Creating our future: creativity and cultural heritage as strategic resources for a diverse and democratic Europe

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Background paper by:

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Digital Technologies – including AI – for Cultural Heritage in the framework of the Council of Europe's heritage conventions

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Context

The role of digital technology in heritage work is by now well established and digital practices are being mainstreamed in many aspects of Cultural Heritage analysis, management, preservation, conservation and protection. Equally, its use is recognised as a powerful driver for economic development and sustainable growth, and a strategic resource to address global challenges ahead of us, such as countering man-made and natural hazards.

However, it is there for all to see that there is still a generalised lack of shared standards, approaches, training and tools which makes the panorama fragmented in a myriad of local digital practices and services, with little interoperability among systems and, consequently, insufficient exchange and sharing of data and information. This makes the uptake and use of such technologies more complex, not only within single member States, but also across member States and within the Council of Europe's pan-European realm, with a consequent inability to steadily advance knowledge about our past and to manage digital data for advancement of research, society and industries.

Why is it difficult to find a common ground when it is clear that interoperability of practices, approaches, systems and services is key to progress?

An uneven distribution of such practices is also noticeable across different geographic contexts, with entities that have managed to uptake them earlier than others and that have exploited their potential, driving the digital transformation, and others that are still behind in setting up and taking advantage of adequate digital infrastructures (the foundation for any digital practice). This can determine a divide within society and potentially trigger cultural, social and economic exclusion of part of the population and heritage industries from accessing services and data that should be public and open to all, with the risk of broadening an already existing gap between cultural ecosystems. Moreover, in contexts where cultural operators and practitioners cannot access and take full advantage of digital technologies to produce digital data, the public and cultural professionals and actors have fewer opportunities to digitally access information related to heritage management and safeguard, or to experience cultural heritage in new, emerging ways.

In the face of events like the recent pandemic or armed conflicts, building up or updating and strengthening national/international digital services and infrastructures (such as repositories, inventories, platforms and tools) for heritage digital data is imperative. The global lockdown and the consequent physical separation and inaccessibility of culture-related offices, structures, and sites have shown that the online availability of all sorts of digital data associated to heritage is crucial to ensure continuous research on, and adequate protection and management of cultural heritage in periods in which physical movement is not possible or is heavily restricted. While the pandemic crisis has somehow fostered the digital transformation, it has also demonstrated clearly that more investment is needed in digital services and infrastructure and, consequently, in training and capacity building for the digital skilling or up-skilling of the cultural ecosystem operators. Even more painfully, digital documentation of heritage threatened by destruction in times of armed unrest or environmental catastrophes is critical to digitally preserve its virtual physical shape, its cultural content and the chemical-physical data related to its 'materiality', information that, made available to experts, will make it possible to study and analyse it in the face of damage or destruction, and – whenever possible – to support its restoration, while ensuring that valuable knowledge is available for future generations of researchers and other stakeholders. Digital services and infrastructures are also needed to enable the development and steady advancement of emergent technologies – such as those based on the ability of machines to process and learn from digital datasets – that cannot progress without a much larger amount of curated cultural data being created.

What could be done in order to reduce this digital gap, to ensure equal access to infrastructures and services, to secure lasting resources and to establish long-term sustainability models that are vital to maintenance and accessibility of digital heritage data?

New technologies emerge rapidly, year after year, and they swiftly find application in the cultural heritage work, adopted by scholars, professionals and institutions, even if training to make the most of them is often not fully adequate or is not recognised as central in the mission of a given organisation: some of them, besides incredible advantages, bring with them potential challenges that must be recognised, and their uptake guided to get the best out them without their inherent risks. The current ubiquitous application of **Artificial Intelligence** (AI) – which, through its powerful algorithms, enables machines to perform human-like tasks such as analysing, learning, planning and creating (and surpasses such performances) – to all the aspects of our society embraces also the heritage and creative arts domains, and its introduction in different heritage work aspects is accelerating at a rapid pace, infiltrating it faster than other technologies in the past. Its use applied to cultural heritage analysis and research still finds little or no regulation in the current state of affairs and the concerns around its uncontrolled use are often at the centre of public discussion, as stressed also by the Council of Europe Ad hoc Committee on Artificial Intelligence (CAHAI). While acknowledging that AI poses ethical challenges, as it can create unfair biases that might lead to several negative implications – from marginalising the disadvantaged to aggravating intolerance and prejudice – it must also be recognised that it has the potential to dramatically change and enormously advance the way in which we analyse, manage and protect our shared cultural heritage, in line with the constructive attitude towards digital technologies included in the Council of Europe's Convention for the Protection of the Architectural Heritage of Europe, (also known as the Granada Convention, 1985) and the European Convention on the Protection of the Archaeological Heritage (also known as the Valletta Convention, 1992). Coupled with other technologies, AI is also on a steady path to become our primary technological resource to tackle some of the biggest challenges we are facing in the protection of our past, such as climate change and looting, damage or illicit trafficking of cultural heritage, challenges which are at the core of many international conventions, treaties and reciprocal agreements, such as the Council of Europe Convention on Offences relating to Cultural Property (also known as the Nicosia Convention, 2017). Lastly, AI is moving towards a radical transformation of the way in which we communicate cultural heritage and extend access to it, a theme at the heart of the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (also known as the Faro Convention, 2005).

How can this technological advancement be governed to get the most from it in studying, safeguarding and promoting cultural heritage?

The Council of Europe conventions on cultural heritage, while recognising the value of digital practices within the cultural heritage domain, do not sufficiently emphasise them and their pivotal role within current heritage practices' discourse, a reflection of the different historical and/or cultural contexts within which they have been formulated. Would it be helpful to start a conversation about how to integrate more these new instances related to the technological advancements within the existing conventions?

The way forward

The need to establish the bases for interoperable digital infrastructures and for harmonised digital practices for cultural heritage calls for the Council of Europe to act as a forum, bringing together all the actors that can contribute to this shared goal so that future research and innovation investments of member States can be channelled into initiatives that aggregate digital information and harmonise their collection through widespread and widely adopted technologies. At the same time, a call for more widespread training and capacity building, targeting not only heritage practitioners, but all the actors involved in the cultural ecosystem would contribute greatly to a broader uptake of digital means and approaches for heritage.

The sharing of best practices in building and using digital infrastructures can also trigger a more uniform and consistent adoption of such technologies and frameworks within and across member States, a step that – in turn – can have positive ramifications on society, economy and culture of all countries. Actors and entities that are technologically more advanced, endowed with better performing digital infrastructures, should be encouraged to closely cooperate with less equipped and technically-ready entities to promote capacity building and capacity strengthening within a shared Council of Europe-wise framework.

Emerging technologies – which will be incrementally based on AI – should be monitored in the contexts in which their adoption can potentially determine inequality, imbalance, discrimination, to make the most of them while eliminating the inherent threats they carry. In particular, the adoption of an '*ethical AI in cultural heritage studies'* shared definition should be set as a priority at a time when its implementation is becoming widespread. In this way, AI can be used more efficiently to tackle the big challenges of our times without being restrained by an ethical debate. The fight against climate change – with its repercussion on built heritage – or against destruction, damage and illicit trafficking of cultural heritage can really acquire momentum if supported by a truly ethical AI.

Widespread use of AI in turn calls for the member States to develop appropriate digital infrastructures where datasets can be stored and shared, as AI cannot thrive without a large amount of data. Member States are therefore called upon to collaborate to a common agenda for planning the digital infrastructures of the future, their interoperability, their longevity and the countermeasures to their technological obsolescence.

To make sure that the potential of digital tools (including AI) is fully exploited, there is also a need to keep up-to-speed key legal instruments of heritage protection, such as conventions, complementing them with guidance documents – any time the necessity arises – that are desirable if we want to recognise in good time the value of emerging technologies and their fast-evolving nature. Digital tools are becoming a common practice in the analysis, management, conservation of cultural heritage and such guidelines would help to have this reality properly reflected in existing Council of Europe instruments.

Action proposals

Against this backdrop, the Council of Europe could consider undertaking one or more of the following actions, in cooperation with professional associations and other partners, as appropriate:

Co-operating and exchanging information. Support the identification and dissemination of good practices and their widespread dissemination. Promote occasions for discussion, such as dedicated events (workshops, roundtables, etc.), on the topic of interoperability among existing digital infrastructures and repositories, and harmonisation of approaches and methods, so that they can represent an occasion for sharing of expertise, knowledge and know-how among policy makers, practitioners, researchers and technology developers across different fields and across member States to speed up a rapid and uniform uptake of digital practices in all the Council of Europe's realm. As an output, encourage or sponsor the collection of open technical standards and quality criteria.

Advising. Support the creation of factsheets, booklets and other documentation to broadcast the potential of digital technologies in cultural heritage, targeting heritage practitioners, heritage managers and administrators.

Raising awareness. Raise awareness about the potential of digital approaches and methods in the heritage sector, involving stakeholders and the general public.

Training, capacity building and education. Encourage training and capacity building on digital technologies for heritage practitioners, and campaign for the integration of advanced technologies in academic curricula so that technological training for heritage students can be incorporated more deeply and widely.

Updating key instruments. Complement existing instruments such as conventions with regularly updated guidance documents ('Technical guidelines') about emerging technological advancements that can be used and adopted in the analysis, protection and management of cultural heritage (with a focus on the challenges that such technologies can possibly raise), drafted under the responsibility of the Steering Committee for Culture, Heritage and Landscape (CDCPP).