well as the need for methodological support for teachers and school leaders. Without systemic support, media education remains fragmented and dependent on the individual initiative of educators (Jirák, 2025).

A significant contribution to this discussion is also the concept of i-literacy, which emphasizes the integration of media, information, digital, and cultural literacy into a unified competency framework. This model reflects the need to prepare students for a complex media environment in which information sources, visual codes, cultural meanings and technological tools intertwine (Žerebnenko, 2025).

Another significant aspect is the promotion of education through social media, which are used not only as an educational tool but also as a communication channel between the school, pupils, and the wider public. Research focused on the use of social media in supporting basic education highlights their potential to increase interest in education,

encourage parental participation, and present the school as a modern and open institution (Sahrawi, Dhuhani, Banawi, 2025). Such activities simultaneously strengthen the cultural identity of the school and its relationship to the local cultural environment.

Contemporary media education must reflect current threats, such as hoaxes and disinformation, while also placing emphasis on verifying sources and media ethics. Graduates of media studies should be able to navigate the legal media environment and understand regulation in the context of social networks (Leláková 2025).

The previous chapters provided both theoretical and empirical evidence of the interconnectedness of both types of literacy, which opens space for further exploration of the interaction between them. In this chapter, we will attempt to summarize the main idea of both previous sections, while also emphasizing the possibilities of their innovative integration in the modern educational environment.

Key insights from the media literacy section include:

- Media literacy includes the capacity for critical thinking, searching, analyzing, and evaluating media content (Petranová, 2011).
- The significance of media literacy lies primarily in dismantling disinformation and strengthening civic engagement (Mihailidis, 2008).

From the field of cultural literacy, the following aspects were identified:

- Cultural literacy manifests in the ability to recognize and interpret cultural symbols, heritage, and significant cultural phenomena (Vrabec, 2013).
- It is an inseparable part of the broader educational process, where cultural heritage and its interpretation play a key role in shaping an individual's identity (Petranová, 2011).

As Bessière (1998) points out, heritage connects preservation and innovation, stability and creativity, thereby becoming a significant source of identity. In recent years, cultural heritage has been increasingly applied in education where it is used as a tool for developing critical thinking, creativity, and a relationship to the local environment.

Concepts such as *heritage education* or education for sustainable development emphasize an interdisciplinary approach, the cooperation with local communities, and connecting heritage with contemporary social challenges, with digital technologies and innovative forms of learning that are also playing an important role.

Therefore, this chapter represents a bridge between both disciplines and highlights the importance of their interaction and synergistic effect in educational systems, which is essential for preparing students for life in a media- and culturally rich environment.

Cultural Heritage as a Pedagogical and Social Challenge

In contemporary educational discourse, the protection of cultural heritage is increasingly emerging as a curricular issue that extends beyond the scope of monument care and touches upon the very essence of cultural identity, value orientation, and arts education. Modern artistic and art-educational pedagogy today grapples with the consequences of medialization, globalization, and the visualization of everyday reality, which fundamentally changes the way younger generations perceive culture, art, and tradition (Kopčáková, Kušnírová, 2012).

Cultural heritage cannot be understood as a static set of elements from the past, but as a dynamic social construct that is constantly evolving and acquiring new meanings in the present (Bitušíková, 2015). It connects past, present, and future generations and encompasses both tangible and intangible expressions of culture, which are transmitted through the active transmission of knowledge, experiences, and values.

Alongside these changes, the tension between the global and the local, the universal and the unique, comes to the fore, significantly reflecting on issues of cultural identity. In the conditions of a globalized world, characterized by the rapid transfer of information and the blurring of boundaries, the risk of weakening young people's relationship to their own cultural heritage increases. This is exactly why education toward its protection appears to be one of the key challenges of contemporary pedagogy (Mistrík, 1999).

The protection of cultural heritage must simultaneously be understood in the broader context of cultural education, which represents a systematic process of developing an

individual's cultural competencies throughout their schooling. Cultural education does not merely mean mediating information about culture but also includes institutionalized enculturation processes leading to the acquisition of the values, symbols, and meanings of one's own culture in dialogue with other cultures (Bíziková, 2015). In this sense, cultural heritage becomes one of the key tools for shaping cultural identity and cultural literacy.

Schools and educational institutions thus become an almost exclusive space where it is possible to systematically build a relationship with tangible and intangible cultural heritage, develop the ability to interpret it, and lead pupils to an awareness of their own cultural identity in dialogue with other cultures.

The Concept of Cultural Heritage and Its Significance for Education

Cultural heritage is a dynamic and historically variable concept whose boundaries are temporal, geographical, and disciplinary. It represents a selection of cultural values that a society considers worthy of preservation and transmission to future generations (Mistrík, 1999). This selection is never neutral – it is influenced by political, economic, historical, and psychological criteria.

In a pedagogical context, it is essential to distinguish between:

- **Tangible cultural heritage**, which includes architectural monuments, historical settlements, urban complexes, artistic artifacts, archival documents, or industrial objects.
- **Intangible cultural heritage**, which encompasses language, folklore, rituals, songs, myths, legends, traditional forms of art, and collective memory (Tyllner, 2010).

Intangible cultural heritage acquires special significance today because it is closely tied to everyday cultural practice, identity, and community life. Its protection and mediation in the educational environment require specific didactic approaches based on experience, participation, and creative interpretation, which allow cultural heritage to be transformed from an abstract concept into a personally experienced value Bíziková (2015). According

to Homolová (2024, 2025a), the gamified walk is highlighted as a form of experiential learning, which increases engagement and aids in a deeper acquisition of knowledge through interactive activities in nature.

Cultural Identity, Enculturation, and the Role of the School

Cultural identity represents a value framework through which a society creates an image of itself, its past, language, traditions, and norms of behavior (Mistrík, 1999). Its formation takes place through the process of enculturation, i.e. the acquisition of cultural patterns, values, and symbols of one's own culture.

From an educational perspective, it is exceptionally important that the school does not act merely as a mediator of information about cultural heritage but creates a space for its experiencing, interpretation, and critical reflection. The enculturation process realized through school education allows pupils to grow into their own culture and form a relationship with cultural values as parts of their personal and collective identity. The school has an irreplaceable role in this process as it ensures the systematic and purposeful formation of cultural competencies (Bíziková, 2015).

Art plays an irreplaceable role in this process. Works of art function as "windows" into the inner life of a culture and enable not only an understanding of the past but also a reflection on one's own identity in the present (Danto, 2003).

Curricular Aspects of Cultural Heritage Protection in Higher Education

The higher education of future teachers of aesthetics and artistic subjects plays a key role in the transmission of cultural heritage values. In the aesthetics study program at the Faculty of Arts of the University of Prešov, this issue is addressed primarily by two disciplines: museum educology and cultural heritage protection. Universities in Nitra, Bratislava and for a certain period of time also in Banská Bystrica, also pay attention to this issue.

Museum educology is a pedagogical discipline focused on the educational utilization of museums, galleries, and collection-based institutions. Its goal is not only to mediate

knowledge about works of art but especially to create an aesthetic experience and actively engage the visitor in the process of learning (Jůva, 2004).

Two fundamental approaches are applied in educational practice:

- Understanding art as an autonomous object of cognition.
- Understanding art as a tool for understanding culture and society (Danto, 2003).

For future educators, it is crucial to acquire the ability to interpret works of art in broader cultural contexts and connect them with regional cultural heritage, thereby strengthening their competence in cultural awareness and expression (Bíziková, 2015).

The discipline of cultural heritage protection focuses primarily on architectural monuments and their revitalization. The emphasis is placed on the principle of "reviving" the monument, not its passive preservation (Dušenková, 2010). Students are guided to perceive monuments as a living part of the cultural environment and to seek new ways of utilizing them in accordance with the *genius loci*.

Education designed in this way supports the development of creative thinking, critical reflection, and a responsible attitude towards cultural values, thereby fulfilling not only the informative but also the formative function of cultural education (Bíziková, 2015).

Cultural Heritage in the School Subjects Art and Culture

At the primary and secondary school levels, the issue of cultural heritage is integrated into the subjects Education by Art and Art and Culture. Despite the declared goals of developing cultural identity and cultural literacy, its actual representation in the curriculum is limited, which is primarily related to the low time allocation for these subjects (The National Education Programme, 2011).

An analysis of thematic units shows that the protection of cultural heritage is present only to a limited extent, mainly through the topics of cultural tradition, monuments, and high art. All the greater responsibility lies with the teacher, who can develop these topics in depth through project-based teaching and cooperation with museums and regional cultural institutions.

From a didactic point of view, cultural heritage fulfills two basic functions in the educational process – informative and formative. The informative function consists of mediating knowledge about cultural values, while the formative function focuses on shaping values, attitudes, aesthetic feeling, and responsibility towards the cultural environment (Bíziková, 2015). It is precisely this formative dimension that represents the key contribution of arts education.

3.2 Theoretical Framework for Connecting Media and Cultural Literacy

On a theoretical level, the connection between media and cultural literacy represents a comprehensive framework that combines analytical skills with the ability to interpret cultural expressions. This framework takes into account not only the technical and analytical aspects of media content but also its cultural context, revealing how media messages shape and influence our cultural identity and social patterns of behavior.

3.3 Synergy Between Media and Culture

According to the definition of media literacy, the ability to access information, analyze it, and subsequently create one's own media content is key (Scheibe, Rogow, 2008). On the other hand, cultural literacy focuses on understanding the cultural codes, symbols, and traditions that form the foundation of the identity of individuals and society (Vrabec, 2013). The mutual overlap of these concepts enables the emergence of an interdisciplinary approach that combines the capacity for critical thinking with the interpretation of cultural artifacts.

Today, media play a fundamental role not only in the presentation of information but also in shaping cultural values and identities. As indicated in media literacy research, the media have a major impact on the formation of public opinion (Lincényi, 2013). Cultural literacy, on the other hand, enables individuals to better understand the symbolism and meaning contained in these messages, which contributes to a deeper and more critical approach to media content.

The principle of integrating these two disciplines means that curricula should reflect not only the technical aspects of media production but also the interpretation of cultural phenomena within the media environment (Petranová, 2011). In this context, Homolová (2025b) highlights the use of GPS and digital platforms in quest excursions that teach participants to connect technologies with the search for cultural contexts through active exploration of a location. This approach enables the improvement of critical thinking, which is essential for the correct evaluation of media messages and their cultural significance.

3.4 Modern Theoretical Approaches

Modern theoretical approaches to media literacy often draw on interdisciplinary studies that combine pedagogical approaches, critical theory, and cultural analysis (Petranová, 2011).

From a theoretical perspective, models have been developed that encompass multiple levels of analysis:

- **Cognitive level:** Focuses on information processing and critical thinking.
- **Cultural level:** This includes the interpretation of symbols, traditions, and social values presented in the media.
- **Socio-emotional level:** Emphasizes emotional response and empathetic understanding of media content, thereby supporting social cohesion and civic engagement.

Such a multidimensional approach ensures that the integration of media and cultural literacy is not just about the passive reception of information, but about active interaction, analysis, and the creation of new knowledge, which forms the basis for building a modern, informed society.

4 PRACTICAL INTERPRETATION OF CULTURAL HERITAGE IN THE MEDIA

The practical application of theoretical knowledge about the connection between media and cultural literacy is reflected in various aspects of modern media production. In this section, we analyze how media content forms – including television, social networks, films, and works of art – are used for the interpretation and presentation of cultural heritage.

4.1 Integration of Cultural Heritage into Media Educational Programs

Media serve not only as a source of news and information but also as a means for preserving and presenting cultural heritage. Through documentary films, television programs, and online platforms, stories, traditions, and cultural experiences that form the foundation of a nation's identity are revealed (Petranová, 2011). E.g., television programs focused on historical events or regional traditions help viewers understand the past and shape their contemporary cultural awareness.

Educational institutions, such as schools, museums, and universities, utilize media literacy as a tool to connect theory with practice. By implementing media education, curricula at both primary and secondary schools prepare students for the critical evaluation of cultural content, focusing on:

- **Analysis of media texts:** Students learn to understand, interpret, and analyze media messages and their context, which enables them to identify the cultural symbols and values contained in these texts (Lincényi, 2013; Petranová, 2011). Such media texts are not only news but also journalistic texts from the fields of art and culture, such as art critiques, reviews, etc. (Švajlenin, 2024).
- **Cultural reproduction:** Through projects and dissertations, students can demonstrate their understanding of cultural traditions, which is supported by practical tasks such as the creation of multimedia presentations or digital archives (Petranová, 2011).

Visualization: Comparison of Elements of Media and Cultural Literacy

Figure 7 Comparison of elements of media and cultural literacy

Aspect	Media Literacy	Cultural Literacy
Definition	The ability to analyze, interpret, and create media	The ability to understand and interpret cultural symbols
Key competencies	Critical thinking, digital communication	Understanding traditions, historical heritage
Educational approach	Working with media texts, online resources	Analysis of cultural artifacts, historical documents
Applications	TV, social networks, internet	Museums, cultural centers, literature

This table provides an overview of the differences and similarities between media and cultural literacy and shows why their connection is crucial in the current educational process (Vrabec, 2013; Petranová, 2011).

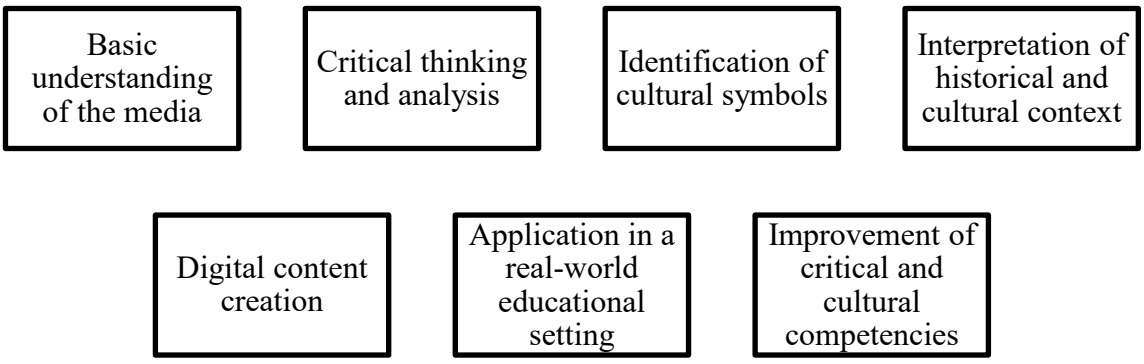
Informal education represents a significant supplement to the formal school system, particularly in the area of media and cultural literacy. Research demonstrates that museums, cultural centers, and community projects create a space for the development of critical thinking through interactive, participatory, and multimodal approaches that encourage the active involvement of visitors (Matušková, 2025).

The use of augmented reality and digital media in cultural-educational projects deserves special attention. These technologies make it possible to connect scientific knowledge with local cultural heritage and foster a deeper understanding of cultural practices in the context of sustainability and the intergenerational transmission of values (Yasir, Hartiningsih, Rahma, 2022).

4.2 Case Studies and Examples from the Slovak Environment

In the Slovak educational system, it is important to demonstrate that the integration of media and cultural literacy has a real and measurable impact on pupils' competencies. Several case studies suggest that schools that have implemented media education programs have recorded an increased ability in students to critically analyze not only media content but also historical and cultural artifacts (Sapík, 2023). Significant initiatives also include cooperation with museums, where students are presented with interactive exhibitions that, combined with digital media, enable a comprehensive understanding of cultural heritage. Based on courses focused on media literacy, universities emphasize not only analytical work but also creative interpretations of cultural content. Empirical evidence confirms that students completing subjects focused on media literacy achieve better results in critical tests and cloze tests on the topic of stereotypes in the media (Petranová, 2011).

Figure 8 An overview of the Educational Process Connecting Media and Cultural Literacy



This figure illustrates the steps of the educational process that connects basic knowledge about media with the interpretation of cultural heritage, leading to the improvement of students' overall critical and cultural competencies (Petranová, 2011).

With the advent of digital technologies and social media, traditional forms of cultural heritage are acquiring a new dynamic. Web archives, online museums, and digital projects make it possible to preserve and disseminate cultural information in a new way. This

phenomenon has not only increased the accessibility of cultural resources but has also contributed to the active involvement of young people in the processes of cultural interpretation and the creation of digital content (Scheibe, Rogow, 2008).

The integration of digital platforms into education is a key factor for supporting media literacy. Secondary schools and universities use online tools to create multimedia projects that allow students not only to analyze cultural heritage but also to present it creatively. Such an approach not only increases awareness but also encourages discussion about cultural values and issues of identity in the digital age (Petranová, 2011).

4.3 Analysis of Risks and Challenges: Disinformation and Deepfakes

Despite the immense value of integrating media and cultural literacy, there are also significant risks and challenges associated with it. Among the main ones are the spread of disinformation, the manipulation of media messages, and the emergence of the so-called deepfake technologies, which can threaten the credibility and objectivity of information presented in the media. Although digital transformation through artificial intelligence expands creative possibilities and enables the precise personalization of media content, it simultaneously poses serious ethical and legal challenges. Ensuring the credibility of AI-generated content and the necessity for a transparent regulation of deepfake technologies, which can be misused to spread disinformation and manipulate public opinion, are emerging as key problems (Pitoňáková, Pál, Kubala, 2025).

4.3.1 The Risks of Disinformation

Disinformation represents a serious threat to the educational and information system. Incorrect and misleading information can have a negative impact on the formation of public opinion, which is particularly dangerous at a time when media messages spread faster than ever before (Mihailidis, 2008). The phenomenon of disinformation is closely linked to a lack of critical thinking and to an insufficient media literacy, which emphasizes the need for a high-quality educational integration that would mitigate these risks. Several contemporary studies confirm that media literacy represents one of the most effective tools in the fight against disinformation and manipulated content. The key factor is the capacity for the critical analysis of sources, the recognition of argumentative strategies, and an understanding of the cultural context in which media messages are created

(Voitovych, Kitsa, Mudra, 2025). This ability is closely interconnected with cultural literacy, as disinformation often operates with historical stereotypes, symbols, and cultural narratives.

4.3.2 Deepfake Technologies and Challenges in Educational Integration

Deepfake technologies represent a new level of media content manipulation, making it possible to create realistic-looking videos and audio recordings that, however, do not represent a true state of affairs (Mihailidis, 2008). Such technologies are potentially dangerous because they can influence public opinion and cause chaos in society. Educational programs that integrate media literacy must therefore place emphasis on teaching methods of detection and verification of the truthfulness of information so that students are able to recognize fake news and manipulated media materials (Mihailidis, 2008).

Although many institutions are working diligently to increase media literacy, there are significant challenges that exist:

- Lack of qualified teachers: The quality of the educational process is largely dependent on the competencies of the teachers who are responsible for implementing media education into curricula (Petranová, 2011).
- Outdated curricula: Traditional educational curricula often do not reflect the rapidly changing media environment and cultural trends, which complicates the adaptation of new methods and approaches (Petranová, 2011).
- Technological inequalities: the access to modern digital tools and educational platforms can be unevenly distributed, leading to differences in the level of media literacy between different regions and schools (Sapík, 2023).

These risks require the development of comprehensive strategies and innovative solutions that will include not only the revision of curricula but also the continuous professional education of teachers and investments in modern technologies to ensure their widespread availability within the educational system.

Visualization: Table of risks and challenges in media integration

Figure 9 Table of risks and challenges in media integration

Risk/Challenge	Description	Possible solutions
Disinformation	Incorrect and manipulative information	Training students in critical thinking
Deepfake technologies	Manipulation of videos and audio recordings	Teaching methods of authenticity verification
Lack of qualified teachers	Low level of education in media literacy	Professional training and certification programs
Outdated curricula	Not adapted to the current media environment	Updating and innovating educational materials
Technological inequalities	Differences in access to modern digital tools	Investments in the technical infrastructure of schools

This table summarizes the main risks and challenges associated with the integration of media and cultural literacy into the educational system and proposes possible solutions for their effective management (Mihailidis, 2008).

4.4 Educational Strategies and Institutional Integration of Media Literacy

The educational integration of media and cultural literacy represents a dynamic process aimed at strengthening critical thinking and the ability to interpret cultural heritage among students at all levels of education. This part of the publication focuses on specific

strategies that schools, museums, and universities can implement in order to create a synergistic effect between media and cultural literacy.

School Media Education

Educational programs within primary and secondary schools play a key role in shaping media literacy among young people. The integration of these programs into the curriculum represents an essential step toward strengthening critical thinking and students' ability to analyze media-rich messages. The key strategies include:

- Interdisciplinary approach: The integration of media education into subjects such as history, civics, literature, or art allows students to delve into various aspects of cultural heritage and contemporary media trends (Petranová, 2011).
- Project-based learning: Teachers can use projects that combine digital creation, analysis of media content, and exploration of cultural traditions. These projects encourage active student participation and allow them to create their own multimedia presentations, thereby gaining practical experience in content creation and critical interpretation (Petranová, 2011).
- Interactive platforms: The use of digital tools and interactive platforms, such as online discussion forums and virtual museums, allows students to access authentic resources and develop skills in independent information retrieval and verification (Scheibe, Rogow, 2008).

Visualization: Overview of educational strategies and institutional cooperation

Figure 10 Overview of educational strategies and institutional cooperation

Institution	Main strategies	Examples of activities
Primary and secondary schools	Interdisciplinary approach, project-based learning, interactive platforms	Multimedia projects, discussion forums, digital presentations
Museums and cultural centers	Digital archives, educational workshops, cooperation with schools	Online exhibitions, lectures, workshops with experts
Universities and higher education institutions	Innovative courses, professional development of educators, research projects	Seminars, grant programs, practical research projects

This table illustrates various strategies and cooperation between institutions that contribute to the successful integration of media and cultural literacy in the educational process (Petranová, 2011; Sapík, 2023).

Summary of Main Findings and Recommendations

Based on the individual theoretical chapters, it can be stated that the synergy between media and cultural literacy significantly contributes to the development of students' critical thinking and their ability to work analytically with media and cultural content. The interdisciplinary integration of these areas simultaneously supports the acquisition of practical skills, the development of creativity, and the ability to apply theoretical knowledge in real social and cultural contexts. A key prerequisite for the successful implementation of this approach is technological innovation in education and the systematic professional development of educators who play the fundamental role in mediating critical and reflexive work with media and cultural heritage.

Based on these findings, it is recommended that educational institutions proceed with the regular updating of curricula and actively support interdisciplinary projects that connect media and cultural topics. It is equally important to invest in the continuous education of teachers and in modern digital technologies that enable the effective integration of

innovative teaching methods. Creating partnerships between schools, cultural centers, and other relevant institutions appears to be an effective tool for making authentic cultural resources accessible and enriching the educational process.

The aforementioned summary illustrates that the connection of media and cultural literacy is essential for preparing students for life in a complex and information-rich society, in which critical thinking and cultural identity belong among the key competencies of a contemporary citizen (Vrabec, 2013; Petranová, 2011). In this context, the concept of future literacy and anticipatory competencies is also coming to the fore, emphasizing the need to prepare students for an uncertain and rapidly changing media environment. The integration of media literacy with education on cultural heritage thus contributes not only to an understanding of the past but also to adaptive cultural sustainability and active citizenship (Fusco, 2025). In the context of contemporary education, the protection of cultural heritage does not appear as an isolated thematic area, but as a long-term curricular challenge. Its goal is the formation of a culturally competent generation that is aware of its own cultural identity, can critically reflect on the cultural values of the past, and is ready to actively participate in their protection and development in the conditions of a multicultural society (Bíziková, 2015).

Digital literacy is defined in the State Educational Program for Basic Education 2023 (ŠVP, 2023) as an independent cross-cutting literacy that has an interdisciplinary character. It does not only encompass the development of technical skills when using digital technologies, but primarily emphasizes critical thinking, creativity, and responsible and safe behavior in the digital environment. The goal of its systematic development is to prepare male and female pupils for active and conscious functioning in a digital society, with the expectation that by the end of the 3rd cycle of basic education they will be able to effectively communicate, collaborate, create digital content, solve problems, and ethically utilize digital technologies, including artificial intelligence (ŠVP, 2023).

Digital literacy is elaborated in curricular documents through three frameworks – attitudinal, content, and procedural – which together create a comprehensive view of the development of pupils' digital capabilities (ŠVP, 2023, p. 14). In terms of content, it is structured into five interconnected components: information and data literacy,

communication and collaboration, digital content creation, safety, and problem-solving. This definition is based on the European Digital Competence Framework for Citizens, DigComp 2.2, which was simplified and adapted for the needs of basic education in Slovakia (The Ministry of Education, Research, Development and Youth of the Slovak Republic and National Coalition for Digital Skills and Professions of the Slovak Republic, 2024).

In the context of digital literacy, special attention is paid to media and information literacy, which is essential for navigating the current digital space. Pupils learn to critically assess the credibility of sources, recognize manipulative content such as personalized advertisements or deepfake videos, and reflect on their own behavior in the online environment. The development of media literacy is closely connected to the ethical dimension of digital behavior and the responsible handling of personal data, digital footprints, and copyrights, thereby promoting the conscious and safe use of digital technologies (ŠVP, 2023).

A significant aspect of the new reform is also the emphasis on digital wellbeing, which is understood as part of broader care for pupils' mental health and healthy digital habits. Digital wellbeing encompasses the ability to maintain a balance between online and offline activities, recognize signs of digital fatigue, stress, or addiction, and create healthy routines when working with digital technologies. In this process, the school environment should encourage open reflection on digital habits, the establishment of rules for safe behavior, and the development of critical thinking when working with information (ŠVP, 2023).

At the same time, digital literacy is conceived as a cross-cutting theme across educational areas, functioning both as a learning tool and as independent educational content. It is most prominently applied in informatics and STEM subjects, but its elements are also systematically integrated into language, social science, arts, or science education. Such an approach emphasizes that digital technologies are not a goal in themselves, but a means for creative problem-solving, collaboration, and the active involvement of pupils in social events in a digital society (ŠVP, 2023).

5 FROM MEDIA TO CULTURAL LITERACY: DIGITAL CULTURAL HERITAGE IN THE CONTEXT OF GENERATIVE ARTIFICIAL INTELLIGENCE

The rise of generative artificial intelligence is changing the environment in which the literacies necessary for working with media, knowledge, and cultural memory are formed. Classical media literacy emerged in a situation where the main problem was the selection, interpretation, and critical evaluation of existing media content. However, in the generative AI environment, the user is no longer merely faced with ready-made content but increasingly enters the process of its production, modification, remixing, and distribution. This has consequences not only for education but also for the way society approaches cultural heritage in digital form. For digital cultural heritage, it is not just about making artifacts or collections technically accessible. It is about interpretation, credibility, institutional frameworks, data provenance, the representation of the past, and the right to decide what will be preserved, how it will be described, and what meanings will be considered legitimate (Parry, 2007; Cameron and Kenderdine, 2007).

This chapter is based on the premise that the transition from media to cultural literacy is not merely a terminological change. It is a shift from competencies related to critical reading of media to competencies that involve working with cultural context, memory, representation, dialogue, and participation. Generative AI accelerates this shift because it brings new tools of synthesis, reconstruction, and personalization to the space of cultural heritage, but simultaneously new risks: a false sense of authenticity, decontextualization, legal uncertainty, the colonization of cultural data, and the weakening of the authority of professional curation (Münster et al., 2024; Menotti, 2025; Oruc, 2025). The purpose of this chapter is to show why it is not enough to speak only of media or information literacy if we want to understand digital cultural heritage in the era of generative AI, and what new competencies this aspect entails for schools, cultural institutions and for the public.

5.1 From Media Literacy to Cultural Literacy

The concept of cultural literacy has a long and not always unambiguous history. In its classical formulation, it was popularized by E. D. Hirsch, who understood cultural literacy

primarily as a shared pool of knowledge necessary for social communication and an understanding of public discourse (Hirsch, 1987). This approach was influential, but also problematic. Its weakness is the tendency to fix culture into the form of a stable canon and reduce literacy to the acquisition of a list of references. Therefore, subsequent discussions showed that cultural literacy cannot be understood merely as the accumulation of facts, but rather as the ability to enter pluralistic cultural situations, understand their historical and social conditionality, and conduct a dialogue across different value frameworks (Hodgson and Harris, 2022; Maine, Cook and Lähdesmäki, 2019).

In recent years, UNESCO has repeatedly emphasized that media and information literacy can no longer be reduced to the technical use of media or to simple defense against disinformation. It is a broader set of civic, ethical, and interpretive competencies intended to enable users to navigate a complex communication environment and responsibly participate in the creation of public meaning (UNESCO, 2021; UNESCO, 2022). In more recent documents, this framework is explicitly linked with cultural literacy and artificial intelligence, suggesting that today's literacies must be taught in an environment where the content is created not only by human authorship but also by the automated inference of models over vast datasets.

This shift has also a clear empirical reason. Research focusing on how users validate the information on digital content platforms shows that the online environment significantly complicates the assessment of content credibility and that repeated exposure to problematic or fake news can increase its perceived persuasiveness. Literacy in the digital environment therefore cannot be reduced to technical orientation in the media; it must also include the ability to verify sources, recognize imitations of authority, and critically assess the truth status of digitally mediated statements (Fielden, Grupač, Adamko, 2018).

From a pedagogical perspective, the shift from a model of passive reception to a model of participation was also important. Jenkins and co-authors pointed out even before the advent of generative AI that education for the digital age must develop the ability to participate, collaborate, remediate, and critically reflect on how meanings are created and disseminated in network cultures (Jenkins et al., 2009). Generative AI radicalizes this framework even further. The user is not just a consumer and is no longer merely a creator-

user in the sense of publishing their own content; they become an operator of systems that can produce language, images, sound, and simulated historical or cultural representations based on a prompt. If literacy is limited only to the verification of the correctness of information, a fundamental question is missed: who, based on what sources, what model, and what value logic, actually constructs cultural meaning?

For this reason, it is useful to transition from media to cultural literacy. Media literacy remains essential; however, in itself, it is narrow. Cultural literacy in the contemporary sense means the ability to read artifacts, images, interfaces, databases, and narratives in their context; to understand how authority is created, how curatorial selection works, what voices remain unheard, and what epistemic hierarchies are reproduced in the digitalization of the past (Maine, Cook and Lähdesmäki, 2019; Hodgson and Harris, 2022). In connection with generative AI, cultural literacy expands even further: it encompasses the ability to recognize synthetic output, assess the degree of its historical and cultural plausibility, and know where the boundaries lie between interpretation, reconstruction, and fabulation.

5.2 Digital Cultural Heritage as an Environment of Meaning, Not Merely a Dataset

The discussion on digital cultural heritage has long resisted reduction to a technical problem of digitalization. Parry convincingly showed that the digitalization of museums and heritage means not only the transition from an analog to a digital medium but the "recoding" of institutions, their work processes, modes of representation, and forms of public contact (Parry, 2007). Similarly, Cameron and Kenderdine emphasized that digital cultural heritage is not a neutral repository. It is a discursive and technologically mediated field where documentation, interpretation, interface design, memory politics, and the power to define authenticity intersect (Cameron and Kenderdine, 2007).

This perspective remains important today. When we speak of digital heritage, we do not mean only scans of manuscripts, 3D models of objects, or online catalogs. It is also about metadata, taxonomies, keywords, provenance records, curatorial explanations, educational layers, and the very way the user comes into contact with the content. What appears to be a "digital object" is actually the result of a series of decisions: what is

selected, how it is described, in what quality it is captured, what narrative is attached to it, and for whom the interface is designed. These decisions have cultural and epistemic significance because they influence what will be visible, searchable, and interpretable (Parry, 2007; Cameron and Kenderdine, 2007).

More recent literature also emphasizes the dimension of participation and inclusion. Digital approaches to cultural heritage are not successful merely when they digitize as many objects as possible, but when they enable various communities to enter the processes of meaning-making, representation, and care for heritage. Therefore, contemporary research increasingly addresses participatory design, engaging youth, local communities, and groups that have been marginalized in traditional memory institutions (Giglitto et al., 2023; Zhang, Ikiz Kaya and van Wesemael, 2024). This shift is also fundamental for cultural literacy: understanding heritage does not just mean knowing the "correct" interpretation, but knowing how to analyze who creates this interpretation and who remains excluded from it.

It is exactly at this point that digital cultural heritage comes into direct contact with generative AI. If the core of the problem until now has been how to digitize, describe, and make heritage accessible, at present, the question is added of how models capable of generating new texts, images, or voice interpretations will work with it. Digital heritage is changing from an object of archiving into a raw material for the computational modeling of the past. This can expand access and educational potential, but at the same time, it changes the ontological status of digital heritage: it is no longer just a document or representation, but also a training material, a generative input, and a source for synthetic cultural forms (Oruc, 2025; Menotti, 2025).

5.3 What Generative Artificial Intelligence Brings to the Field of Heritage

Research on artificial intelligence in the field of cultural heritage precedes the current wave of generative models. Fiorucci and colleagues show in their review paper that machine learning was used in heritage primarily for classification, pattern recognition, image analysis, documentation, and supporting conservation and archaeological tasks (Fiorucci et al., 2020). Importantly, this type of deployment was predominantly

analytical. The goal was to improve the identification, organization, or the reconstruction of data structures, not to create new interpretative or aesthetic outputs on demand. Generative AI represents a change because it shifts the focus from analysis to synthesis.

In the field of digital heritage, this has at least four consequences. First, models can generate natural accompanying texts, summaries, and answers, which can expand the accessibility of collections for various target groups, including visitors without professional training. Second, generative image and multimodal models promise support in visualizing damaged, incomplete, or hard-to-imagine objects and spaces. Third, models enable a new type of interaction: the user can ask questions in natural language and receive personalized answers, changing the pedagogical and museum experience. Fourth, generative AI also enters the area of creating new digital representations of heritage, blurring the line between documentation, interpretation, and creative production (Münster et al., 2024; Silva and Oliveira, 2024).

However, this change is not merely technological. It also changes the premises by which the user understands authority and authenticity. With a database or catalog, it is usually clear that it is a curatorially prepared system of records. With a chatbot, a generated guide, or a synthetically "revived" historical image, the user may get the impression that they are communicating with an objective, complete, or directly authentic depiction of the past. This is exactly why literature increasingly emphasizes the need for historical fidelity, transparency, and human-centered responsible design when deploying AI in museums and heritage (Derda and Predescu, 2025; Ocón, Yin and Luna, 2026).

The broader context of literacies is also significant. Tiernan and co-authors point out that existing frameworks of information and media literacy respond to AI more slowly than the real environment of learning and communication is changing (Tiernan et al., 2023). Ndungu similarly argues that media and information literacy programs in higher education must incorporate basic AI literacy; otherwise, they will not prepare students for the real way knowledge is created and distributed in the digital environment (Ndungu, 2024). In the field of cultural heritage, this need is even more urgent, because it is not just about the correctness of information, but also about the interpretation of the past, the identity of communities, and the ethics of representation.

5.4 Opportunities of Generative AI for Digital Cultural Heritage

The potential of generative AI for digital cultural heritage is real, but it needs to be named precisely. It has the highest value where it lowers barriers to access and helps the user navigate complex collections or challenging historical contexts. With large digital collections, the problem is usually not a lack of material, but rather its inaccessibility for non-specialists. Generative interfaces can help translate expert descriptions into more readable language, create multi-level explanations according to the age or knowledge level of the audience, and support multilingual access. If well-designed and curatorially controlled, they can function as a navigation layer between a complex archive and the user (Münster et al., 2024; UNESCO, 2021).

Particularly interesting are applications in education and in virtual museum environments. Ariya and co-authors show that generative AI assistants in virtual reality can increase user engagement with textile heritage, as they enable more interactive and contextually richer contact with exhibits (Ariya et al., 2025). What is essential, however, is not the technological "wow" factor itself, but whether the system helps the user understand the material, technique, historical context, and the cultural significance of the object.

Another area is the support of documentation, restoration, and interpretative visualization. Silva and Oliveira show that AI at the intersection of cultural heritage and photography can support the organization, analysis, and certain forms of reconstruction or interpretation of visual material (Silva and Oliveira, 2024). In a broader framework, generative AI can assist in supplementing descriptions, suggesting alternative search paths, generating access layers for visitors with specific needs, and simulating spatial or temporal contexts that are difficult for a lay audience to imagine. The benefit, however, does not lie in the model "knowing more" than the expert, but in its ability to adapt complex, curatorially prepared content into various forms of reception.

Furthermore, research on participation in digital heritage shows that well-designed digital tools can support the meaningful engagement of users, especially young people, if they are not reduced to a one-time effect but are integrated into a broader process of learning and co-creation (Zhang, Ikiz Kaya, and van Wesemael, 2024). Generative AI can function here as a facilitator of questions, the comparison of perspectives, and the creation of one's own interpretations. Potentially, it thus strengthens cultural literacy in a dialogical sense,

as understood by Maine, Cook, and Lähdesmäki: not as the reproduction of a canon, but as the ability to work with difference, context, and mutual understanding (Maine, Cook, and Lähdesmäki, 2019).

5.5 Risks and Limits: Where Generative AI in Heritage Easily Turns from a Tool into a Problem

Precisely at the point where generative AI appears most useful, its most serious limits simultaneously emerge. The first problem is epistemic. Generative models produce linguistically and visually convincing outputs, but their persuasiveness is not proof of truthfulness. In the context of cultural heritage, this is particularly risky because the user is usually willing to trust a museum or archival interface more than standard web content. If the model generates an inaccurate dating, an anachronistic interpretation, or a false connection between an object and a cultural tradition, the error may appear authoritative. Ocón, Yin, and Luna therefore emphasize the dilemma between an "artistic insight" and historical fidelity: a generative output may be interesting, but it may not be historiographically defensible (Ocón, Yin, and Luna, 2026).

The second problem is decontextualization. Digital cultural heritage is not merely a collection of images and texts that can be freely moved between tasks. The value of heritage lies in its provenance, materiality, locality, ritual or community framework, and expert description. Generative AI tends to flatten these layers because it works with probabilistic patterns and often prefers the fluency of the response over an explicit admission of uncertainty. Menotti therefore critically points out that generative AI can "expropriate" cultural heritage by turning it into a universal raw material for models and subsequently returning it to the public in a simplified, aestheticized, and ownership-ambiguous form (Menotti, 2025).

The third problem is legal and ethical. Oruc draws attention to the issue of cultural heritage as training data for AI. The fact that some material is digitally accessible does not automatically mean it is ethically or legally unproblematic to use it for training generative models and subsequently commercializing the derived outputs (Oruc, 2025). This problem is particularly sensitive concerning materials associated with indigenous

communities, colonial history, ritual objects, or vulnerable groups. Without clear policies of consent, attribution, and community participation, digitalization can turn into a new type of extraction.

The fourth problem concerns museum practice and curation. Derda and Predescu emphasize the need for human-centric AI in museums. In other words, AI should not be a substitute for expertise or a tool for reducing professional responsibility, but a support that remains anchored in human decision-making, transparency, and institutional reflection (Derda and Predescu, 2025). From a practical perspective, this means that a museum or archive should not deploy a generative system merely because it is fashionable. If the system cannot reliably explain where it draws from, how it handles uncertainty, and who approves the content, its benefit may be lower than the reputational and epistemic costs.

The fifth problem relates to what is systematically underestimated in technological discourse: the asymmetry between the low costs of generation and the high costs of verification. Generative AI can generate hundreds of descriptions, interpretations, or visual variants in a few seconds. However, verifying their historical, material, and cultural accuracy requires expertise, time, and often interdisciplinary collaboration. For institutions with limited capacities, therefore, the main problem may not be “how to implement AI” but “how to maintain the quality after the implementation”. This shows that without a realistic calculation of costs and benefits, generative AI can be a source of technical debt rather than an innovation.

Figure 11 Practical framework for evaluating the use of generative AI in digital cultural heritage

Area	Benefit	Main Risk	Question for Practice
Access to collections	Multilingual and more understandable access to the content	Confident inaccuracies and the loss of source context	Can the user navigate from the generated answer to the source?
Interpretation	Quick orientation and personalized explanations	Confusing synthesis for curatorially validated interpretation	Is it clearly marked what is generated and what is expert content?
Visualization of the past	Assistance in imagining fragmentary or damaged objects	False impression of authenticity and historical fidelity	Is the hypothetical nature of the reconstruction communicated?
Data infrastructure	Better navigation, enriched metadata, searching	Extraction of cultural data without consent or attribution	Does the institution have rules for training data and reuse?

Note: The table synthesizes the arguments elaborated in the chapter; it is the authors' own elaboration based on the analyzed literature.

5.6 Education and Memory Institutions: What Competencies Are Needed

From the perspective of education, the biggest mistake is the notion that AI literacy equals the ability to write an effective prompt. Such a narrowing is pragmatically tempting but conceptually flawed. In the field of digital cultural heritage, a much broader set of competencies needs to be developed. The first is the *provenance competence*: the ability to trace the origin of an object, the origin of a digital record, the origin of metadata, and the origin of the generated output itself. The second is the *contextualization competence*: knowing how to place an object into its historical, social, material, and political

framework. The third is the *competence of synthetic detection and critical interpretation*: knowing that a convincing image or text may be synthetic, and knowing by what criteria to assess its degree of credibility. The fourth is *ethical competence*: understanding the problems of ownership, attribution, cultural sensitivity, and inequalities in data (UNESCO, 2022; Ndungu, 2024; Tiernan et al., 2023).

The relevance of AI literacy does not stand out only in the cultural heritage sector. This is also well demonstrated by high-risk areas where generative systems enter decision-making processes with a direct impact on humans. Based on a quantitative literature review, Grupač, Zaušková, and Nica state that ChatGPT and related generative systems can support laboratory diagnostics, epidemic management, clinical decision-making, and care efficiency, with their declared benefit lying in the analysis of complex data and the creation of personalized recommendations. That is exactly why it is necessary to understand not only what the model answers, but also what data basis it draws from, how it was validated, and where the limits of trust in its recommendations lie (Grupač, Zaušková, Nica, 2023).

A similar need for a broader, culturally anchored AI literacy can also be seen in the corporate environment. Kliestik et al. show that generative AI in organizations is associated not only with text automation but also with monitoring of work processes, personnel decisions, fintech operations, the analysis of unstructured data, and the functioning of digital twins. From the perspective of this chapter, it is important that the user encounters here not just an individual tool, but an entire regime of categorization, evaluation, and management, in which models help make decisions about people, resources, and priorities. For this reason as well, AI literacy must be understood more broadly than as a technical skill: as the ability to read a technological system within its institutional, value, and power framework, which is just as relevant for the field of cultural heritage as it is for the corporate environment (Kliestik et al., 2024).

For schools and universities, it follows that working with cultural heritage should not be an isolated “content” module, but a place where humanities, informational, and technological approaches interconnect. A student should not only know how to find an artifact in a database or generate a popularization description of it. They should know

how to compare a database record with a generated interpretation, identify what was lost during generation, what was added without backing from the source, and what interpretative decisions factored into it. Such pedagogy leads from superficial digital skill to cultural literacy as critical work with meaning.

Memory institutions must simultaneously learn that the visitor will no longer use their digital collections solely through a catalog or curatorial exhibition. They will also use them through generative interfaces, whether their own or external. This also changes the requirements for institutional communication. It is not sufficient to have high-quality metadata; one must also have a clear policy for machine-readable attribution, recording uncertainty, labeling synthetic outputs and the rules for the reuse of content. If the institution does not prepare these layers, it risks its content being present in the AI ecosystem without context and without control over how it will be interpreted (Münster et al., 2024; Oruc, 2025).

In this sense, the transition from media to cultural literacy proves to be strategic. Media literacy teaches to ask who created the message and with what intention. Cultural literacy in the generative AI environment must go further: who digitized this object, who described it, who decided on the categories, what data was the model trained on, what historical and geopolitical asymmetries are present in the data, and what type of past the system actually allows us to see. Without these questions, AI literacy becomes merely an instrumental skill without a critical core.

5.7 Authenticity, Reconstruction, and the Limits of Historical Imagination

One of the most difficult questions is the problem of authenticity. In the traditional cultural heritage environment, authenticity was never reduced merely to the “genuineness of an object” in a narrow material sense. It was also related to provenance, integrity, relationship to historical context, expert documentation, and interpretative regimes. Generative AI enters this field by producing convincing images and texts that can look authentic without being firmly tied to an authentic source. This is a fundamental epistemic change. With a digitized object, the user asks whether the record is faithful to the item. With a generated output, they must ask on what basis the system created a past that looks

like this. The difference between documenting and conjecturing is easily lost here, especially if the interface does not show the limits of the model, the degree of uncertainty, or alternative interpretations (Ocón, Yin, and Luna, 2026; Derda and Predescu, 2025).

In practical museum and educational work, this means that reconstruction must not be disguised as restitution. If the system generates the appearance of a damaged artifact, the color layer of a historical photograph, or the simulated look of a vanished space, it is a hypothesis – not a return to the "original state". Silva and Oliveira point out that AI opens interesting possibilities when working with photographic heritage, but simultaneously requires a precise reflection on limits, so as not to erase what in the photograph is document, what is intervention, and what is an interpretative addition (Silva and Oliveira, 2024). If the institution does not communicate this boundary, it exposes the user to the risk of mistaking an aesthetically convincing image for historical evidence. For cultural literacy, it is crucial to learn that the past is not "recoverable" by a simple calculation over data; it is always reconstructed within a certain framework of rules, evidence, and decisions.

This problem also has a political dimension. The past is not neutral territory, and not all communities have an equal opportunity to determine how their history and objects will be represented. If a generative system creates images of a "typical" historical environment, "traditional" clothing, or an "authentic" ritual based on majority or more easily accessible data, it can reproduce simplified, exoticizing, or colonizing images of culture. Menotti critically points out that a model can function as a new museum apparatus: it selects, rearranges, and returns culture to the public in a form it considers probable and attractive, not necessarily in a form that the community or expert interpretation would recognize (Menotti, 2025). Therefore, with generative AI, it is important not only to talk about the technical quality of the output, but also about who benefits from the given image of the past and whose voice is missing in its creation.

An important methodological principle follows from this: cultural heritage should use generative outputs only where it can maintain their connection to the evidentiary chain. A good system must be able to show which elements are derived from a source, which from expert estimation, which from analogical comparison, and which from model extrapolation. In other words, a smooth user experience is not enough; an explication of

the layers of uncertainty is necessary. In humanities and museological environments, acknowledging uncertainty is not a weakness, but a sign of methodological honesty. Generative AI can therefore support cultural literacy only when it educates the user not to trust a smooth output, but to understand what part of it is a document, what is a hypothesis, and what is statistical imagination (Ocón, Yin, and Luna, 2026; Derda and Predescu, 2025; UNESCO, 2022).

5.8 Data, Metadata, and the Power of Categories in the Era of Models

The second neglected level is the issue of data and metadata. Every generative model works with a specific selection of training materials and a specific representation of the world. In the field of cultural heritage, this means that the model does not work solely with artifacts, but also with how they were described, cataloged, and translated into data structures. Metadata, however, are not neutral. They reflect linguistic hierarchies, older classification schemes, colonial taxonomies, institutional preferences, and the availability of resources. Parry already showed that digitalization changes the museum also by converting its knowledge into systems of categories and records, which then retrospectively influence how objects are thought about (Parry, 2007). In a generative AI environment, these categories are even more important because they become not just a navigation aid, but also material for creating further outputs.

If the data base is unbalanced, the generated interpretations will also be unbalanced. This applies at the level of languages, regions, styles, and types of objects. Heritage from areas with rich digitalization infrastructure and dominant languages will be represented in models more than the heritage of smaller linguistic or regional traditions. The result can be a silent asymmetry: the model appears universal, but in reality, it offers a past filtered through data that was easiest to collect and process. Cameron and Kenderdine warned already with older digital heritage that technology does not eliminate discursive power relations; it only rearticulates them in new environments (Cameron and Kenderdine, 2007). Generative AI does not bypass this problem; on the contrary, it amplifies it, because it creates the illusion of seamless and general knowledge from unevenly represented records.

Therefore, it is essential to think of metadata as a part of cultural literacy. The user, student, and curator should be able to read not only the object but also its descriptive apparatus: what categories are used, what fields are missing, who filled them out, and what degree of uncertainty they carry. With generative AI, furthermore, the requirement for machine-readable attribution, recording of provenance, and terms of use emerges. If an institution cannot label, differentiate, and legally secure its data, it can hardly control later how its collections will be integrated into the broader AI ecosystem. Oruc therefore correctly shifts the discussion from the question "can cultural data be used?" to the question "under what rules, with what attribution, and with what legitimacy are they used?" (Oruc, 2025).

This level also has a practical consequence for participation. If digital cultural heritage is to be truly inclusive, it is not enough to open the interface to users. The processes of naming, annotating, and correcting data must also be opened up where professionally and ethically possible. Research on participation shows that engaging communities and young people increases not only involvement but also the quality and social legitimacy of working with heritage, as it broadens the spectrum of perspectives that enter the description and interpretation of objects (Giglitto et al., 2023; Zhang, Ikiz Kaya, and van Wesemael, 2024). In the era of generative AI, this means that cultural literacy must also include the ability to ask who has the right to change the data, correct model errors, and enter into the creation of representation. Without this layer, the participation will remain merely user comfort, not the co-creation of knowledge.

5.9 Didactic Implications for Schools and Universities

Specific didactic scenarios for the university and school environment follow from this. The most useful ones are not those in which a student simply generates text about an artifact, but those in which they compare different regimes of representation. It is pedagogically strong, for instance, to place side by side a catalog record, a curatorial text, an AI summary, and the student's own interpretation. The task then is not to choose the "nicest" text, but to identify what was added, lost, or shifted in each layer. Such an exercise teaches that text is not a neutral window onto an object, but the result of perspective, selection, and institutional framework. At the same time, it develops the

critical reading of AI outputs without moralizing and without technological fatalism (Ndungu, 2024; Tiernan et al., 2023).

The second type of exercise can be based on working with uncertainty. Students can be given a fragmentary set of sources and the task of creating two versions of interpretation: one strictly source-based and one cautiously generative, in which all extrapolations will be explicitly marked. Such a procedure is more valuable than the boundless use of a generator because it shows that imagination has a place in humanities knowledge, but only when we know its limits. In the didactics of cultural heritage, this is extremely important: the student learns not only to gather information but also to discipline their own conjecture. Generative AI can be useful in this process as a partner that provides suggestions, not as an authority that closes the interpretation.

The third scenario concerns the participation and dialogue. If we understand cultural literacy dialogically, as proposed by Maine, Cook, and Lähdesmäki, then AI should not close meaning into one smooth answer, but it should open a space for comparing perspectives, formulating questions, and thinking about why different groups might view the same object differently (Maine, Cook, and Lähdesmäki, 2019). Teaching can therefore work with tasks in which students design a prompt so that the system displays conflicting interpretations, different community views, or a certain degree of uncertainty. Such use of AI has a higher value than a simple acceleration of text production because it leads to a reflection on methodology and not just to efficiency.

Finally, educational practice should systematically connect media, information, data, and cultural literacy. UNESCO frameworks emphasize that literacies for the contemporary world have a civic and ethical dimension, not just a technical one (UNESCO, 2021; UNESCO, 2022). In the field of digital cultural heritage, this means that a student should be able to work with a database, an expert text, visual material, and an AI tool, but at the same time be able to defend why a certain output is methodologically acceptable and another is not. The true goal is not a higher prompting skill, but a higher ability to bear the interpretative responsibility. And this is precisely where the difference between superficial digital competence and cultural literacy in the full sense of the word becomes apparent.

5.10 Principles of Responsible Use of Generative AI in Cultural Heritage

If schools, universities, museums, galleries, and archives are to use generative AI in a responsible way, they need several relatively strict principles. First, generative output must not be presented as the equivalent of a historical source. It can serve as a didactic aid, a hypothetical visualization, or an access layer, but its status must be explicitly labeled. Second, every institution should be able to explain what sources the model draws from, what is curatorially validated, and what is merely probabilistically generated. Third, systems should maintain a link to the original records, metadata, and expert commentary so that the user can move from the summary to the source. Fourth, with sensitive or community-bound heritage, it is necessary to account for the right to restriction, non-disclosure, or a different regime of use. Fifth, evaluating the success of AI tools should not rely solely on the level of user engagement, but also on the quality of understanding, the error rate, and whether the tool produces a distorted image of the past (Derda a Predescu, 2025; Menotti, 2025; UNESCO, 2022).

These principles are also important because, in the field of cultural heritage, innovativeness is easily mistaken for value. Not every personalization is a benefit. Not every visualization is illuminating. Not every conversational agent increases understanding. Some solutions merely accelerate the consumption of culture, reduce complexity to short answers, and reinforce the illusion that the past is immediately accessible without effort and without the need for interpretation. A robust implementation of AI in heritage must therefore remain faithful to the slower values of humanities knowledge: accuracy, context, justification, plurality of perspectives, and the ability to acknowledge uncertainty.

A broader conclusion for cultural policy and educational strategies also follows from this. Generative AI should not be understood as a tool that automatically democratizes access to culture. Democratization does not arise from technology itself, but from a combination of technology, curatorial standards, open and responsibly managed data, community participation, and pedagogical frameworks that guide the user from comfortable consumption to reflected understanding. Without this combination, AI can expand access

at the interface level, but simultaneously narrow cultural understanding to the level of a quick, smooth, and rarely questioned answer.

The transition from media to cultural literacy in the context of generative artificial intelligence is a response to the change in the very nature of the digital environment. It is no longer enough to teach the user to read media, verify information, and recognize manipulation in ready-made content. They must be taught to work with an environment in which cultural meaning is generated, rearranged, and personalized by machines, often without an obvious boundary between document, interpretation, and synthesis. Digital cultural heritage is a key testing ground in this process because it combines technology with memory, representation, identity, and authority.

Literature shows that generative AI can genuinely help in the field of heritage: improving access, multilingualism, navigation, educational experience, or certain forms of documentation and visualization (Münster et al., 2024; Ariya et al., 2025; Silva a Oliveira, 2024). At the same time, however, it creates new problems that cannot be solved purely technically: hallucinations, decontextualization, the weakening of historical fidelity, legal ambiguity, and the extractive handling of cultural data (Menotti, 2025; Oruc, 2025; Ocón, Yin a Luna, 2026). Therefore, it is crucial that AI in cultural heritage is not used as a cheap shortcut to an impressive digital experience, but as a tool subordinated to curatorial and pedagogical responsibility.

Cultural literacy for the age of generative AI thus means the ability to understand sources, contexts, regimes of representation, the limits of models, and the ethics of working with the past. It also means the ability to resist the temptation to mistake the fluency of output for knowledge. It is precisely in this discipline that it is decided whether generative AI in the field of digital cultural heritage will serve a deeper understanding or merely the accelerated circulation of cultural simulations.

6 BIBLIOMETRIC MAPPING VIA VOSVIEWER

Qualitative interviews (N = 9) were processed in the study as thematic coding and cross-case synthesis, with the aim of capturing definitions of media literacy, connections to cultural heritage, the impacts of digitalization and generative AI, and deriving practical decision-making rules from these statements.

In this design, however, the interviews do not tell "where" and "how strongly" individual concepts are established in the international scientific discussion – they rather provide a micro-level of meanings, dilemmas, and normative requirements.

Therefore, bibliometric mapping in VOSviewer is included as a second method, fulfilling three functions:

- **Contextualization of empirical findings** – it will show whether (and where) stable research communities exist around the concepts of media literacy, cultural literacy, and digital cultural heritage, and thus whether we are working with concepts with a robust research background or with fragmented/regionally bound concepts.
- **Triangulation** – the interviews define what experts consider to be the core of media literacy (ethics, verification, working with sources), while the maps show the macro-structure of knowledge production (co-authorship by country) and thus indirectly also the "centers of gravity" of research traditions.
- **Intersections between theory and practice** – in the discussion from the interviews, media literacy is interpreted as an epistemic and ethical competence (not merely technical know-how), while in the field of cultural heritage, the importance of source discipline, context, and responsibility for interpretation is growing.

VOSviewer serves here as a check of whether this framework is compatible with how the fields (media literacy vs. cultural literacy vs. digital cultural heritage) are actually organized in the literature.

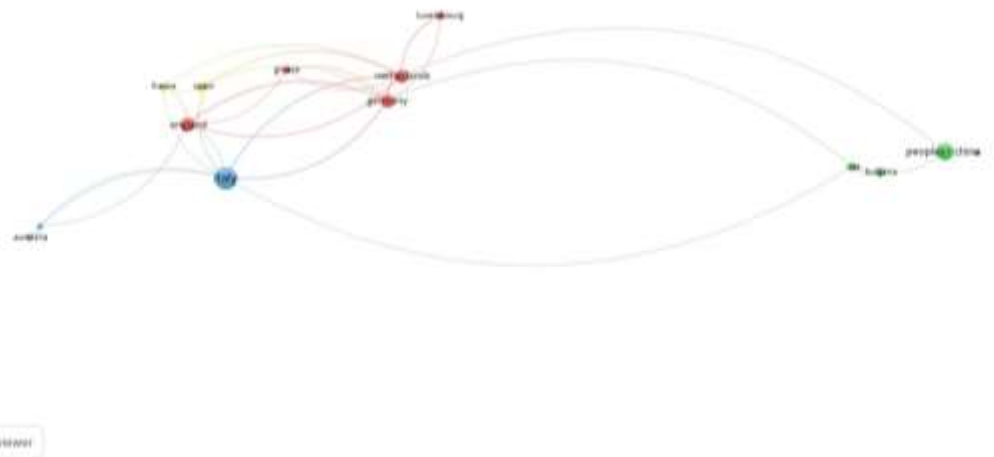
Data and Parameters (as stated in the document) VOSviewer was used for three search terms with a time window of 2010–2026:

- **Digital Cultural Heritage** – 126 results, threshold for countries: min. 3 documents and min. 5 citations.
- **Cultural Literacy** (there is a typo "Culutral" in the original document) – 165 results, same thresholds.
- **Media Literacy** – 1370 results, same thresholds.

Note on Reproducibility (important): The text does not explicitly state from which database the records were exported (Scopus/WoS/Dimensions...) nor the type of map (co-occurrence vs. co-authorship). From the attached visualizations, however, it is evident that these are country co-authorship maps. If this is to be a fully-fledged "2nd method", adding the data source and map type to the methodology has a high ROI: it costs 2–3 sentences but significantly increases defensibility.

How to Read the Maps (minimum interpretation rules)

- **Node (country):** size ~ publication output/weight of the country in the given corpus.
- **Edge:** co-authorship tie; thickness ~ the strength of collaboration.
- **Color:** cluster (community), i.e., a group of countries with relatively more intensive ties.
- **Distance:** the closer they are, the more frequent/tighter the ties.



Input: search term *Digital Cultural Heritage*, 126 results; minimum 3 documents and 5 citations per country.

The map shows a relatively compact European core (the strongest node is Italy) intertwined with countries such as Germany, the Netherlands, England, France, Spain, Greece, Luxembourg, while a periphery is also visible in the space (e.g., Australia). On the opposite side of the map, there is a more independent cluster with China (People's Republic of China) connected to the USA (and a smaller node for Bulgaria), with the connection between the European core and the Chinese cluster represented by longer ties (i.e. collaboration exists, but structurally they are two different "production" areas).

In this visualization, digital cultural heritage is "institutionally" and regionally anchored. This is compatible with what the interviews identify as the need to protect evidentiary integrity and work with inventory links, metadata, audit, and versioning (code AI-METADATA).

Although the VOSviewer map is not thematic (it does not show concepts), the structure of collaboration by country suggests that the "center of gravity" of digital heritage is tied to environments where memory infrastructure is traditionally strong – and it is precisely there that the respondents' emphasis on procedural brakes before publishing and recording (code AI-HITL) and on transparent labeling of reconstructions (code AI-OZNAC) makes logical sense.

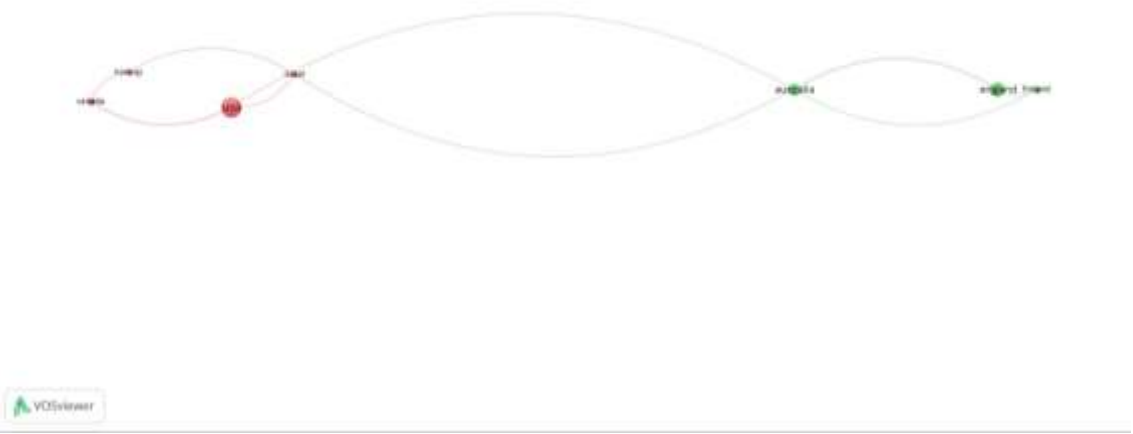
At the same time, the map supports the central dilemma from the interviews: digitalization increases accessibility (DIGI-DOSTUP), but simultaneously threatens a loss of context and authenticity during superficial consumption (DIGI-KONTEXT).

In practice, this dilemma manifests itself precisely in the digital heritage environment: international cooperation (edges) naturally pushes for standardization and scaling – which increases the risk of context reduction if it is not curatorially "pinned" to the object.

What to monitor (critically): the country map itself cannot confirm what exactly these communities are writing about (AI vs. metadata vs. education). If you want the connection to the codes to be firmer (not just interpretive), you need at least a key-word co-

occurrence map for the same corpus (this is 5–10 minutes of work in VOSviewer, but it will significantly increase the quality of the empirical chapter).

Figure 5: Cultural Literacy – map of co-authorships by country (2010–2026)



Input: search term *Cultural Literacy*, 165 results; thresholds the same.

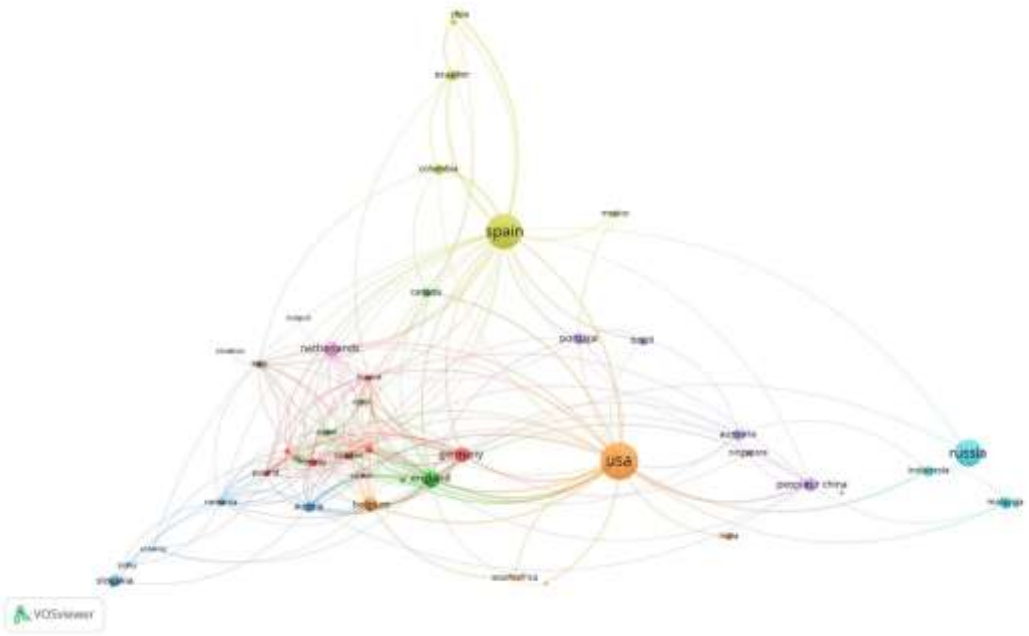
This map is remarkably sparse compared to media literacy: it displays a small number of countries above the threshold and a low density of ties. The more dominant node is the USA, which forms the core of a smaller cluster (connected to Canada and Norway) and is connected via Israel towards a second cluster, where Australia appears along with a very tight pair of England – Finland. Overall, it is a field with less global diffusion and weaker connections at the level of international co-authorships.

This fragmentation is important for the theoretical aim of the work, connecting media and cultural literacy: it indicates that "cultural literacy" is not as consolidated an empirical concept as "media literacy" (lower number of countries and weaker ties). In the logic of the interviews, this explains why respondents do not approach literacy as a technical skill, but as interpretation, responsibility, and work with meaning (code MG-DEF-ETIKA).

When a field is not consolidated, a plurality of definitions emerges more easily – and thereby the importance of explicit verification rules and source discipline grows (code MG-OVEROVANIE).

From a practical point of view, this also supports a recommendation from the interviews: in popularization and media formats, context and source tracing must be strengthened, because without this, cultural meanings are reduced to attractions or conflict framing.

Figure 6: Media Literacy – the map of co-authorships by country (2010–2026)



Input: search term *Media Literacy*, 1370 results; thresholds the same.

Unlike the previous map, media literacy is a massively widespread and network-dense field. The largest nodes are formed by Spain and the USA, with multiple clusters displaying strong ties in Europe (e.g., the Netherlands, Germany, England, France, Belgium), as well as connections toward non-European nodes (e.g., China, India, Australia) and more independent regional connections (e.g., a cluster around Russia with ties to Malaysia and Indonesia). Slovakia is also present in the map (a smaller node), which is relevant, given the local context of the work.

While “cultural literacy” appears as a conceptually dispersed field, “media literacy” is clearly established here: a large number of results and many countries above the threshold indicate the high institutionalization of the concept in education, communication, and social science disciplines. This corresponds to the fact that the research in the study targets

core competencies and their practical consequences (VO1–VO5) – and the interviews shift them into the realm of epistemic and ethical responsibility.

The coding framework shows two "axes" of defining media literacy:

- Ethical-critical (MG-DEF-ETIKA)
- Information-systemic (MG-DEF-IS)

Particularly in a globally expanded field (as the map above shows), the requirement that media literacy should not be narrowed down to "platform mastery" but should include verification, triangulation, and working with sources (MG-OVEROVANIE) has a high ROI.

The reason is pragmatic: the more actors and discourses there are, the higher the risk of noise, normative ambiguity, and misuse (which the interviews also name via the risks of deepfakes and the erosion of trust).

Since the VOSviewer maps are built on the search terms *media literacy/cultural literacy/digital cultural heritage* without an explicit "AI" filter, the map itself does not isolate the AI topic. Nevertheless, it is methodologically fair to deduce: precisely the robust field of media literacy (a global network) is the most suitable "carrier" for implementing minimum standards (labeling, fact-checking, separating news from commentary), which are formulated in the work as cheap and effective procedural brakes.

Integrative Synthesis – What VOSviewer Adds to the Interviews and Vice Versa

- **VOSviewer shows** that *media literacy* is a massively established field (1370 records; dense and global network), while *cultural literacy* is sparse in terms of networks and *digital cultural heritage* is more regionally structured (a distinct European core + more independent clusters).
- **The interviews give this macro-picture normative and practical content:** the core is not technology, but responsibility, sources, context, and procedural brakes (MG-DEF-ETIKA, MG-OVEROVANIE, DIGI-KONTEXT, AI-METADATA, AI-HITL, AI-OZNAC).

- **The result is consistent with the main practical conclusion of the work:** the highest ROI measures are not "more technology" but transparency, verification, and curatorial context – because without them, the risk of reducing heritage to an attraction and the risk of the long-term spread of bias increase.

Qualitative interviews with experts (N=9) provided us with an in-depth insight into meanings and ethics (micro-level), but they could not answer the question of the global context for us. We included VOSviewer in order to:

- **Contextualize findings:** We found out whether the concepts we are discussing (media/cultural literacy) are firmly established in the world or whether they are merely marginal.
- **Perform triangulation:** We verified whether what experts in the interviews consider important aligns with how scientific research is actually organized globally.
- **Identify scientific "centers of gravity":** The map showed which countries and communities determine trends in a given field.

The finding that cultural literacy is sparse in terms of networks is crucial for your work for the following reasons:

- **Scientific opportunity:** There is room for a more precise definition of this concept, as international debate is currently fragmented.
- **The need for interpretation:** Since the field is not "set in stone" by technical standards, the explicit rules of verification and source discipline that emerged from your interviews have all the greater significance.
- **The risk of reduction:** Weak scientific consensus increases the risk that cultural heritage in the digital space will be reduced to a mere "attraction" without a deeper context.

VOSviewer showed that although the fields are technologically interconnected, the interviews clearly state that the core of success is not "more technology" but human responsibility (curation, ethics, labeling AI).

In the environment of the global noise (especially regarding media literacy), the most effective solution is the so-called "cheap procedural brakes" – the source verification and transparency, which prevent the erosion of trust in the digital age.

In order to increase the scientific value, it is advisable to explicitly state in the methodology that these are maps of co-authorships by country, which proves the degree of international cooperation in the given topics.

Figure 12 Key findings by area

Area	Finding from VOSviewer	Interpretation via interviews
Media Literacy	A massive and dense field (1370 results). A globally connected network (USA, Spain, Europe, China).	Confirms high institutionalization. It is an ideal "carrier" for introducing the rules of ethics and verification that respondents propose.
Digital Cultural Heritage	A compact European core (Italy, Germany). Clear regional anchoring to countries with a strong history.	Aligns with the respondents' need to protect "evidentiary integrity". An emphasis on metadata makes logical sense where there is a strong archive infrastructure.
Cultural Literacy	A sparse and fragmented field (only 165 results). A small number of countries, weak ties.	Shows that this concept is not scientifically established. This explains why respondents perceive it philosophically and ethically rather than technically.

7 EVALUATION OF INTERVIEWS WITH RESPONDENTS

Media literacy, cultural heritage, digitalization, and generative AI (N=9). A research sample of 9 practitioners (academics, curators, documentarians, and managers) provided an in-depth perspective on the transformation of media literacy. The analysis showed that in the digital environment, there is a shift from technical skills towards epistemic and ethical responsibility.

7.1 Methodology and Analytical Procedure

The dataset consists of 9 semi-structured interviews. The analysis is processed as thematic coding with a subsequent cross-case synthesis. Procedure: (1) identification of recurring themes and contrasting viewpoints, (2) creation of a coding framework (codes for definitions of media literacy, mechanisms of media influence, impacts of digitalization, risks of AI, and proposals for rules), (3) selection of representative quotes, (4) simple quantifications of explicit mentions of AI (frequencies). The quantifications are indicative (not statistical testing) and serve as a “map of recurrences” in the data.

In the interpretation, dilemmas and decision-making rules that have a direct impact on practice are highlighted: where costs and risks are low and benefits are high (high ROI), and where caution or procedural brakes are necessary.

7.2 Respondents and Their Perspectives

Figure 13 Respondents and their perspectives

Code	Orientation/Perspective
R1	Associate Professor at a university (academic environment – critical and ethical competencies)
R2	Associate Professor at a university (academic environment – IS/digitalization)
R3	Bookstore Manager (praxis – book market/content)
R4	Curator of an ethnographic department (fieldwork, context, traditions)
R5	Curator of fine arts (attribution, provenance)
R6	Curator of a theatrology department (interpretation, archive)
R7	Head of the social sciences department (polarization, trust)
R8	Head of mediamatics and cultural heritage (systems, practice, education)
R9	Documentarian in a museum (memory institution – recording)

Figure 14 Typological summary (dominant interpretative framework):

Code	Dominant framework
R1	Normative-critical + ethical framework (sources, responsibility, epistemic status of claims)
R2	Technical-systemic framework (IS, metadata, audit, institutional processes)
R3	Market-practical framework (content quality, trust, reviews, flooding with texts)
R4	Cultural-anthropological framework (context, tradition, the risk of fabulation and "new traditions")
R5	Curatorial-provenance framework (attribution, authenticity, the boundary of the virtual)
R6	Archival-interpretative framework (sensitivity, record, the risk of synthetic archives)
R7	Socio-political framework (polarization, trust, algorithmic manipulation)
R8	Process-management framework (rules, labeling, law/licenses, human-in-the-loop)
R9	Recording-documentary framework (inventory, control, accuracy before publishing)

7.3 The Main Objective of Research

The main objective of research is to map how experts from academia, memory/cultural institutions, and practice define media literacy in the digital age and how they connect it with the protection and mediation of cultural heritage; specifically to identify the impacts

of digitalization and generative AI on authenticity, trust, and recording, and to name minimum verification standards and rules for institutional practice.

7.4 Research Questions, Expanded Interpretations, and Evidence from Interviews

RQ1: How do respondents define media literacy, and which competencies do they consider core?

It repeatedly emerges in the answers that media literacy is not a single "skill" but a package of competencies in three layers: (a) an epistemic layer (sources, verification, the ability to distinguish the fact from interpretation), (b) a technical-systemic layer (orientation in platforms, information systems, databases, and formats), and (c) an ethical-civic layer (responsibility, resilience against manipulation, the ability to work with uncertainty and admit limits). The differences between the respondents are not contradictory; rather, they accentuate a different location of the "weak link": academic and curatorial perspectives shift the center of gravity to source discipline, praxis (the book market) to the credibility and quality of content amid an overabundance, and leading/ management positions to processes and rules.

The lack of systematic development of media literacy in education and the rapid pace of technological change emerge as a practical problem. This is a critical point: if competencies are built only "retrospectively" (reactively), technology always runs ahead. Therefore, the data implies that a sustainable long-term approach is not to teach specific platforms, but to teach a source and verification protocol that is transferable.

Key subthemes (codes) and their significance in the data:

- Critical analysis of sources and verification (triangulation, multiple sources, cataloging authorities).
- Orientation in information overload (the ability to select the essential).
- Ethics and responsibility (what is "help" and what is "fraud"; admitting uncertainty).
- Cultural and historical context (interpretation of symbols, memory, social framework).

- Practical application in a real media environment (not fragmented, but across subjects and tasks).

Illustrative statements (selection):

- **R1** (Q1 (definícia)): „Mediálna gramotnosť chápem ako súbor analytických, kritických a etických kompetencií, ktoré umožňujú jednotlivcovi rozumieť mediálnym obsahom, hodnotiť ich dôveryhodnosť, identifikovať manipulatívne stratégie a aktívne sa zapájať do mediálnej komunikácie“.
- **R2** (Q1 (definícia)): „Ako základné poznanie a orientovanie sa v informačných systémoch, digitálnych technológiách a sociálnych sieťach so schopnosťou vybrať a rozlišovať relevantné informácie“.
- **R3** (otázka 1): „Pre mňa ako manažéra kníhkupectiev je mediálna gramotnosť kľúčová či už pre čitateľa aj pre spoločnosť. Ide o schopnosť kriticky vyhodnocovať informácie, rozlišovať spoľahlivé zdroje od dezinformácií a orientovať sa vo veľkom množstve digitálneho obsahu. V dobe online recenzií, e-kníh a sociálnych médií je to nevyhnutná zručnosť, aby ľudia vedeli vybrať kvalitné publikácie a informácie, ktoré im naozaj prinesú hodnotu“.
- **R9** (otázka 1): „Ako dokumentátor v múzeu vidím mediálnu gramotnosť ako jednu zo základných zručností súčasného človeka. Je to schopnosť kriticky pristupovať k informáciám, vyhodnocovať ich relevanciu a overovať ich spoľahlivosť. V digitálnej dobe, kedy sú informácie okamžite dostupné a často aj skreslené, je to pre návštevníkov múzea, aj pre odbornú verejnosť, kľúčové. Bez nej by bolo ťažké rozlišovať medzi kvalitným historickým výskumom a napríklad zavádzajúcimi článkami“.
- **R4** (Q1 (definícia)): „Mediální gramotnost vnímám jako naprosto klíčovou schopnost pro porozumění současnosti a nezbytnou součást výbavy všech obyvatel, kterou by měli získat zejména prostřednictvím školního vzdělávání. V dnešní záplavě informací digitálního světa je nemožné postihnout vše a je pro správné a kvalitní rozhodování je důležité umět poznat, co je podstatné. A velkou výzvou bude nepochybně umělá inteligence a její rozvoj v budoucnosti“.
- **R5** (Q1 (definícia)): „V dnešním digitálním světě jsme přehlceni informaci a informačními zdroji. Mediální gramotnost je tedy důležitější než kdy dřív. Pojem

vnímám jako schopnost vyhledat informace a následně je kriticky zhodnotit, umět si informace ověřit z více zdrojů. Vlivem řady dezinformačních webů je to stále obtížnější, a především lidé se sníženou mírou kritického myšlení jsou vystaveni enormnímu tlaku dezinformací“.

- **R6** (Q1 (definícia)): „Možnost vyhledávat řadu informací, pracovat s nejrůznějšími databázemi, které shrnují důležité údaje z nejrůznějších oborů v rámci celého světa. Zároveň je nutno k těmto zdrojům přistupovat s obezřetností, informace nepřebírat automaticky a dávat důraz na kritické myšlení“.
- **R7** (otázka 1): „Mediální gramotnosť vnímám jako základní dovednost, která úzce souvisí s kritickým myšlením a schopností vyhledávat, vyhodnocovat a interpretovat informace. V digitální době, kdy je přístup k informacím téměř neomezený a kdy jsou informace často fragmentární, zkreslené nebo účelově manipulované, je schopnost rozlišit relevantní a spolehlivé zdroje naprosto klíčová. Mediálna gramotnosť zahrnuje nejen práci s textem, ale i vizuálními a multimediálními formami obsahu, rozpoznávání dezinformací a schopnost uvědoměle reagovat na mediální sdělení“.
- **R8** (Q1 (definícia)): „Mediálnu gramotnosť v súčasnej digitálnej dobe vnímam ako základnú kompetenciu, ktorá zahŕňa schopnosť rozumieť tradičným aj digitálnym médiám, kriticky pracovať s informáciami a orientovať sa v informačnom pretlaku. Z pohľadu vzdelávania a praxe v digitálnych humanitných vedách sa stáva kľúčovým predpokladom pre zodpovednú prácu s obsahom, schopnosť identifikovať manipulácie a aktívne sa zapájať do digitálneho priestoru s vedomím jeho technologických aj spoločenských súvislostí“.
- **R1** (Q8 (zručnosti)): „Kritická analýza zdrojov, porozumenie mediálnym formátom, schopnosť interpretácie kultúrnych symbolov, digitálna etika a základná orientácia v historickom a kultúrnom kontexte“.
- **R2** (Q8 (zručnosti)): „Za kľúčové v každej dobe považujem záujem o veci verejné, chcieť sa niečo dozvedieť a poznať, mať širší kultúrny rozhľad. Nepoznať a neovládať len technické prostriedky a technologické vymoženosti, nespoliehať sa celkom na ne, ale byť schopný a ochotný ich zdokonaľovať a keď je potrebné aj nechať „ľadom“. Mať vždy na pamäti známe „cogito ego sum““.

- **R3** (otázka 8): „Kritické myslenie, schopnosť overovať informácie, porozumieť kontextu a interpretovať obsah či už ide o text, video alebo digitálnu knihu. Rovnako dôležité je porozumenie digitálnym platformám, recenziám a algoritmom, ktoré určujú, čo vidíme online“.
- **R9** (otázka 8): „Predovšetkým kritické myslenie, schopnosť overovať informácie, analytické schopnosti a schopnosť interpretovať historický a kultúrny kontext. Rovnako dôležité je porozumenie digitálnym nástrojom a schopnosť orientovať sa v online obsahu“.
- **R4** (Q8 (zručnosti)): „Považuji za klíčovou schopnost orientovat se v záplavě informací dnešní doby, stejně jako schopnost rozeznat pravdivé informace podložené fakty od polopravd, spekulací až po lži a fake news. Důležité je podle mě i zachovat si otevřenost vůči jiným názorům a neuzavírat se do názorové a informační bubliny“.

RQ2: What links between media literacy and the protection of cultural heritage do respondents consider key?

The link between media literacy and the protection of cultural heritage is formulated in the interviews as a chain of effects: a media-literate audience -> better recognition of value and context -> higher public support for protection and more sensitive decision-making (both political and individual) -> less room for trivialization, commercialization, and purposeful rewriting of history. At the same time, a second, institutional link appears: media literacy is not just a characteristic of the “audience” but also an internal competence of institutions working with digital representations (archives, museums, galleries). If institutions fail to manage source and recording processes digitally, they lose the ability to guarantee the authenticity.

The interviews also suggest that the potential of digital technologies for the benefit of heritage is often underutilized: digitalization can increase accessibility and awareness, but without curatorial interpretation and without context, it turns into an “archive without reading”. This is also important for setting public policies: investment in digitalization makes sense if it goes hand in hand with interpretation and the protection of originals.

Illustrative statements (selection):

- **R1** (Q2 (MG x KD)): „Áno. Mediálna gramotnosť zvyšuje schopnosť verejnosti rozpoznať hodnotu kultúrneho dedičstva, chápať jeho historický kontext a kriticky pristupovať k jeho mediálnym reprezentáciám, čím prispieva k jeho ochrane pred trivializáciou či komercializáciou“.
- **R2** (Q2 (MG x KD)): „Áno, hoci stále u nás s málo využitým potenciálom. Najmä v rámci využiteľnosti nových digitálnych technológií priamo pri ochrane kultúrneho dedičstva (napr. archívne dokumenty a historické knižničné fondy), ale aj v rámci dostupnosti, propagácie a osvety ochrany kultúrneho dedičstva“.
- **R3** (otázka 2): „Určite. Knihy, literatúra a tlačené dokumenty sú súčasťou kultúrneho dedičstva. Ak ľudia nedokážu kriticky posúdiť informácie, môže dôjsť k šíreniu skreslených faktov alebo zanedbaniu významu literárnych a historických diel. Mediálna gramotnosť pomáha zákazníkom správne interpretovať historické knihy, literárne klasiky či odborné publikácie, čo priamo podporuje uchovanie kultúrneho dedičstva“.
- **R9** (otázka 2): „Určite áno. Dezinformácie môžu skresliť pohľad verejnosti na históriu či význam pamätihodností. Ako dokumentátor často sledujem, že nesprávne interpretované fakty môžu média ovplyvniť verejnú podporu pre obnovu či ochranu pamiatok. Mediálne gramotní občania dokážu rozlíšiť, čo je overené a dôveryhodné, čo priamo prispieva k ochrane autenticity a hodnoty kultúrneho dedičstva“.
- **R4** (Q2 (MG x KD)): „Ochrana kulturního dědictví není možná bez dostatečných znalostí a schopností, jednou z nich je nepochybně i mediální gramotnost. Schopnosti rozeznat skutečnost od fabulace, formulovat vlastní myšlenky, orientování se v textech, to vše je nezbytné při péči o hmotné i nehmotné kulturní dědictví“.
- **R5** (Q2 (MG x KD)): „Souvislosti zde určitě jsou. Já jako historik umění musím neustále pracovat s prameny. V minulosti se za prameny považovaly obvykle jen dokumenty uložené v archivech, tištěná periodika, knihy a samotná umělecká díla. Dnes je spektrum zdrojů daleko širší a díky postupné digitalizaci a zveřejňování na webu (např. online katalogy sbírek muzeí a galerií, web digitalniknihovna.cz ad.) jsou také dostupnější i pro laickou veřejnost. Ochranu spatřuji především v

tom, že se omezila manipulace s archiváliemi a sbírkovými předměty, jelikož už se nepředkládají badatelům fyzicky, ale jsou k dispozici online“.

- **R6** (Q2 (MG x KD)): „V dnešním globálním světě, který je značně ovlivněn digitalizací ano. Mediální gramotnost je téměř zásadní pro propagaci kulturního dědictví a rovněž je účinným zdrojem informací ke sdílení nových poznatků, identifikace, včetně jejich ochrany, případně záchrany. A to jak v oblasti odborné, tak i široké veřejnosti. Možnost digitalizace a sdílení databází přináší nové poznatky v mnohem větším kontextu a šíři než dříve“.
- **R7** (otázka 2): „Ano, souvislost je přímá. Dezinformace mohou zkreslit informace o kulturním dědictví – od historie památek, přes jejich význam, až po současné projekty obnovy či ochrany. Mediálně gramotní občané jsou schopni rozlišit kvalitní odborné zdroje od spekulativních informací, což je klíčové pro ochranu autenticity a hodnot kulturního dědictví. Například mediální pokrytí sporných rekonstrukcí nebo demolic památek často ovlivňuje veřejné mínění a podporu pro jejich zachování či zánik“.
- **R8** (Q2 (MG x KD)): „Áno, umožňuje lepšie porozumieť hodnotám historických a kultúrnych objektov, kriticky interpretovať informácie o minulosti a rozpoznávať skreslené či manipulatívne interpretácie dejín“.
- **R1** (Q6 (udržateľnosť)): „Výrazne. Mediálne gramotní občania robia informovanejšie rozhodnutia, sú odolnejší voči dezinformáciám a aktívnejšie sa zapájajú do verejnej diskusie, čo je predpoklad sociálnej a kultúrnej udržateľnosti“.
- **R2** (Q6 (udržateľnosť)): „Určite a veľmi, už len v kontexte boja s hoaxami a fejkami, ale i bagatelizácie a relativizácie nepríjemných stránok našej histórie zo strany viacerých politikov. Navyše aj v rámci potláčania nesystémových a demokraciu ohrozujúcimi trendov“.
- **R3** (otázka 6): „Veľmi. Mediálne gramotní zákazníci sú schopní lepšie vyberať kvalitné knihy, odborné zdroje a literatúru, ktorá má hodnotu pre vzdelávanie a kultúrny rozvoj. To podporuje udržateľnú kultúrnu spotrebu a zároveň posilňuje kritické myslenie, ktoré je základom zodpovedného občianstva“.

RQ3: How do respondents describe the impact of media on the public perception of cultural heritage, and what are the resulting consequences?

Respondents name at least four mechanisms of media influence: (1) agenda-setting and narrative framing (what is shown as "heritage" and in what story), (2) attention economy (preference for the dramatic, conflict, and attractions), (3) crisis and polarizing framing on social networks (especially when heritage is threatened), (4) direct market impact in the area of books and cultural products (what is sold/ read after media exposure).

A central dilemma arises from this: media are simultaneously an "engine of visibility" and an "engine of reduction". Popularization increases interest and can strengthen financing, but it simultaneously threatens to reduce heritage to an attraction or make it a tool for purposeful interpretation. Therefore, a high ROI intervention is strengthening contextual formats (curatorial explanations, expert documents) and a clear distinction between facts and commentary.

Illustrative statements (selection):

- **R1** (Q3 (vplyv médií)): „Médiá formujú selektívny obraz kultúrneho dedičstva prostredníctvom agendy a naratívov. Napríklad prezentácia hradov výlučne ako turistických atrakcií potláča ich historický a spoločenský význam v prospech zážitkovej spotreby".
- **R2** (Q3 (vplyv médií)): „Zvyčajne vytvárajú pozitívny obraz o kultúrnom dedičstve a potrebe jeho ochrany a začlenení do súčasného života spoločnosti (najmä vzdelávacie programy vo verejnoprávnej televízii, napr. Slovensko v obrazoch). Téma kultúrneho dedičstva sa pomerne často objavuje aj na sociálnych sieťach, no predovšetkým, keď je ohrozené alebo keď sa niečo dramatické stalo. Vtedy však často s veľmi jednostranným, negatívnym až nenávistným hodnotením stavu jeho ochrany a prezentácie".
- **R3** (otázka 3): "Média majú veľký vplyv na to, čo sa predáva a čo sa číta. Napríklad po vydaní dokumentárnych reportáží o historických udalostiach alebo populárnych historických románoch sa zrazu zvýši záujem o knihy s týmto obsahom. Ako príklad môžem uviesť zvýšený predaj kníh o československej histórii po mediálnych reportážach o sto rokoch od vzniku Československa.

Médiá tak formujú verejný záujem o kultúrne dedičstvo aj prostredníctvom literatúry“.

- **R9** (otázka 3): „Média často určujú, ktoré pamiatky alebo projekty sa dostanú do povedomia verejnosti. Napríklad pri diskusiách o budove Transgas v Prahe alebo železničnom moste cez Vltavu bolo jasne vidieť, ako mediálne pokrytie formuje názory. Zároveň interpretujú aktivity občianskych iniciatív, neziskových organizácií či odbornej komunity, čo ovplyvňuje, či verejnosť vníma zachovanie pamiatky ako dôležité, alebo podporuje jej odstránenie“.
- **R4** (Q3 (vplyv médií)): „Vliv médií v této oblasti je obrovský. Jsou to právě média, která propagují kulturní dědictví a zásadně ovlivňují jejich vnímání společností. Právě díky médiím se z některých předmětů stávají skvosty a unikáty, pro jejichž shlédnutí absolvují lidé dlouhé cesty a investují nemalé peníze. Za příklad z poslední doby bych mohl uvést obraz císařovny Alžběty, který je součástí naší stálé expozice. V letošním roce byl zapůjčen do jiného muzea a toto zručně využilo média, které z daného obrazu udělaly unikát evropského významu (čímž nechci umenšovat význam tohoto díla). Tato mediální kampaň, která měla nadregionální dosah, ve svém důsledku výrazně zvýšila návštěvnost celé instituce, která si obraz zapůjčila“.
- **R5** (Q3 (vplyv médií)): „Média mají v tomto ohledu neuvěřitelnou sílu a moc. Hodnota nějakého historického artefaktu není dána jen jeho dokumentační hodnotou, dobou vzniku či osobou s ní spjatou. Ale také nějakým veřejným povědomím. Historický artefakt, který se opakovaně objevuje v médiích, je jakoby „cennější“. Média rovněž významně ovlivňují cestovní ruch a s ním spojené výdělky paměťových institucí. Dalším aspektem je šíření povědomí o kulturním dědictvím mezi těmi, kteří by jinak sami památky, muzea apod. Nevyhledávali“.
- **R6** (Q3 (vplyv médií)): „Vedle tradičních médií – televize, rozhlas, tisk, ale i film, včetně dokumentárního, je to zejména internet a jeho nejrůznější webové stránky, ale i sociální sítě (Facebook, Instagram a další, např. i zájmové skupiny, které si vytvářejí tematicky zaměřené bloky – např. Stará Opava), v televizi např. pořad Historie.cz. Výběr sdělení prostřednictvím médií rozhoduje, čemu je věnována pozornost, v návaznosti na čase, atraktivnosti tématu i schopnosti jeho prezentace

a šíře záběru, jak velká skupina se stane konzumenty. Pozornost většinou strhává ojedinělý příběh prezentovaný nevšedním způsobem“.

- **R7** (otázka 3): „Média formují veřejné povědomí o kulturním dědictví prostřednictvím reportáží, komentářů, dokumentů a diskusí. Často určují, které památky nebo projekty získají pozornost veřejnosti a politiků. Konkrétní příkladem jsou kauzy rekonstrukcí památek brutalistní architektury v České republice, například budova Transgasu v Praze nebo železniční most přes Vltavu. Média zde interpretují postoje občanských iniciativ, neziskových spolků i státních institucí, čímž mohou ovlivnit, zda veřejnost vnímá zachování památky jako prioritu, nebo naopak podporuje její odstranění“.
- **R8** (Q3 (vplyv médií)): „Podľa môjho názoru médiá výrazne ovplyvňujú spôsob, akým spoločnosť vníma kultúrne dedičstvo, pretože rozhodujú o tom, ktoré témy a objekty sa dostanú do verejného priestoru a akým spôsobom sú interpretované. Konkrétnym príkladom je jednotlivá popularizácia historických lokalít prostredníctvom sociálnych sietí a videoplatformiem, kde atraktívne vizuálne spracovanie často vedie k zvýšenému turizmu a záujmu o dané miesto“.
- **R1** (Q5 (prítomnosť KD)): „Je prítomné skôr epizodicky a často utilitárne. Prínosom je zvýšená viditeľnosť, rizikom je redukcia komplexných javov na zjednodušené mediálne formáty bez hlbšej interpretácie“.
- **R2** (Q5 (prítomnosť KD)): „Myslím, že v poslednom období stále viac a viac a to aj prostredníctvom nových technológií, ktoré prezentáciu kultúrneho dedičstva robia viac atraktívnou. Nemyslím si, že by to malo prinášať nejaké zásadné riziká, skôr naopak. Je to vhodná prezentácia kultúrneho dedičstva, jeho ochrany a poznania, ale aj forma osvety a vzdelávania. A to aj v prípade negatívnych príkladov, ako napr. nedávne búranie národnej kultúrnej pamiatky v Trenčíne.“
- **R3** (otázka 5): „Kultúrne dedičstvo je prítomné hlavne cez literatúru a recenzie, ale často sa mu nevenuje dostatočná pozornosť. Prínosom je zvýšenie povedomia a záujmu o historické alebo literárne diela. Rizikom je zjednodušené medializovanie, ktoré môže skresliť kontext, napríklad populárne historické romány, ktoré vychádzajú z nepresných faktov“.

RQ4: Does the digitalization of cultural heritage change its value, meaning, or authenticity – and in what way?

Two positions emerge in the answers. The first asserts that digitalization does not change inherent value, but changes reception: it expands access, strengthens education and the protection of originals, but brings the risk of superficial consumption and loss of context. The second explicitly states that value or meaning change (at least in the perception and behavior of the audience) because digital accessibility modifies the need for physical experience and changes what people consider "enough".

Analytically, it is useful to distinguish the layers of value: (1) the information value (knowledge), (2) material/auratic value (the original), (3) experiential authenticity (presence at the site), (4) symbolic and community value (identity). Digitalization increases (1), often helps protect (2), but can weaken (3) and, with a poor narrative, deform (4). Furthermore, respondents draw attention to an allocation problem: if digitalization "crowds out" funding for the protection of the original, the capacity to protect physical heritage systematically deteriorates.

Figure 15 Respondents' attitudes (indicative):

Respondent	Dominant attitude
R1	Value does not change (reception/accessibility changes)
R2	Value does not change (reception/accessibility changes)
R3	Indeterminate/mixed
R4	Indeterminate/mixed
R5	Value/ meaning changes (at least in perception)
R6	Value/ meaning changes (at least in perception)
R7	Value/ meaning changes (at least in perception)
R8	Value/ meaning changes (at least in perception)
R9	Value does not change (reception/accessibility changes)

Illustrative statements (selection):

- **R1** (Q4 (digitalizácia)): „Digitalizácia nemení inherentnú hodnotu diel, ale zásadne mení spôsob ich recepcie. Zvyšuje dostupnosť a edukatívny potenciál, zároveň však hrozí strata autenticity a kontextu pri povrchnej konzumácii obsahu“.
- **R2** (Q4 (digitalizácia)): „Nemyslím si, že by digitalizácia kultúrneho dedičstva menila akokoľvek jeho hodnotu. No občas mám pocit, že sa väčšia pozornosť a väčšie financie venujú jeho digitalizácii ako samotnej ochrane originálu. Obrovským plusom digitalizácie je veľké rozšírenie dostupnosti niektorých súčastí kultúrneho dedičstva (najmä archívne dedičstvo a knižničné fondy) pre zvýšenie poznania“.
- **R3** (otázka 4): „Digitalizácia prináša veľké možnosti – e-knihy a online archívy sprístupňujú literatúru širšiemu publiku. Hodnota originálnej tlačenej knihy zostáva, pretože fyzický kontakt s knihou, jej dizajn, papier a vôňa sú nenahraditeľné. Digitálne formáty však zvyšujú dostupnosť a pomáhajú šíriť kultúrne dedičstvo medzi ľudí, ktorí by inak k fyzickej knihe nemali prístup“.
- **R9** (otázka 4): „Digitalizácia je veľmi užitočná z hľadiska prístupu a ochrany originálov. Virtuálne múzeá alebo online archívy umožňujú štúdium artefaktov bez rizika poškodenia. Ale osobne si myslím, že nič nenahradí kontakt s originálom jeho materiálnu kvalitu, vôňu, mierku a celkový prežitok. Hodnotu diel digitalizácia nemení, ale významne podporuje ich dostupnosť a zachovanie“.
- **R4** (Q4 (digitalizácia)): „Digitalizace kulturního dědictví je jistě záslužná činnost. Nepochybně popularizuje kulturní dědictví a přibližuje jej širokému spektru lidí. Ne každý si může dovolit navštívit velká muzea, významné stavby, památky atd. ať už z finančních, časových nebo jiných důvodů. Virtuální prohlídky alespoň zčásti umožňují získat tento prožitek, avšak nikdy nedokáží dle mého názoru nahradit reálnou prohlídku či návštěvu. Vždy bude pro daného člověka diametrálně jiný zážitek, pokud např. uvidí korunovační klenoty ve virtuální realitě, nebo je uvidí na vlastní oči“.
- **R5** (Q4 (digitalizácia)): „Hodnotu určitě mění, ale neumím říct, zda ji snižuje či zvyšuje. Ale určitě ji mění. Kulturní dědictví je dostupnější, mohu si z pohodlí domova projít sbírky muzeí v Americe, Francii i kdekoli jinde na světě. Dříve

bylo možné jejich sbírky vidět maximálně publikované v nějakých knihách, a navíc bylo nutné tyto informace cíleně vyhledat“.

- **R6** (Q4 (digitalizácia)): „Digitalizace nemění vnitřní hodnotu ani význam děl, ale značně ovlivňuje způsob vnímání, možné přístupy a ve své podstatě i interpretaci sdělovaného. Artefakty jsou přístupnější, ale často chybí smyslové vnímání (textura, vůně, atmosféra). Rovněž velikost či měřítko nelze bez srovnání či daných parametrů určit. Digitalizace spíše rozšiřuje původní hodnotu a má významnou roli ve vzdělávání a popularizaci, ale podstata originálu ve všech svých parametrech je jedinečná“.
- **R7** (otázka 4): „Digitalizace přináší významné výhody, především z hlediska ochrany originálů a zpřístupnění širšímu publiku. Virtuální muzea a online archivy umožňují studium a prohlížení kulturního dědictví bez fyzického ohrožení exponátů. Nicméně přímý kontakt s originálem nelze nahradit – autenticita, hmatové a prostorové vjemy a celkový prožitek uměleckého díla jsou nenahraditelné. Digitalizace tedy nezmění hodnotu děl, ale významně podporuje vzdělávání a prevenci poškození“.
- **R8** (Q4 (digitalizácia)): „Myslím si, že digitalizácia kultúrneho dedičstva čiastočne mení jeho hodnotu a význam. Virtuálne múzeá, online archívy a digitálne zbierky zvyšujú dostupnosť diel a umožňujú ich sprístupnenie širšiemu publiku bez geografických či časových obmedzení, čím posilňujú ich vzdelávací a popularizačný potenciál. Na druhej strane sa mení aj spôsob vnímania autenticity a originality, pretože digitálna kópia nemôže plne nahradiť fyzický kontakt s originálom“.

RQ5: How do respondents evaluate the impacts of generative AI, and what minimum standards and rules do they propose?

Generative AI is framed in the interviews as a change in the epistemic rules of the game: an image, text, or “archival” record may no longer be evidence, but can be a synthetic construction. A core problem of trust emerges from the data: if AI outputs without sources, without metadata, and without an approval process get into public communication or records, they start to reproduce as “truth”.

The risks concentrate into the following: (a) erosion of authenticity and trust, (b) deepfakes and synthetic visuals, (c) erroneous attribution/provenance, (d) pressure for speed and flooding with content, (e) authoritative tone and unverified claims, (f) algorithmic manipulation and polarization. At the same time, it becomes clear that the response should not be primarily "technological" but procedural: human-in-the-loop, metadata, audit, labeling, a ban on fake sources, and training.

Minimum Verification Protocol (Synthesis Across Interviews):

1. Identify the origin of inputs (what the source was, what the AI was based on; if missing, the output is only a hypothesis).
2. Require citations or traceable references (catalogs, archives, inventory records).
3. Triangulate claims (at least 2 independent authorities/sources for factual claims and attributions).
4. Record metadata and versions (who generated, who edited, who approved; an auditable trail).
5. Transparently label AI use upon publication and clearly mark reconstructions as reconstructions.
6. Set a "gate" before publication: without human approval, an AI output must not become a public claim or an evidentiary record.

Illustrative statements (selection):

- **R1** (A1): „AI používam na rýchly prehľad literatúry, sumarizácie a jazykové úpravy. Nechávam si však všetko spätne kontrolovať na primárnych zdrojoch".
- **R2** (A1): „AI sa objavuje v automatickom tagovaní, vyhľadávaní v archívoch a popisoch objektov. Čoraz viac aj v generovaní sprievodných textov".
- **R3** (A1): „AI vidím v textoch: recenzie, popisy, marketingové anotácie, aj v odporúčaniach. Zákazníci prichádzajú s textami, ktoré znejú „ako z AI"".
- **R9** (A1): „AI môže pomôcť v popise a triedení, no moja práca stojí na presnosti a inventarizácii".
- **R4** (A1): „AI môže pomôcť pri popisoch, triedení fotiek a prekladoch, ale zatiaľ ju používam opatrne. V teréne je rozhodujúci kontext, ktorý AI nemá".

- **R5** (A1): „AI je užitočná pri rýchlom porovnávaní vizuálnych motívov, návrhoch popisov a prekladoch. Na atribúcie ju však nepúšťam bez expertného overenia“.
- **R6** (A1): „AI využívam pri prepisovaní a sumarizácii, ale pri interpretácii predstavení a dobových kontextov je to citlivé“.
- **R7** (A1): „AI je pre mňa nástroj na orientáciu v témach a návrh otázok, ale rozhodujúce sú dáta a metodika“.
- **R8** (A1): „AI používame pri spracovaní obsahu, odporúčaniach a pri práci so zbierkami (metadáta, vyhľadávanie). Súčasne riešime AI ako tému výučby“.
- **R1** (A2): „Najväčšie riziko je „autoritatívny tón“ výstupov a normalizácia neoverených tvrdení. Pri dedičstve hrozí zjednodušenie kontextu a mylné atribúcie“.
- **R2** (A2): „Riziko je strata dôvery v digitálne reprezentácie a ľahká manipulácia (deepfake, syntetické fotografie). Pri dedičstve aj tlak na „rýchlosť“ na úkor presnosti“.
- **R3** (A2): „Riziko je zaplavenie priestoru lacným obsahom a zníženie schopnosti rozoznať kvalitu a dôveryhodnosť. Dedičstvo môže byť „prebalené“ do atraktívnych, ale nepresných naratívov“.
- **R9** (A2): „Riziko je zavedenie chybných údajov do evidencie a ich následné „zabetónovanie“ v systémoch. Pri gramotnosti je riziko, že ľudia prestanú rozlišovať originál a odvodeninu“.
- **R4** (A2): „Najväčšie riziko je falšovanie vizuálnych dôkazov a „vytváranie“ tradícií, ktoré sa nikdy neudiali. To je pre etnografiu priamo nebezpečné“.
- **R5** (A2): „Riziko je omyl v atribúcii a šírenie falošných proveniencií. Pri mediálnej gramotnosti je problém, že „dobrý obraz“ prestáva byť dôkazom“.
- **R6** (A2): „Riziko je prepisovanie histórie cez syntetické záznamy (hlas, video) a strata kritéria autenticity. Ďalej uniformita interpretácií“.
- **R7** (A2): „Riziko je zrýchlenie šírenia manipulácií a polarizácie cez algoritmické systémy. Pri gramotnosti je kľúčové, že ľudia prestávajú veriť čomukoľvek – aj pravde“.
- **R8** (A2): „Najväčšie riziko je erózia autenticity a dôvery + automatizované šírenie dezinformácií. Druhé riziko je „čierna skrinka“ – ľudia používajú nástroj bez pochopenia“.

The following overviews summarize explicit mentions in the AI blocks (A1–A6). This is an indicative coding that helps to more easily see what is repeated in the interviews; it does not express the intensity of the attitude or its importance throughout the whole interview.

Figure 16 AI Risks Across Respondents

Category	Number of Respondents	Share
Erosion of authenticity and trust	9	100 %
Erroneous attribution/provenance/metadata	5	56 %
Deepfake/synthetic visuals	4	44 %
Flooding with content / pressure for speed	2	22 %
Hallucinations/authoritative tone/fake sources	1	11 %
Algorithmic manipulation/polarization	1	11 %

Figure 17 Risks of Generative AI

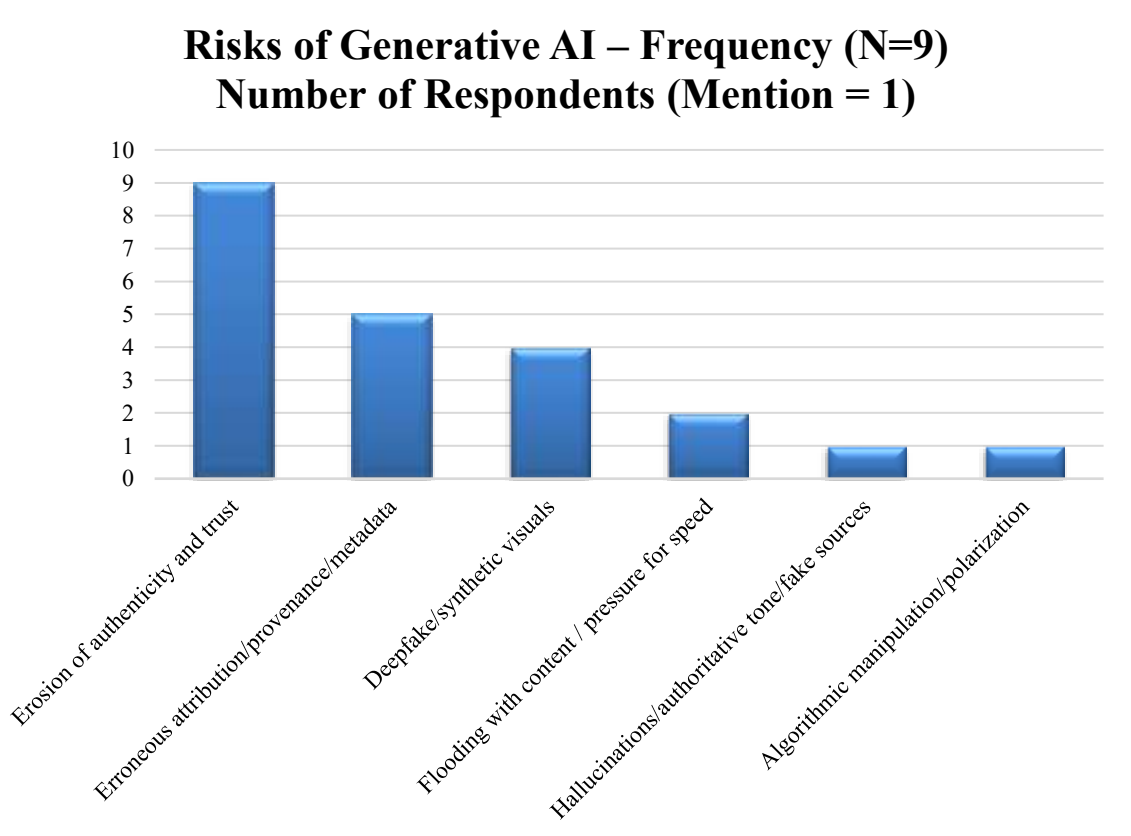


Figure 18 The range of identified AI risks by respondent

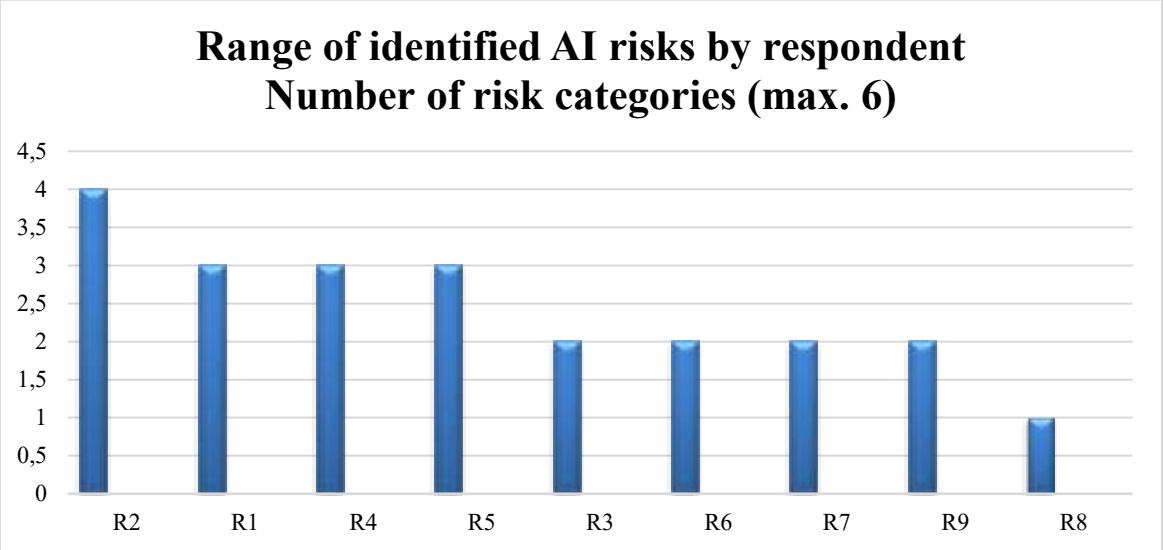


Figure 19 Proposals for AI Rules/Workflows Across Respondents

Category	Number of Respondents	Share
Human-in-the-loop (editor/expert approves)	7	78 %
Metadata/provenance/versioning/audit	7	78 %
Transparent AI labeling	5	56 %
Ban on fake sources/synthetic archives	3	33 %
Training and competence development	3	33 %
Rights/licenses/legal rules	2	22 %

Figure 20 Rules for AI

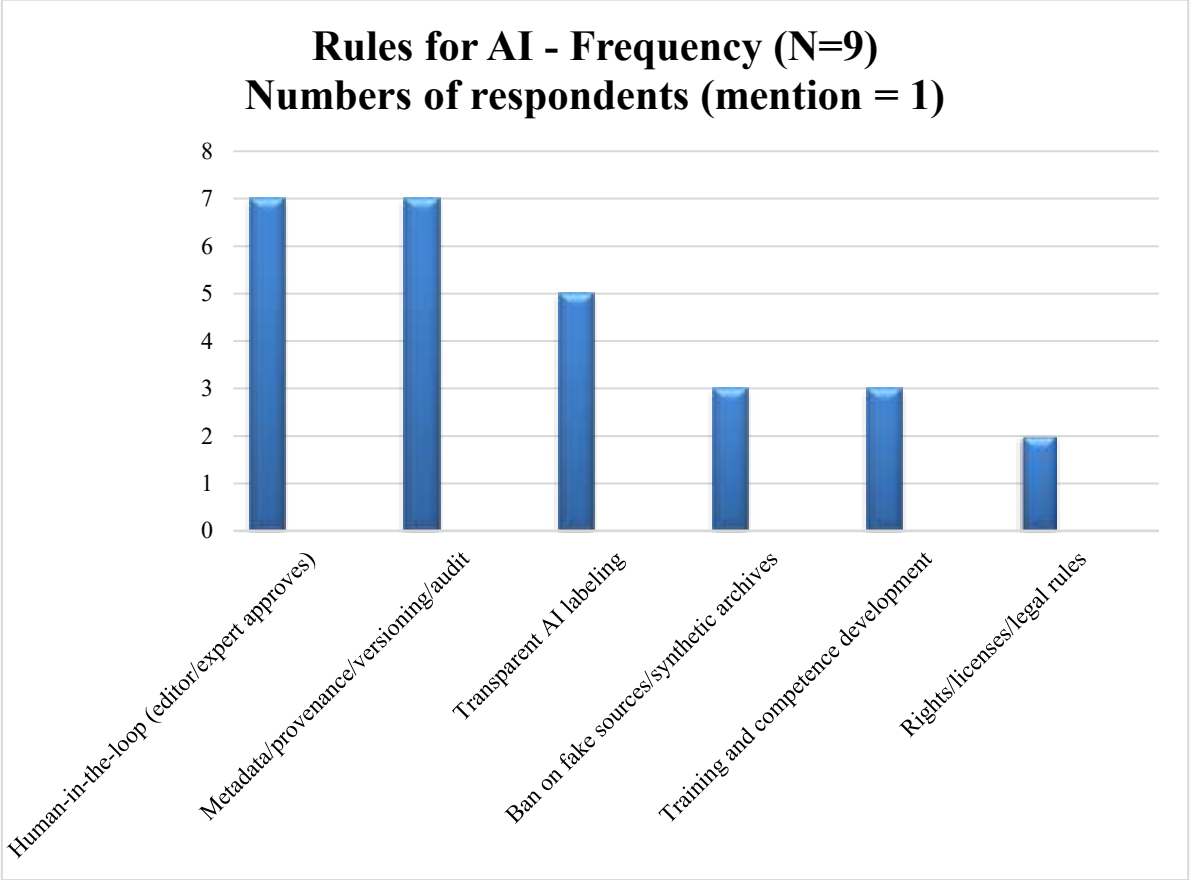
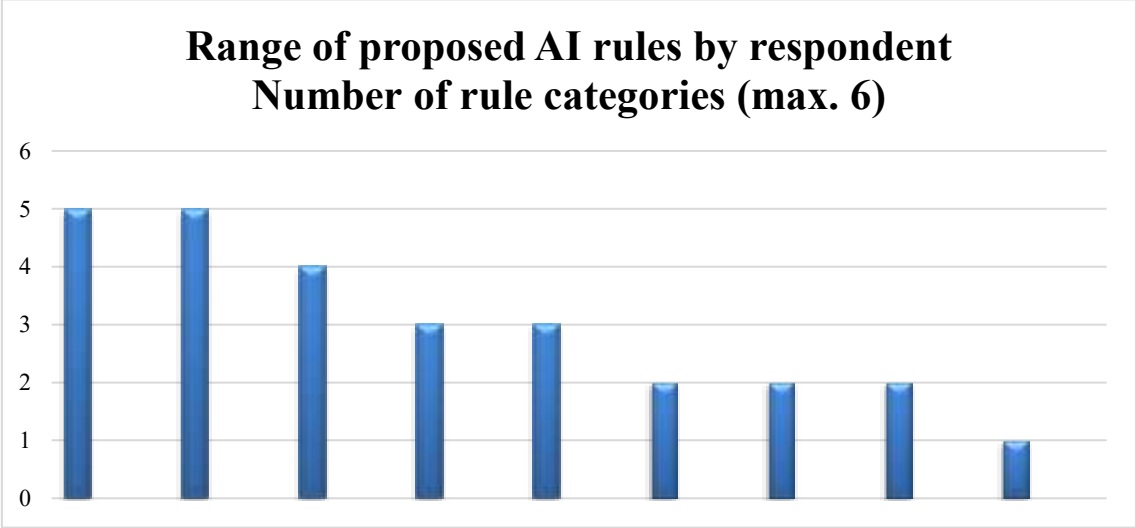


Figure 21 The range of the proposed AI rules by respondent



8 RECOMMENDATIONS FOR PRACTICE

Empirical findings from the interviews indicate that in the environment of digitalization and generative AI, media literacy is no longer understood merely as a "technical skill of using tools" and is shifting towards an epistemic-ethical core: verification, transparency, working with sources, context, and responsibility for interpretation. The bibliometric context simultaneously suggests that the field of media literacy is internationally established and networked, which increases the pressure for the standardization and scaling of practices. This is exactly why it is crucial in practice to introduce measures that have a high benefit at low costs and are feasible even in the conditions of the limited capacities of memory institutions, schools, or cultural organizations.

Minimum Viable Integrity Protocol for Digital Cultural Heritage As a fundamental framework, the introduction of a minimum digital content integrity protocol, which has three mandatory layers of transparency, is proposed. These are simple rules that significantly reduce the risk of misinterpretation, misuse, or loss of trust:

- **Origin and source trail (provenance):** for each digital output, state the source (institution, fund, inventory data, or stable identifier), or potentially provide a link to a catalog record.
- **Status of intervention (labeling the intervention):** clearly declare whether it is a pure digitized reproduction, a restored output, a reconstruction, a composite, or material generated or co-created by AI.
- **Degree of certainty (uncertainty disclosure):** for reconstructions or interpretations, add brief information about certainty (e.g., high/medium/low) or a one-sentence explanation ("reconstruction based on... ", "probable appearance based on... ").

This protocol is practically feasible even without additional technologies: it primarily involves standardized textual and metadata elements that can be implemented in catalogs, on websites, in captions on social networks, and in exhibition formats. From a cost perspective, this is a low-cost measure; however, it directly impacts the key problem of

contemporary media ecology: the erosion of trust and the breakdown of source context in the rapid distribution of digital content.

C2PA Standards and the Adobe Content Authenticity Initiative (CAI)

Figure 22 Sample of a possible protocol

ID Step	Verification Task	Status [Yes/No]	Responsible Person
1.1	Are metadata about the physical origin available (e.g., accession number)?		Documentarian
1.2	Was the name and version of the model recorded (e.g., GPT-4o, Midjourney v6)?		IT administrator
1.3	Do factual data agree with at least one external source (e.g., authority database)?		Curator
1.4	Is the digital reconstruction visibly labeled (e.g., watermark "AI Reconstruction")?		Graphic Designer / Editor
1.5	Is the exact text prompt used to generate the content saved?		IT administrator

Most of the verification fields in the protocol (ID 1.2, 1.5) are based on the technical standard C2PA (Coalition for Content Provenance and Authenticity). It is an industry framework that determines what provenance metadata a digital file must carry in order to be considered trustworthy. This is exactly where the requirement to record the model version and save the prompt comes from.

The Europeana organization has defined ethical and procedural recommendations for the use of AI in cultural heritage. Point 1.4 (visual labeling of reconstructions) and point 1.1 (source audit) directly reflect their requirement that a digital copy must never mislead the user about its authenticity.

Human-in-the-loop as an Organizational Brake

For outputs that can significantly influence historical interpretations or public understanding of cultural heritage (reconstructions, "revived" portraits, generated descriptions, automatic translations of sources), it is recommended to introduce a rule of mandatory expert validation before publication. The minimum standard includes:

- approval by a curator/ expert,
- versioning (what was changed, when, and why),
- archiving of inputs (source data, potentially the prompt, version of the tool/model, date of generation).

The goal is not to block innovations but to introduce an accountability trail. In the generative AI environment, this is the analog of an "editorial deadline": a procedural brake that protects the institution's reputation and reduces the likelihood of spreading erroneous interpretations. The concept of Human-in-the-loop (HITL) that has been elaborated into roles, is based on the EC's ethical guidelines for trustworthy artificial intelligence. These state that for high-impact decisions (science and history are associated with high-impact decisions), there must be "human oversight" (Human Agency and Oversight).

Context as a Layer

Digitalization increases accessibility, but without context, it leads to the reduction of meaning to superficial consumption or conflict framing. Therefore, it is recommended to build context in three layers according to the audience:

- **popularization layer** (a brief, understandable explanation),
- **expert layer** (sources, methodology, points of contention, alternative interpretations),
- **educational layer** (proposals for tasks, verification questions, recommended resources).

This approach has a high return on investment: once prepared, the layers can be repeatedly used across platforms (catalog, website, exhibition, social networks, school materials) and significantly reduce the risk of taking an object out of its meaning framework.

Education: Less "Tools", More Epistemic Discipline

In the field of media literacy, a shift is recommended from training focused on specific platforms to the training of routines that remain valid even during technological changes. As a minimum, it is recommended to systematically develop three procedures:

- **Triangulation** (at least two independent sources for claims with a public impact),
- **Checking origin and authority** (who makes the claim, based on what, with what interest),
- **Detection of manipulation** (signals of visual and text manipulation, working with context, caution with AI-generated outputs).

These routines directly respond to the problem of deepfakes and the "crisis of evidence" because they build resilience at the level of the decision-making process, not at the level of one specific tool.

Management and Policy: Measuring the Risk to Trust, Not Just "Innovation" At the level of management and cultural policy, it is recommended to introduce a framework that asks three control questions for every AI or digital intervention:

- What is the risk of error and what is its impact (reputational, educational, legal)?
- Who bears responsibility for the result (individual, team, institution)?
- How will transparency towards the public be ensured (labeling, sources, degree of certainty)?

8.1 Schools and Universities

The introduction of a unified source protocol when working with AI has the highest return on investment (low cost, high impact): for every AI-assisted claim, the student must be able to state the origin (where they verified it), and the text must distinguish fact, hypothesis, and interpretation. In practice, it is effective to allow AI for "pre-production"

(structure, summarization, language) but prohibit AI as a source of authority without sources.

Recommended minimum (quickly implementable):

- A one-page AI directive: what is allowed, what is prohibited, how AI use is cited.
- Checklist for seminar/diploma theses: sources, citations, verification, admitting uncertainty.
- Short training for educators (2–3 hours) focused on the verification and typical AI errors (hallucinations, bias).

Medium-term (higher benefit, higher difficulty):

- Integrate media literacy across subjects via real tasks (current media content, fact-checking, narrative analysis).
- Collaboration of schools with museums/archives: working with catalogs, inventories, source critique on real collections.
- Introduce the evaluation of the "source foundation" (not only content but also the quality of verification) as part of rubrics.

8.2 Memory and Cultural Institutions (Museums, Archives, Galleries)

A critical priority is the protection of evidentiary integrity: AI output must not enter records or publications without an auditable trail and without human approval. This principle is cheaper than subsequently repairing damages (when an error spreads to secondary sources).

Recommended minimum (procedural brakes):

- Human-in-the-loop: a clearly designated responsible person (curator/documentarian) approves every AI-assisted data point.
- Mandatory linking of a digital object to an inventory number/primary record + versioning.
- Mandatory labeling of synthetic reconstructions (not as evidence, but as a visualization hypothesis).

Higher level (if the institution publishes on a large scale):

- Internal metadata audit (periodically checking attributions, provenance, changes).
- Standardize metadata schemes and keep logs of AI tools/parameters (what was used, when, for what).
- Legal and licensing policy (training data, copyrights, licenses for visuals and texts).

8.3 Media and Public Communication

Given the risk of reducing complex phenomena to attractions and the risk of crisis/polarizing framing, the best intervention is strengthening context. Practically, this means: creating formats that also carry interpretation (not just "pictures") and introducing stricter rules for working with visual evidence (deepfakes).

Recommended minimum:

- For AI-generated visuals, mandatory labeling + information on whether it is a reconstruction/hypothesis.
- Fact-checking for attributions and historical claims (at least two independent authorities).
- Separate news and commentary; for sensitive topics, describe the source trail.

8.4 Practice in the Cultural and Book Sector

In the book and cultural market, the greatest risk appears to be the flooding of the space with cheap content and a decline in trust in quality. High ROI measures are reputational and transparent mechanisms: clearly labeling AI-generated annotations/reviews, strengthening curatorial recommendations, and working with verified review sources.

Recommended minimum:

- Transparent labeling of AI-assisted texts (annotations, marketing descriptions).
- The internal "quality gate": an editor/ curator reads and verifies the factual claims before publishing.

- Prioritize reviews with a verifiable author identity and a clear conflict of interests (advertising vs. review).

8.5 Discussion

The synthesis of the interviews supports the interpretation of media literacy as an epistemic and ethical competence, not as “technical know-how”. It is important that technical platforms change, but the principle of working with sources and responsibility for the interpretation remains. In the field of cultural heritage, this need increases because heritage functions as a memory resource, and errors lead to the long-term spread of distortions.

Key dilemmas identified in the data and practical decision-making rules:

- **Popularization vs. reduction:** If a format cannot bear context, it must be supplemented with a link to a curatorial explanation or source; otherwise, it produces only an attraction.
- **Accessibility vs. authenticity of experience:** Plan digitalization to strengthen knowledge and the protection of the original, not to replace the physical experience without explaining boundaries.
- **Efficiency of AI vs. trust:** Everything that is an evidentiary record or public claim must have a source trail and human approval; without this, it is only a working hypothesis.
- **Reconstruction vs. evidence:** Synthetic visualizations are permissible only as labeled reconstructions; they must not enter catalogs as “authentic” records.

Generative AI shifts the discussion to the question of proof: if visual evidentiary value breaks down, the importance of metadata, inventory links, versioning, and transparency rises. It follows from the interviews that the most rational response is procedural regulation (human-in-the-loop, audit) and competence training, not blanket bans.

8.6 Limits and Suggestions for Further Research

The sample is small (N=9) and primarily includes experts, which may increase the emphasis on source discipline. It is not a representative survey, but a qualitative probe. Another limit is that "frequencies" for AI are based on explicit mentions; silent assumptions (implicit risks) are not counted. For a higher reliability, pair coding (inter-coder agreement) would be appropriate.

Recommended continuation of research:

- Add the perspective of students and of the general public as wel (how they distinguish a source from synthetics in practice).
- Test the proposed verification protocol on specific scenarios (AI description of a collection object, synthetic reconstruction, generated recommendations).
- Measure the effectiveness of training (pre/ post) on the ability to identify deepfakes and the quality of source verification.

Figure 23 Coding Framework (selection of codes and definitions)

Code	Definition	Indicator / example from data
MG-DEF-ETIKA	Media literacy as critical and ethical competencies; emphasis on responsibility.	R1: "...analytical, critical, and ethical... "
MG-DEF-IS	Media literacy as orientation in information systems and selection of the relevant.	R2: "...orientation in information systems... "
MG-OVEROVANIE	Verification, triangulation, working with sources, catalogs, archives.	R5: "...verify from multiple sources... "
KD-TRIVIAL	Trivialization/commercialization of heritage in the media; reduction to an attraction.	R1: "...castles exclusively as tourist attractions... "
KD-KRIZA	Cultural heritage in the media especially when threatened; one-sided/hateful framing.	R2: "...when it is threatened... negative to hateful... "
DIGI-DOSTUP	Digitalization increases accessibility and knowledge; educational potential.	R2: "...expanding accessibility... to increase knowledge".
DIGI-KONTEXT	Risk of loss of context/superficial consumption with digital content.	R1: "...threatens loss of authenticity and context... "

AI-DOVERA	AI erodes trust/authenticity; the crisis of evidence.	R2 A2: “the loss of trust in digital representations...”
AI-DEEPFAKE	Deepfakes/synthetic visuals/voices as manipulation.	R2 A2: “deepfakes, synthetic photographs”
AI-PRAMENE	AI hallucinations/authoritative tone; risk of fake sources.	R1 A2: “authoritative tone... unverified claims”
AI-METADATA	Metadata, inventory links, versioning, and audit as a standard.	R2 A3: “metadata, versioning... auditable trail”
AI-HITL	Human-in-the-loop as a procedural brake before publishing.	R2 A5: “Approval process... before publishing”
AI-OZNAC	Transparent labeling of AI use and reconstructions.	R1 A5: “Transparent labeling of AI use”

Limits of the Bibliometric Analysis (VOSviewer)

Bibliometric mapping conducted in VOSviewer provides a useful “macro-picture” of the research field, but it has several methodological limitations that need to be explicitly acknowledged for the interpretation of the results to remain defensible. First, the visualizations used are based on mapping co-authorships by country (country co-authorship). This type of map informs primarily about the geographical and network structure of knowledge production (where publishing happens and how actors are connected), not about the content or meaning of concepts themselves. Therefore, it is not possible to directly read from the map which theories, definitions, or methodological approaches dominate in individual clusters; “thematic” conclusions are inevitably only mediated and must remain an interpretation.

Second, bibliometric results are fundamentally dependent on the source database and on export parameters (e.g., document types, language restrictions, indexing methods of disciplines). At the same time, for topics of media literacy, cultural literacy, and digital cultural heritage, a significant part of the relevant production may be located outside dominant indices or in national languages. Bibliometrics therefore naturally favors English-published outputs and mainstream journals, which can cause an undervaluation of regional traditions and local discourses – i.e. precisely those that are often crucial in cultural heritage.

Third, the corpus is constructed through search terms, which creates a keyword bias: if authors use synonyms or related terms (e.g., in the heritage field: digitization, digital humanities, public history; in the literacy field: critical information literacy, digital literacy, civic literacy), a portion of the thematically relevant literature may remain outside the corpus. This problem is particularly sensitive with "cultural literacy," where the terminology is less consolidated and the concept is named differently across various traditions.

Fourth, setting thresholds (minimum number of documents and citations per country) increases the clarity of the map, but simultaneously "cuts off" the peripheral areas of the field. The map may thus appear more compact or more "Western" than would correspond to full reality. Similarly, the 2010–2026 time window introduces a citation problem: newer works are disadvantaged by the natural time lag in citations and if the year 2026 is processed continuously, the results may not be complete.

For these reasons, it is appropriate to understand the VOSviewer section as an analysis of the structure and context of the field, not as direct evidence of the content dominance of specific concepts. Bibliometrics in this work primarily fulfills the function of contextualization and triangulation – it complements qualitative findings by showing in what type of the "scientific ecosystem" the examined concepts operate.

Limits of the Qualitative Part (Interviews) Qualitative interviews make it possible to capture the meanings, definitions, and argumentative logics of experts, but their results cannot be interpreted as a representative picture of the population. With a smaller, expert sample, the goal is depth of understanding rather than quantitative generalization. Another limitation is the self-report nature of the data: with topics of media literacy, disinformation, or generative AI, respondents often articulate normative ideals (what should be done) that may encounter organizational pressures in practice (time, budget, personnel capacities). This difference between the "declared norm" and "actual behavior in operation" is a typical risk of qualitative statements and must be reflected in the interpretation.

Finally, thematic coding is always an interpretative process. Even with a disciplined procedure, there is a risk of "confirmation bias", especially if the research aims to connect

theory and empirical findings. Therefore, it is important to openly acknowledge in the text that the codes represent the researcher's analytical framework, which relies on data but is not a mechanical imprint of them. In the monograph, it is appropriate to emphasize that the output is a conceptual synthesis and recommendations, not statistical evidence.

Limits of Triangulation and Interpretation Triangulation in this work has a complementary character: interviews answer the questions "what does it mean?" and "why?" while bibliometrics answers the question "where and how is the field organized?" The methods thus do not provide each other with a simple "confirmation" but rather, with a mutual complementing of perspectives. From this, there is also a methodological boundary that follows: if the bibliometric part remains only at country co-authorship maps, the connection to the thematic codes from the interviews must be formulated cautiously as an interpretation. Direct content mapping would require the addition of at least one content-based bibliometric layer (e.g., the keyword co-occurrence).

Current scientific research in the field of cultural heritage and media education in recent years (2012–2026) has concentrated on solving two parallel challenges: the physical degradation of monuments and the digital transformation of society. Research in this area can be divided into three key lines:

- **Diagnostics of monuments through AI** – research focused on monitoring the technical condition of historical buildings dominates the field of monument protection. Since the degradation of materials occurs slowly and is difficult to measure, AI-supported inspections are increasingly gaining ground. Studies confirm that models based on deep learning and computer vision can identify cracks and defects in masonry with an accuracy of over 90%. Modern approaches simultaneously combine real observations with synthetic data, which allows experts to predict risks to the static integrity of objects more accurately.
- **The paradox of certainty and generational differences in literacy** – at the level of media competencies, research encounters the so-called "paradox of certainty". It turns out that the younger generation (digital natives) tends to overestimate their abilities to identify disinformation, while educators show a higher degree of actual vigilance. Empirical data from the Slovak environment simultaneously draws

attention to persisting shortcomings across all age groups – from children learning to distinguish reality from fiction, to seniors whose ability to critically analyze digital content remains limited despite mastering basic technical skills.

- A significant trend is the **transformation of cultural institutions into educational platforms**. Museums, galleries, or festivals are no longer merely places of presentation but are becoming centers of non-formal education, where visitors develop their cultural and media literacy through direct experience. Part of this "educational turn" is also the methodical use of social networks in teaching (e.g., Instagram), which, with proper guidance, helps students understand the aesthetic and cultural context of digital creation.

A summary of current research suggests that while technologies (AI) successfully solve the diagnostics of physical "cracks" on monuments, social research calls for a systematic media education that would heal the "cracks" in the critical thinking of users across generations.

CONCLUSION

The present monograph was based on the idea that in the conditions of contemporary digital society, media literacy, cultural heritage, education, and generative artificial intelligence can no longer be examined separately. In the course of the publication, it has become apparent that these are interconnected areas that together shape the way that individuals and institutions understand the past, navigate the present, and prepare for the future. The result is not merely a confirmation of the significance of media literacy as an essential competence of the digital age, but primarily as a shift towards a broader framework of cultural literacy, which encompasses the ability to work with context, memory, representation, provenance, and authority in an environment where cultural meanings are increasingly generated, modified, and distributed by machines as well.

On a theoretical level, the work showed that cultural heritage cannot be understood as a closed and immutable set of artifacts or traditions. It is a living process of social selection, interpretation, and the transmission of values through which society creates continuity between the past, the present, and the future. Its significance extends beyond the scope of monument protection; it becomes a tool for education, cultural participation, social inclusion, identity, and sustainable development. Digitalization in this process has opened new possibilities for documentation, accessibility, and research, but at the same time, it has brought new limits and risks – especially the problem of technological obsolescence, context reduction, and the transformation of cultural objects into data units separated from their original layer of meaning.

Likewise, it was confirmed that media literacy has undergone a fundamental evolution. From an originally technical understanding of working with media, it has evolved into a multidimensional competence encompassing critical thinking, source evaluation, the ability to interpret, creative participation, and civic responsibility. In the environment of digital platforms, algorithmic selection, and information overload, it becomes a basic condition for navigating the contemporary world. However, media literacy itself ceases to be a sufficient framework in the environment of generative AI. At a time when the user is not only faced with ready-made media but increasingly with synthetically created output that imitates authority, authenticity, and historical accuracy, it is necessary to

expand thinking towards cultural literacy. This is not limited to knowledge of cultural references but presupposes the ability to understand culture in its historical, social, and power framework and to critically assess who, and on what basis, creates cultural meaning.

We consider the finding that digital cultural heritage is not merely a technical infrastructure of archiving to be particularly significant. It is an environment of meaning. What appears to the user as a digital object is, in fact, the result of many decisions: selection, classification, description, curatorial framing, and interface design. Generative AI intensifies this situation even further. It is no longer just about digitized heritage, but about heritage that becomes raw material for models capable of generating new texts, visualizations, simulations, and explanations. This change opens up significant opportunities in the areas of accessibility, multilingualism, personalized education, visualization, and interaction with collections. At the same time, however, it changes the ontological status of digital heritage: a document can become training material, a curatorial explanation a smooth synthesis, and a historical object an input for new, convincing, but not always trustworthy representations of the past.

This is exactly where the most significant risks have also emerged. The analysis of literature and empirical findings confirmed that when working with generative AI in the field of cultural heritage, the problems of authenticity, erosion of trust, erroneous attribution, weakening of provenance, decontextualization, and legal-ethical uncertainty come to the fore. Synthetic outputs can appear historically convincing even where a firm link to a source or expert consensus is missing. In museum, archival, and educational environments, this is extremely serious because these very environments traditionally carry a high degree of social trust. If institutions do not ensure transparency, the labeling of synthetic outputs, a visible link to sources, and the maintenance of expert oversight, there is a risk that generative AI will not become a tool of cultural understanding, but a source of an epistemic chaos and aestheticized inaccuracy.

The empirical part of the work confirmed this need from a practical point of view as well. Interviews with respondents showed that in the environment of digitalization and generative AI, literacy is no longer understood as a simple technical skill and is shifting

towards an epistemic-ethical core: towards verification, transparency, working with sources, context, and responsibility for interpretation. The requirements for a human-in-the-loop approach, systematic work with metadata, provenance, versioning, and auditability, as well as the transparent labeling of outputs generated by artificial intelligence, repeatedly emerged as the key ones. The significance of these requirements lies in the fact that they protect not only the quality of outputs but also the credibility of the very institutions that work with cultural content.

The contribution of the work is therefore also evident at the level of educational and institutional implications. For schools and universities, this means that AI literacy cannot be reduced to the ability to formulate an effective prompt. Education must develop the ability to ascertain the origin of a digital object and a generated output, to critically compare a database record with its synthetic processing, to identify losses of context, to recognize the boundaries between reconstruction and fabulation, and to understand the ethical, legal, and cultural consequences of working with data. For memory and cultural institutions, this implies the need to create a high-quality data and metadata environment, to ensure machine-readable attribution, to communicate the degree of uncertainty, and to prepare rules according to which it will be possible to distinguish between expert explanation, a digital model, and synthetic output. For the media and a broader public communication, this means a need for a greater responsibility when working with synthetic representations of the cultural past and when creating frameworks that do not weaken, but strengthen public understanding.

At the same time, it was necessary to state the limits of the research. The qualitative part based on expert interviews provided a valuable insight into meanings, argumentative logics, and practical dilemmas, but it cannot be interpreted as a representative picture of the entire population. Similarly, the bibliometric part does not represent a direct confirmation of content interpretations, but rather a complementary framework that helps to understand the organization and structure of the research field. The results of the work should therefore be read as a conceptual synthesis and an expertly anchored interpretative proposal, not as a closed and definitive model. However, this limit is not a weakness in a negative sense; rather, it points to the need for further systematic research that would interconnect theoretical, empirical, technological, and pedagogical perspectives.

We consider the most important conclusion of this monograph to be the statement that the transition from media to cultural literacy is not merely a terminological shift, but a response to the change in the very nature of the digital environment. In the era of generative artificial intelligence, it is not sufficient to teach the user to recognize manipulative media and to verify facts. They must be taught to understand how cultural meaning is created, rearranged, and legitimized in systems that work with data, models, interfaces, and synthetic representations. The future of cultural heritage will therefore not depend solely on technologies, but on the quality of our questions, on the strength of our institutions, and on the willingness to maintain what is essential for culture during digital transformation: context, responsibility, criticality, and the awareness that not everything that can be generated is also worthy of being unreservedly accepted as true, authentic, or culturally legitimate.

In this sense, the monograph does not close the topic, but opens it. It shows that cultural heritage in the digital age needs not only new tools but also new forms of literacy that will be capable of interconnecting technical skills with historical awareness, media reflection with cultural interpretation, and innovation with responsibility. It is precisely in this that we can see its main professional and social contribution.

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The text examines the transformation of cultural heritage in the age of digitization and the growing importance of media literacy.

It defines cultural heritage as a dynamic space of values that today faces new challenges in the form of digital archiving and curatorial decisions in the online environment.

The author emphasizes that media literacy is no longer merely a technical skill, but a set of critical and ethical competencies necessary for navigating the complex world of information.

In conclusion, he points to the advent of generative artificial intelligence, which fundamentally transforms the user's role from a passive recipient of content to an active participant in the creative process within the digital environment.