



THE NATIONAL-FOCUSED CURRICULUM

Digital cultural designer

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Introduction

Digital culture and digital cultural experiences are already a reality that is becoming familiar to many people around the world. However, there is a lack of knowledge and skills both in creating digital experiences and in integrating them into society and using them responsibly. The national-focused digital cultural curriculum responds to the current need to understand the opportunities and challenges of LOD, digital culture and digital media.

This curriculum is primarily intended for museums, archives, libraries, and other cultural institutions. Both for those who maintain a quality digital culture and those who are still learning to open their treasures to consumers.

The purposes:

- To increase knowledge and abilities in using LOD for improvisation and innovation in cultural services and experiences.
- To enhance of the cultural heritage as open digital educational materials and tools.
- To set up, arrange and organise data using open resources and materials, with particular attention to museums, libraries, and archives.
- To set up multidisciplinary groups for organising, managing art-based training and educational activities.

The curriculum articulates the main 6 thematic cultural areas:

- Music.
- visual arts.
- Cinema.
- Theatre.
- Dance.
- time-based arts.
- mixed media arts.

Cultural heritage is an important component in the presentation of each of these arts.

For each area are outlined two cases:

a) cultural institutions staff **with** skills in the IT, LOD and digital media.

b) cultural institutions staff **without** skills in the IT, LOD and digital media.

The curriculum consists of three parts:

- 1) Specific DCD Trainings;
- 2) Cultural Area chapters (including digital resources and proposed activities for the training);
- 3) Integrative Modules.

The authors hope that all the material presented will be useful and meet the current expectations of people working in the field of culture and those who are interested in culture; and above all, will present the benefits of LOD and digitisation. The tools, resources and materials offered have been developed in collaboration with partners from the United Kingdom, Cyprus, Italy, Slovenia, Lithuania, and Iceland. Based on national best practices, a summary is provided which is expected to become a universal teaching tool.

1. Specific Digital Cultural Designer trainings

1. 1. Linked Open Data: Definition and Use

Open data is data that can be freely accessed, adapted, and exported or shared to others and for any purpose (Bauer & Kaltenböck, 2012). Equally, linked data acts as one of the fundamental aspects of what we refer to as the web of data; it intends to find connections between data sets and comprehend them by both humans and technological devices. Many of these are common in using the Internet, such as the Uniform Resource Identifiers (URL) and Hypertext Transforming Protocol (HTTP), that link various words and coding to matching results (Bizer, Skaf-Molli & Vidal, 2018).

However, Linked Open Data (LOD) refers to data that is provided, and released under an open license, which does not impede its reuse for free (Berners, 2014). It combines linked data with open data. In other words, LOD may be perceived as a process that allows metadata to be enhanced so that multiple renditions of the same content can be found and interlinking them, respectively, so that they can be found. They use Universal Resource Identifier (URI) to link data to certain items rather than a specific document.

Berners, who pioneered the terms LOD (Boxuan, 2012) explains the four principles of forming it, which are as follows:

Use URI as names for everything.

- 1) Use HTTP URI, so that people can look up those names and can locate the specific object.
- 2) When someone looks up the URI, provide useful information, using the RDF standard.
- 3) Include the link to another URI, so that people can discover more information.

By following these steps when programming and web publishing, we ensure that we create a universal standard that can be interpreted by all machines but furthermore also allows for hyperlinks to be generated between data sets as to encompass it into one information space (Bizer, Skaf-Molli, Vidal, 2018).

Advantages

As mentioned previously, linked data forms one of the core pillars of the semantic web, also known as the web of data. It allows for the easy sharing of machine-readable interlinked data on the internet (Ontotext, 2022). However, LOD takes this a step further in allowing the data to be read and adapted.

An example of this would be a crowd-sourced community Wikipedia page. One person may create a page based upon a certain topic. However, the community is equally able to access it and add or modify the content. After submitting the modifications, the page can be viewed by all internet users (Ibidem). This fabricates a form of social web where all data interrelates.

Following on from this, LOD allows the Web to connect data sets that were not previously related. In terms of a consumer's point of view, they can access certain web pages that have more enriched and lucrative content, with links to relative web pages permitting a seamless browsing experience (Al-Gburi, 2019).

Usage of LOD in culture and heritage

Now that we have covered the technical aspects of linked open data, along with the fundamental and universal benefits of adopting this system of web formatting, comprehending its real-world usage is paramount. Previously, LOD was solely used for governmental data repositories (Mayer, 2015) but today, it is widely used in various sectors of cultural heritage. As such, within this realm, there is a strong emphasis on libraries and museums (Alexiev, 2016).

The first area where LOD greatly facilitates searching, is libraries. With a shift to using online resources, a physical library system can foster an online database using LOD, which presents their literature and archives online and is integrated with other pertinent resources already online. Consequently, libraries are able to increase their accessibility via a greater online presence (Oomen, Baltussen, 2012).

Furthermore, LOD has been used to transcribe various cultural and archaeological findings. When archaeologists, and variations thereupon, find artifacts or any of significant heritage, they then log them into a computer database. Simultaneously, they also see if any of the artifacts found have connections, and to what degree. Thus, using LOD in their database systems can more fluidly create and find connections to other past items of heritage, which can then be publicised with the utmost accuracy (Alexiev, 2016). The same can be said for artworks too (Mayers, 2015).

Indeed, more museums have been adopting LOD protocols over the last decade. There has been a shift to open cultural data, which takes data from cultural institutions and reformulates it to make it machine-readable under an open license. Institutions including Sydney's Powerhouse Museum, Yale University and the British Museum have all been gradually releasing cultural data and heritage information under LOD licenses. This means that their archival information is in the public domain and that they are free to reuse and interpret it.

The benefit of this is, clearer, easier navigation and cultural understanding from the public when using the museums' online resources. However, Ridge also highlights that this induces stronger learning and understanding from employees, who may have found other databases too complex and overwhelming (Ridge, 2011). However, Ridge, Oomen and Baltussen both declare how institutions of cultural heritage can interrelate and share archival information more freely by adopting a universal LOD system between them – only adding to the interconnectedness (Ridge, 2011; Oomen, Baltussen, 2012).

Summary

In conclusion, we have reviewed that Linked Open Data (LOD) is a way of enhancing metadata so that data sets can be interrelated via a license so that it can be easily accessible (Berners, 2014). While linked data has helped create the foundations of better online organisations, LOD has allowed this idea to flourish further by allowing for data to be updated and modified by those of the community too.

Most institutions see benefits in adopting the utilisation of LOD such as better organisation of archival material (Alexiev, 2016). Though there is a greater interest in creating cultural and historic links between said material as well as delivering it to a more widespread audience (Ridge, 2011). Therefore, today, LOD is further being used to map physical cultural heritage material and translate this digitally in a way that allows it to be adaptable, extensive in its reach, and ultimately, universal to appreciate.

1. 2. Linked Open Data for Cultural Experiences and Services: Settings, Instruments, and Role

The digital landscape of interactive systems is constantly increasing and diversifying. Modern technology brings new capabilities to the field of the interpretation of art, culture, and heritage. Over the last few years, an increasing number of cultural sites, including art institutions, museums, and archaeological places, have adopted a wide range of interactive technologies to enhance the visitor experience. The term “cultural heritage” is mainly referred to material objects historical sites, historical monuments, works of art, and so on. With recent developments in computer and information technologies, traditional documentation method has been replaced with digital. Digital media has emerged as a key player in safeguarding heritage. Precise digital documentation of cultural heritage status is essential for its protection and scientific studies carried out during the restoration and renovation process.

Digital heritage means heritage which is made up of computer-based materials, whether born digital or digitised from other formats, emanating from different communities, industries, sectors, and regions. It requires active preservation approaches to ensure its authenticity, accessibility, and usability through time. In the presentation and the use of digitised units, it is necessary to ensure that information is made available to the widest possible population.

Computerisation and information systems not only ensure the sustainability of data, but also contribute to greater availability of such information. Institutions are able to promote the heritage and educate the general public, as well as to encourage the public to create tomorrow's heritage. These systems employed to improve the overall user experience (UX) and communicate aspects of Digital Cultural Heritage.

Mediated cultural heritage promotion and management are considered as supplements to physical/traditional heritage preservation and activating users' involvement/collaboration in integrated digital environments. Cultural sites could benefit from technological interventions to better highlight to visitors their features, purpose, and appearance in the past.

Various initiatives have already begun with the digitisation processes, mainly for storage purposes and additionally to support the interpretation of heritage by creating new enriched cultural experiences. Creating these immersive experiences involves people of diverse backgrounds and skills – from heritage experts, content marketers, professional storytellers, digital experts, activists, digital artists, and target groups.

Digital heritage can be either digital or digitised information about the collection or digital representations of physical artifacts (digital images or 3D scans, for example) that can be shared on the web. The digitalisation of cultural heritage usually refers to libraries, museums, archives, and other types of organisations whose task is to preserve cultural heritage for future generations.

While human-computer interaction initially concerned computers, it has since expanded to cover almost all forms of information technology design. Interactive applications in CH include mobile applications and games, location-aware audio guides, virtual/augmented/mixed reality) enabled technologies, online virtual worlds, holograms, interactive tables, multi-touch displays of ranging sizes and setups, and various types of interfaces that transcend cultural heritage content to the users and promote active audience engagement. It is important to allow a user to navigate through the site to explore its various features and engage the user by adding information to an otherwise passive experience.

Users participate in the narrative through interfaces – input devices. Communication to the computer usually requires the user’s activity. It can be either active or more passive. Different devices and interfaces change the way we experience content. Without some degree of digital interactivity, it is challenging for a museum to remain interesting and relevant to a more tech-savvy audience, especially young people.

Cultural heritage takes many forms and heritage settings vary greatly, from museums exhibiting traditional “glass case” displays to historic buildings, urban areas, and open-air sites.

The digital content can be as simple as a video and a link to a web page, or as complex as a live 3D animation. Information can be presented in the form of new cultural experiences (augmented reality, holograms), new educational content (mobile or online applications), research materials, and building blocks for use in the creative industries (in films, computer games).

National libraries usually create special collections where librarians (and visitors) have an overview of specific sections. There can be a collection of manuscripts, books, newspapers, photographs, music score collection, maps, and other cultural treasures, etc. The source of information is an essential component of the modern educational and scientific research process. Some artifacts and remains that still stand are often in a poor state, which makes it very difficult for visitors to appreciate their function and value simply from a traditional visit. A good quality and diverse collection of models and 360° photos enable a better educational and inspirational experience. More advanced technologies, such as virtual and augmented reality technologies

provide historically accurate digital reconstructions (of missing or demolished heritage sites) and relevant contextual information for a richer and more impactful visitor experience.

Storytelling has been widely recognised as an important direction for attracting and satisfying the audience of museums and other cultural heritage sites. Interactive devices offer immense opportunities to tell stories and add value to the sightseeing experience of users by engaging them. They generate greater interest and more enjoyable learning content.

Digital storytelling and audience engagement are pursued through non-linear interaction and content contribution. Enhanced interactivity is inherent to this process, making narration more attractive, thus provoking citizens' participation.

Phones and tablets require minimal changes to an exhibition space yet can completely transform the visual experience and make it accessible to a wider range of audiences. Applications present many options that can be tailored individually to suit respective exhibits or the visitors' current identity-related visit motivations. Users are usually guided through the POIs (point of interest) where they are able to unlock digital content such as video and other media. The author can set these locations either as a linear experience with a specific order of visits or as an experience where the user freely visits each one of them. Users' participation and learning experience can also be improved by puzzles or quizzes.



Hologram with 3D representation of Posavje Castles creates a unique tourist experience

1. 3. Architectures and Infrastructures with Linked Open Data

In the previous sections, we explored the definition and use of Linked Open Data and how they can be connected with cultural experiences and services. In this section, we will provide more information on the overall composition of LOD architecture and the technical infrastructures that can be used. As we saw earlier, there is a growing interest in the benefits of LOD and in the Semantic Web, but it is important to understand how this works and how it can support and empower the creative sector. Let us dive into how LOD is built and works.

In order to have a better understanding of how LOD is built, it is essential to have a basic knowledge of the Internet and the World Wide Web. The WWW is just one of the many services existing on the Internet and it is a hypertext application, cross-linking documents all over the globe (EUCLID, 2014).

Basically, from a static web, we went to allowing the users to interact and shape the content of websites (Web 2.0), to the social web where social websites were created and are now a stable variant in everyday life of the majority of people on the planet and to the Semantic Web (3.0) that connects knowledge and allows people to use data and text. On that note, it is also important to become familiar with background standards like HTTP, URI, XML, RDF, RDFS, OWL and SPARQL and the relevant infrastructures.

As described in previous sections and in the DCD Digital Cultural Handbook (2021, 12-14) LOD needs to follow specific principles – the four rules- and in 2010, Berners-Lee proposed a system for rating datasets – star rating system (Berners-Lee, 2010).

LOD projects and applications classification

LOD projects should have at least:

- A linked Data Manager: responsible for retrieving LOD from data sources.
- A linked Data Consumer: manipulating the LOD to produce new LOD.
- A Web User Interface: A way to interact with the application.

As mentioned in a report by Hausenblas (2009), linked data applications can be organised into three main categories:

- 1) **Linked Data browsers** that consume LOD and present them in a way that allows users to navigate them (such as Sig.ma and Sindice).
- 2) **Linked Data search engines** that are mostly seen as a way for locating human-readable content, a semantic search engine used to search for ontologies, vocabulary and RDF documents (such as Swoogle and Watson).
- 3) **Domain-specific Linked Data** that can address a specific range of problems within a specified domain.

Most LOD applications belong to the third category, domain-specific LOD applications (EUCLID, 2014). In addition, LOD applications are also classified through dimensions describing technical aspects of how LOD are used and represented: extrinsic or intrinsic way of use of the Semantic Web:

- 1) **Extrinsic:** LOD are consumed and processed with APIs and traditional technologies are used for internal storage and processing.
- 2) **Intrinsic:** Triple stores are used for internal storage instead of traditional technologies.

Some applications can use components of both extrinsic and intrinsic ways of use of the Semantic Web.

Moreover, LOD applications can be categorised depending on the **direction of the information flow: consumption or/and production of LOD**. An LOD application that only consumes data is usually described as a *'mashup'*. Also, the **semantic richness** of an application can be a classification factor. For example, LOD applications can be categorised according to their semantic richness into:

- 1) **Shallow level:** includes simple taxonomies and the use of RDF or RDFs vocabulary.
- 2) **Strong level:** includes more complex relationships among sources and requires higher representational formalisms such as OWL variants (Web Ontology Language).

Finally, LOD applications can be categorised based on their **semantic integration** and if they are:

- 1) **Isolated** from external vocabulary: an LOD application that used its own vocabulary and no other available datasets.
- 2) **Integrated** with external vocabulary: an LOD application that uses extensively and interlinks vocabulary (which is one of the objectives of LOD).

LOD Applications Architecture

As programmes and systems started becoming bigger and more complex, the need to design and specify the overall system structure emerged (Dooley, 2011, 47). There are various architectural patterns of LOD applications, and we will try to explore some generic ones.

First, what do we mean by a Software Architecture?

Software architectures are the components of a software system and the relationships among those elements that can include databases, software modules, and web servers (Dooley, 2011, 47-48). The architecture of an LOD application specifies the structure of the system and specifies the set of design practices to follow to create and maintain that architecture.

Architectural patterns:

- 1) **Pipe-and-filter architecture:** here, computational components are the filters and are taking the input and transforming it according to the set algorithms and then giving out the result in a communications conduit. The advantage of this pattern is that the filters are independent, and you can join different filters in different arrangements to create different results.
- 2) **Multitier architecture or layered architecture:** separates the functionality of a programme into a series of layers from low-level data storage to user interaction components. This pattern is used for web applications. Since Linked Data applications are also web applications, usually they conform to this architectural approach (REF). The advantage of this pattern is that it is easier to replace an architecture layer or reuse a layer from an existing architecture into a new application.

- 3) **Crawling pattern:** data is loaded in advance, is managed in one triplestore, and can be assessed efficiently. A disadvantage of this pattern is that the data might not be up to date.
- 4) **On-The-Fly Dereferencing Pattern:** URIs are dereferenced (a value being referenced by something else) at the moment of requiring the data. The advantage of this pattern is that it can retrieve up-to-date data, but performance can be affected when many URIs must be dereferenced.
- 5) **Query Pattern:** complex queries are submitted to a fixed set of data sources. This approach enables applications to work with current data directly retrieved from sources. It is a complex problem to find optimal query execution plans over a large number of sources, but in specific situations can offer a way of accessing updated data with adequate response times.

1. 4. Settings for Linked Open Data based Cultural Experiences: a Matrix to identify Best Approaches and Methods

This paragraph identifies the essential components of any linked open data project in the cultural sector. By exploring case studies of existing and previous open data projects from a local to international scale, it is possible to draw out the key challenges faced by organisations when opening data, as well as potential mitigation options. Bringing a collection of case studies together also identifies the types of widely used and requested data, which provides insight into the prioritisation of what data to make available in the cultural sector.

A matrix that defines the key categories to identify the best approaches and methods is based on the following main categories:



Key actions to achieve these overarching aims, and also to mitigate challenges, are organised into three priority groups, **using the following model**:

- ✓ **Must have:** these are essential or necessary components of opening up data, and specifically for any project seeking to open up more data for re-use. As such, they are the bare minimum required to open or release information for reuse.
- ✓ **Should have:** these are components for increasing the usability and usage of open data. They are important actions to take, and, though not vital, can add significant value. These components make an open data project of good quality, long-lasting, and support overall impact.
- ✓ **Could have:** these are components for creating a good open data ecosystem. These components are more about connectivity, and ensuring the wider economic and social impact of opening up data. If these components are not pursued there will be little overall impact on opening up data.

This paragraph aims to identify what is required at a minimum, what makes open data better, and how any location has the capacity to become one of the best digital city regions for open data.

Overall ambition: Ensure that open data is available, accessible, of good quality, and usable.

1. Data

First and foremost, data must be available, of good quality, and usable. Given the large quantity of data that could theoretically be published, it is important to take a systematic, or curated approach to data publication, prioritising datasets according to their potential value.

Overall ambition: Ensure that open data is available, accessible, of good quality, and usable.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Source and identify datasets to publish • Create a website or other location to host the data • Create a pipeline of work to support more open data releases 	<ul style="list-style-type: none"> • Run regular consultations with key stakeholders to identify the most useful and needed datasets • Create a complete and comprehensive list of metadata 	<ul style="list-style-type: none"> • Create visualisations and interactive maps to enhance usability and allow users to explore data on their own terms • Publish a contextual narrative about the background of datasets

2. Data management

Strong data management and information governance processes are essential to the success of an open data project. Having designated data stewards and data champions is one way to encourage effective data management. Maintaining and opening a full Information Asset Register with designated responsibility for each dataset is another possibility, which helps to support information governance considerations. Embedding an information governance lead within the open data team could also help support responsible management of data.

It is also necessary to have a place to store and find the data that is easily accessible. Internal data architecture needs to be as a top priority ‘robust,’ prior to opening data, as outlined by several participants in the open data workshop.

Some of the wider research conversations also drew attention to the benefits of maintaining an in-house data portal rather than using an external template or provider. This gives advantages such as oversight over data quality and updates, bespoke security standards, and greater agility.

Overall ambition: Ensure effective data management and information governance procedures are embedded within the design of open data programmes.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Designate responsibility for open data to a specific team • Clearly define ownership of different datasets 	<ul style="list-style-type: none"> • Create data steward or data champion positions to ensure that data is managed effectively • Include an information governance team member on the open data team 	<ul style="list-style-type: none"> • Build and maintain an in-house rather than external data portal to improve data oversight and flexibility

3. Leadership and strategic alignment

Direction and purpose are also vital to driving the agenda forward. Open data must be aligned to clear organisational goals and strategies, and will not work in isolation. Aligning open data with a wider strategy can also prove useful in getting multiple organisations on board.

Overall ambition: Gain senior support and buy-in for open data, and strategic alignment of open data with wider organisational goals and strategies.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Embedding the open data agenda within wider organisational goals and strategies • Build long-term senior leadership support that spans beyond changes in personnel 	<ul style="list-style-type: none"> • Create an open data policy, setting out approach, responsibilities, and data release • Design appropriate KPIs to keep track of the direction and outcomes of open data 	<ul style="list-style-type: none"> • Designate specific responsibility for information, going beyond the traditional role of a CIO, to include open data and information governance, to a senior leader

		<ul style="list-style-type: none"> • Embed data leads within senior leadership
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4. Culture

Clear open data principles and frameworks can support the development of an ‘open data culture’. Building an open data culture is essential to ensuring local government employees and other key stakeholders have the confidence to make the decision to open more data, and view this as an integral part of their job. A culturally embedded open data agenda is likely to encourage data managers to publish data that is of wider value, even where there is a perceived risk of data misinterpretation. Such an agenda could help to prevent the view of curating open data platforms as simply a tick-box exercise, as observed in several case studies and wider discussions. Critical collaboration, involving close interaction between those with specialised domain knowledge and those with a strategic perspective on open data, can help facilitate this cultural change.

Encouraging interactions between data users and data managers can also be key in terms of encouraging cultural change. For example, attending and supporting local data events is one possible way to build links with the grassroots data community.

Overall ambition: Embed the open data agenda into organisational culture, building a collaborative, and enabling culture that supports greater openness.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Attend and support local events to build links with the grassroots data community • Promote data releases to local and national data community 	<ul style="list-style-type: none"> • Create a guiding set of open data principles • Build up a set of use cases to articulate the wider value of open data 	<ul style="list-style-type: none"> • Designate a member of staff in each department to be tasked with data publication • Encourage the public to pitch analytics projects directly

5. Sustainability

Sustainability is about a lot more than financing (although long-term funding is still an important consideration.) Sustained funding can provide a sense of permanence and confidence that makes a strong statement about the importance of open data. It can also make a strong statement about the organisation, or the place, as a driver of the digital sector through open data. A measured, iterative approach, involving regular evaluation exercises, can help ensure that mistakes do not become ‘baked in’ to an open data programme. This ensures continuous improvements, sustains buy-in from stakeholders, and can help justify continued operational funding. To keep an open data programme active, it is vital not to see data publication as the end goal. Improving and increasing the usage of existing data sets is equally as important as increasing the overall size of the data catalogue. Automation of data updates should be built into any open data programme early on.

Overall ambition: Achieve long-term certainty and sustainability of open data initiatives.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> Obtain long-term funding for open data 	<ul style="list-style-type: none"> Automate updates as far as possible Review the use of published data and make relevant changes to data publication 	<ul style="list-style-type: none"> Create and maintain a Use Case Typology to keep track of the usage of existing datasets

6. Licencing and Standards

Data standards are important, especially across multiple districts and agencies. While it can be easy to set and maintain standards within an organisation, it can be much more difficult to achieve consistent standards across multiple organisations. This problem can be partly mitigated by creating a data standard, or data quality checklist that all data owners must complete in order to publish a dataset on the portal. Making these standards open, and working with partners over time to develop and embed these standards in data collection, can have a significant impact on the usability of data. While our case studies identified that it is often overlooked and viewed as time-consuming, the truth is that a good quality metadata can make a dataset much more

valuable. Links to data sources, contextual data, and references to other datasets improve usability, accessibility, searchability, and allow data to be utilized in a more connected way.

Overall ambition: Ensure adequate data and metadata standards and licensing of open data.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Create a basic data quality standards checklist • Commit to the Open Government License standard for licensing data 	<ul style="list-style-type: none"> • Create an organisation or region-wide governance framework for data and metadata standards • Create a process to ensure that data publishers follow the basic data standards checklist • Develop and agree set data standards and schemas 	<ul style="list-style-type: none"> • Give clear consideration to the balance between portal size and its subsequent impact on standards • Create use cases to illustrate the value of standards to motivate data owners to subscribe to higher standards

7. Communications and awareness

A strong communication strategy is vital to the success of open data initiatives. This should focus on making data available and effectively communicating the availability of that data. It could also include plans to ensure that open data is easy to find and navigate, with filters, text searches, categorisation, and links between related pages. As well as communicating the availability of open data itself, it is also important to communicate what an open data project is trying to achieve, so that potential users understand what is on offer. Data drops essentially involve publicising new datasets on a blog or a social media channel to raise awareness of the new data and communicate its broader purpose to potential users.

Overall ambition: Ensure easy discoverability of data and clear messaging around the value and purpose of open data.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Create a strong communication strategy to guide data releases • Develop a central repository of metadata for all datasets, where information is stored in different places 	<ul style="list-style-type: none"> • Create 'data drops' to communicate new data releases more widely • Build a feedback function to gain insights into how users interact with the site and data 	<ul style="list-style-type: none"> • Design and hold hackathons to increase demand for datasets and find new uses for them • Design and hold innovation days

8. Commercialisation

The idea of commercialisation is still relatively new terrain, especially within local government. When asked about engagement with the private sector about the data they would most like to use, most cases identified that they had not done this previously. The most commonly cited datasets with a potential for commercialisation largely relate to transport data. There is an existing high demand for good quality, real-time data, and transport data is already systematically collected by transport providers.

It is important to consider the distributional impact of data commercialisation and ensure that benefits can flow to smaller as well as larger organisations. Data leaders should try to maintain a level playing field and make data accessible to as wide an audience as possible – for example, through creating measures to support all businesses in accessing and using complex data. It is also important not to make assumptions about what kind of data will be perceived as valuable. Any data programmer should keep in touch with the business community to keep track of data demand as it emerges and develops. These conversations should then feed into a prioritisation matrix for new data requests.

Overall ambition: Encourage commercial engagement with public sector open data, actively seeking to identify and address demand.

Example to support this ambition with the matrix:

Must do	Should do	Could do
<ul style="list-style-type: none"> • Hold conversations with the business community to establish the needs of the potential user base • Create a prioritisation matrix for new data requests 	<ul style="list-style-type: none"> • Consider the equalities impact of opening data 	<ul style="list-style-type: none"> • Identify and create measures to support SMEs in accessing and using data

1. 5. Cases and Experiences: Analysis and Transferability

Opening data allows others to make use of it, which can also benefit the originators of the data in the form of data getting enriched or simply as new cooperation opportunities.

A key concept in making open data as useful as possible is that of semantic interoperability – the ability for two systems to exchange data with the meaning of the data remaining intact. In order to facilitate this, the linked data paradigm, as the name implies, links the data in a way to make semantics explicit and even machine-processable.

As such, the Linked Open Data Working Group has recently published the [Best Practices for Library Linked Open Data \(LOD\) Publication](#) – a practical guide for libraries wishing to publish linked open data.

LIBER (Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries) is the main network for research libraries in Europe.

The guide is based on a survey of library-linked data projects conducted by the working group and further refined in a workshop during the LIBER 2020 Annual Conference. It is important to note that there are many different types of library data and there are many different approaches to producing linked open data. The idea behind the guide was not to provide a strict technical manual but rather take a more general approach presenting the various considerations that need to be taken into account when publishing Linked Open Data.

As such, the guide strives to function as a primer for planning a Linked Open Data publication project and goes about this by dividing the process into six steps and discussing each in turn. It also functions as a springboard for delving deeper into the specifics of each step as needed by any particular project.

The LIBER LOD Working Group has developed six steps when it comes to publishing library LOD. For each one of these steps, we share related practices and decision points, potential actions to take, and useful hints. It is worth noting that the process is not strictly linear. Iterations to revisit steps can occur, and new adjustments can be made. This aspect specifically applies to the three steps of the ‘data modelling’ process, which are highly intertwined and may run simultaneously rather than sequentially. Moreover, it should be noted that not all of the six steps are always required. If, for example, you are building an LOD hub from scratch, there is obviously no previous data that requires conversion. Hence, the steps can serve as a guideline which can be adapted accordingly to LOD needs.

Step 1 – Planning the Publication Process Planning the project is always the first thing to do when getting started. Because linked data can be complex for many, starting small is the best way to gain experience and feel comfortable with the various publication stages.

The following points need to be taken into account at this stage:

Scope of the project. Defining the aim of the project is critical. Do you want to acquire experience? Gain interoperability with other datasets? Or, are you simply testing the waters, exposing your own dataset to see if anyone would use it for their own purposes?

People and expertise. The project team needs to have the knowledge to handle several tasks. These include choosing a dataset, modelling the data, describing the data with standard vocabularies, deciding how to present the data using URIs, converting the data, providing machine access to data, choosing a publication license, announcing the published datasets, taking care of stakeholder communication, and recognizing the social contract (that is, keeping the data available and updated once published). Interpersonal skills to communicate with team members, as well as a good knowledge of the dataset(s) at stake are also important. Knowing how to model the data requires, first and foremost, knowledge of the domain the data represents. Using multiple vocabulary is also a significant skill, which requires a broader understanding of the information ecosystem, as well as domain expertise. If the selected dataset demands extended curation, the team member with the most relevant skill set should be easily available.

- 1) **Tools:** The team should be familiar with the relevant tools for converting the data. There can be several possibilities: from programming your own scripts to using open source or commercial software. The same applies when cleaning up your dataset(s).
- 2) **Resources:** Workload and timing of the project should be well planned. According to the survey “Linked Open Data: Impressions & Challenges Among Europe’s Research Libraries”³, which was conducted by this group, the respondents claimed that labour costs made up the major part of the resources required in their linked data projects.
- 3) **Steps and milestones:** Setting steps and defining milestones will help you get through the project more easily and in a structured manner. Apart from the steps described in this document, smaller accomplishments such as choosing and finding the right tools, forming the project team, and setting a workflow, will be important during the project.

Step 2 – Choosing and Curating the Dataset Even with the scope of the project having already been clarified, there are still considerations when choosing the dataset(s) for linked data transformation and publishing. According to the W3C LLD Incubator Group report⁴, the term ‘dataset’ refers to a set of ‘library-related resources’. As an example, a dataset may include bibliographic data extracted from catalogues (data from bibliographic records or authority files), a local value vocabulary, or data related to a specific collection. The current section describes the criteria for dataset selection, as well as the necessary steps for its curation, and clean-up. In addition to the factors influencing the development of the project in general (experience, expertise, resources, goals, etc.), the following points need consideration: content, systems (from which system or systems (e.g. online catalogue, repository, database, API interface, etc.) is the data going to be extracted?), types of entities used, reuse, metadata schemas (what type of legacy metadata (e.g. MARC21, Dublin Core, MODS, VRA, EAD, TEI, etc.) is used?), size and data quality, uniqueness and popularity, ownership and privacy.

Data - curation and clean-up. Cleaning up may require significant resources, and thus the selection of the dataset may depend on the extent of curation and the number of employees available to perform the task. Data clean-up involves fixing errors and inconsistencies, removing whitespaces, correcting differing formats (e.g., of dates), removing duplicate information, adding missing data, etc. It must be noted that it is a matter of policy if the data clean-up will be done to the original data or to the data that will eventually be published as linked data. Nevertheless,

every step of the clean-up process must be well-documented to enable the implementation of the data clean-up workflow to other datasets or the improvement of the data clean-up process in case problems occur.

Step 3 – Identifying the Resources to Link to The Semantic Web aims to create links between data and make these links understandable by machines. As mentioned previously, LOD refers to a set of principles that make these links possible and afford accessibility to the interlinked data on the Web. The more entities (e.g., things, events, people, locations) that are connected together, the more powerful, comprehensive and expandable the data can be.

Apart from the target linking between local data and external ones, there are also specific procedures, where linking is used for data refinement purposes. Reconciliation, for example, involves the replacement of local values with their respective ones, as taken from well-known controlled vocabularies, like the Library of Congress Subject Headings (LCSH), or the Art and Architecture Thesaurus (AAT). Further enrichment is also accomplished by the recognition of named entities (Named Entity Recognition) and the addition of their URIs to the dataset. Both processes may be executed with Open Refine extensions. It should also be noted that the number of open-source tools, especially in the case of NER, is rather limited.

Step 4 – Applying a Model: Element Sets and Value Vocabularies. One of the reasons for publishing library data as linked data is to free data out of MARC (or equivalent) silos. That said, the danger of creating LOD silos is also present, and this is a good reason why libraries need widely-known models for describing their resources (wherever possible).

By applying models to data publication, the bibliographic entities, their attributes and their relationships will be better understood, both in the context of the library and outside of it, since there will be external definitions and references. Such widely understandable data will therefore, present a higher re-use potential.

Step 5 – Converting the Data. No matter the exact implementation chosen for the conversion, you'll need a mapping from the original format to the new one. Based on the output of data modelling, you should create a simple spreadsheet detailing the matching properties and elements in the original format versus the ones in the new format. It is possible that this mapping will not be completely straightforward and that you will end up with a moderately complex set of rules.

Aside from matching and converting the properties, you might also need to map and convert the values. The original data might have, for example, people, places, and subject headings that are referred to using a unique naming scheme. For linked data, these naturally need to be converted so that the values are identifiers that refer to the dataset about people, places, or subject headings. This mapping is not usually feasible to be done by hand onto a spreadsheet, but rather you should have the conversion program matching the data.

Once the conversion is complete, the result should be verified in some way. A manual inspection of the result is the first step - selecting some samples from the data and making sure that the result is what it is meant to be. Here it would prove useful to employ the original experts on the data, to have them ensure that the data is as it should be.

Step 6 – Making and Keeping Data Available and Up-To-Date. Once you have your LOD dataset ready, the final step is to publish it. Three concerns are prominent here: how do you serve your data?; how do you license it?, and how do you make everyone aware of the existence of the data?

How to serve your data

Serving your data depends on the amount of data you have, but offering a simple downloadable bulk file is usually good practice. It is very easy to set up and quite attractive to users who want to access the data. If the data is available in several formats, consider which ones could be of good use and therefore published.

Documentation and license

Aside from the data itself, you should also include documentation regarding it. One important aspect when making data available is also deciding on licensing. LOD, as the term implies is the use of an open license, and there are some specific options one can choose from. The simplest one is to opt for a Creative Commons (CC) license, which makes the use of data simpler as opposed to having a customized open license. CC018 is the most permissible of the CC licenses, but others can be used as well. It is also good practice to include license information in the content itself.

Making your data known

Work with your library's communication team to get the word out. It is becoming common practice for libraries to produce their own data catalogues - a website that lists the datasets, and APIs that the library offers, as well as some guidance on how to use them. When setting up a data catalogue, consider utilizing DCAT19, a vocabulary for describing datasets. Apart from setting up your own data catalogue, there are also general data hubs and repositories for various types of LOD data. For example, if you are publishing a vocabulary, Bartoc lists resources from all over the world; making sure that your data is included in it also increases its visibility.

Maintaining the data

The work does not end at publication. The data needs maintenance and it is common to publish an updated version every so often depending on the nature of the data. This means that when performing the publication steps, their repeatability should also be considered. Even if the contents of the data remain stable, it is still important to periodically check that all the links to external resources are still working. This means that it is usually a good idea to have a maintenance plan and schedule for each LOD dataset, which makes sure that the data is kept up to date and of high quality.



"Designed by pch.vector / Freepik"

1. 6. Project Work – Experimentation: Operational Settings for Digital Cultural Experiences

Digital culture uses elements and instruments of current and emerging technologies to create works that convey feelings and ideas. The act of innovation has expanded so much in our daily lives. It has become an essential part of imagining, which in turn builds the notion that there are different approaches to customary mass media.

In order to realize the language and symbol systems of our current culture, it is important to look at works that are produced from a wide spectrum of sources—from individual visions to the marketable media industry. Creativities in Art and life are so much dependent upon each other and interrelated. The study of the image and sound elements is an essential prerequisite to the proper shaping of ideas into communication.

Learners begin to explore the media arts as learning resources and learn how to analyse, interpret, and evaluate media art types. They learn to select among the media arts according to appropriateness of information and effectiveness of technique, and they begin to apply the range of basic skills needed for experiencing, criticizing, producing, and presenting all media arts genres. They draw upon their imaginations, experiences, or explorations of ideas and feelings in developing their own media arts productions and learn how to communicate and express themselves by generating, capturing, manipulating, producing, and presenting information using the media arts.

For capturing the youth, we must approach with basic methodology to practical knowledge of this method of art that can be used to teach and learn at various level of training.

The knowledgeable working cooperatively with youth and evaluating their own work in the media arts. Students demonstrate the Content Standards:

1: Students explore, generate, and develop ideas and feelings through creating media production. Teachers develop curriculum enabling students to:

1. Sequence or group a series of images and sounds to tell a story or show a relationship, such as by ordering a series of photographs or creating a photographic collage.
2. Create images and sounds to represent a series of events of a particular media genre, in activities such as storyboarding a video or role-playing a radio broadcast.

2: Students apply the media arts genres and their aesthetics to media productions.

Teachers develop curriculum enabling students to:

1. Identify the basic elements of time, space, sound, colour, light, and motion and use some of them in media arts productions, exploring music or colour, for example, to focus attention or suggest a mood.
2. Choose among media elements to organize in expressive ways the communication of an idea or feeling, perhaps reselecting colours for symbolic reasons or background sounds for a sense of place.

3: Students employ skills and techniques of a chosen medium. Teachers develop curriculum enabling students to:

1. Communicate information using effective presentation techniques incorporating media equipment to deliver an oral or visual report. For example, audiotape a story.
2. Refine a range of skills and techniques appropriate to more than one media genre in such activities as: making a collage of photographs from magazines on a single theme or using a paint program on a computer to make a design.

4: Students collaborate effectively in group media production and presentations.

Teachers develop curriculum enabling students to:

1. Actively listen to others and take turns, respecting the opinions, ideas, and needs of other learners.
2. Participate in more than one defined role in a group production or a presentation, by serving, for example, as the camera person for a group video and the audio mixer for a group radio show.

5: Students acquire knowledge of the genres, techniques, and aesthetics in the media arts. Teachers develop curriculum enabling students to:

1. Distinguish among types of media arts, by recognizing, for example, the differences between film, video, and computer images.

2. Recognize techniques of a media production, by identifying, for example, dramatic use of lighting and camera angles.

6: Students utilize critical thinking skills in the study of media messages. Teachers develop curriculum enabling students to:

1. Recognize the differences among media genres, identifying, for instance, the differences between fiction and non-fiction.
2. Interpret and evaluate the intent of a variety of media messages, inferring, for example, motives behind the ordering of information for the purpose of persuading the viewer.

7: Students demonstrate understanding and respect for personal, cultural, and historical contexts and the effects of media in shaping and extending human communication. Teachers develop curriculum enabling students to:

1. Describe how a media message relates to their own personal beliefs, values, and needs, by explaining a quality such as the appeal of a specific film.
2. Analyze and evaluate the influences on society of a variety of media messages.

2. Integrative modules

2. 1. Interpretation and Presentation of Cultural Heritage Sites

Socio-Cultural Impact

Digitization increases the accessibility and inclusion of cultural experiences. The digitization of heritage in Europe has been the subject of intense debate for the last few years. As early as 2018, The Innovation and Cultural Heritage Conference in Brussels brought together science, technology, the arts, the social sciences and the humanities to work together to achieve significant results in the development of digital cultural experiences through the application of interdisciplinarity (Collins, 2018). This idea has become particularly relevant in the context of the COVID-19 pandemic. According to surveys of the effects of the global pandemic, as many as 80 percent of Network of Museum Organizations have transferred at least some of their content to the digital space. In this way, the 'attendance' of some museums has risen to 150% of pre-pandemic levels (EHD Team, 2020). This popularity of cultural experiences has been fuelled not only by the transfer of existing resources to the Internet, but also by the creation of new exhibitions and tours designed specifically for digital transmission (Platform, 2020). In this way, a variety of cultural experiences, such as exhibitions, tours, video and audio resources, have become extremely accessible to a wide audience who, for various reasons, may not have been interested in cultural heritage until then. Initiatives such as the Culture and Cultural Heritage Division have developed lists of activities and places that can be experienced or seen anywhere in the world (Council of Europe). It is important to note that the issue of digitization is raised not only in the private sector but also in the public, even public level. For example, the French Ministry of Culture has set up the digital cultural platform #Culturechezvous, a database of more than 500 cultural and artistic operators located in France that can offer online cultural content (EHD Team, 2020).

Preservation through modern cultural presentation. Cultural values are affected over time, and in some cases, it is even extremely difficult to ensure that heritage remains the same over time. For this reason, digitization is understood as a way of conservation (Collins, 2018). The cultural heritage presented today attracts a larger audience and at the same time promotes its preservation. Using a variety of technologies such as XR, 3D, AI, and the like, cultural heritage

sites are brought closer to the expectations of the modern consumer (European Commission). Finally, people themselves are invited to contribute to documenting current events. For example, the Cities and Memory project has created a platform called “Sounds from the global COVID-19 lockdown”, which invites people to share sounds from a pandemic-affected world. Several thousand audio recordings have now been collected (Cities and Memory, 2022).

The problem of the transfer of comprehensive experience and the rupture of social connections. While digitization is commonly understood as a positive change in the cultural area, there is still growing talk about emerging threats and challenges. It is clear that digitization provides a safer, more convenient and more dynamic experience (Tips&Trends, 2020). Nevertheless, there is a risk that people will lose the social skills they need in real life, which will also be developed through visits to cultural heritage and the arts (Collins, 2018). Even when the threat of the pandemic subsides, many people remain attached to online cultural versions, thus losing the opportunity to experience the physical spaces where cultural heritage is presented. One of the ways to recreate a community-based cultural heritage is to combine digital and real experiences by encouraging people to come to museums, concert halls and architectural sites through various means. Culture hopes that there will soon be a return to live consumer activities, at least in part (Digital meets heritage, 2020).

Economic Aspect

Financial benefits and lack of investment. Virtual and augmented reality are expected to lead to even more new forms of cultural experience in the near future (Gil, 2022). Despite rapidly evolving technologies, the issue of funding remains relevant. Of course, smart technologies like audio guides or touch screens have already been applied in many cultural places, but full-fledged digitization is a much more expensive goal. For example, in some countries, revenues from cultural institutions have fallen sharply since the onset of the pandemic. but the cost of the creative process to further develop cultural content, especially digital content, has risen further (Gil, 2022). For private cultural institutions, this financial burden becomes too great, as the investment, while promising, pays off only in the long run. On the other hand, the maintenance and upkeep of the cultural sector should not be separated from other sectors of the economy, as cooperation between them is indeed very close (Dixon, [et al.] 2016: 39).

The need for specialists and the lack of digital skills. For the modern consumer, the use of digital culture is a matter of course due to the very widespread use of technology in everyday life. Cultural experiences are seen as opportunities for participation and learning (EHD Team, 2020). However, the creation of digital cultural experiences is still very often detached from the creators of art or heritage itself. The need to improve the digital skills of cultivators and artists remains an essential part of a successful digitization of culture (Gil, 2022).

Digitalization in tourism industry. The tourism sector is already undergoing rapid digitalization, helping service providers to meet the expectations of travellers. Mobile apps are becoming increasingly popular, allowing you to book hotels and travel tickets, plan routes and places of interest, and finally get updated information quickly and conveniently, even when you reach your destination (Lotte, 2022). The impact of digital technologies on tourism is likely to increase in the coming years. This will undoubtedly increase the availability of cultural experiences as well.

Physical And Interpretive Limitations

According to McKinsey Digital survey of 2 135 respondents (Julie, et al. 2017), the main challenges for the digital effectiveness in cultural sector are:

- 1) Lack of understanding of digital trends.
- 2) Lack of talent for digital.
- 3) Lack of IT infrastructure.
- 4) Organizational structure not aligned.
- 5) Lack of dedicated funding.
- 6) Lack of internal alignment (digital vs traditional business).
- 7) Business process too rigid.
- 8) Lack of data.
- 9) Lack of senior support.

All of these are limitations that hinder the digitization process but knowing them allows you to plan further steps to change the situation.

2. 2. How to Make Teamwork in Linked Open Data

As a reminder, linked open data (LOD) is an amalgamation of globally accessible linked data found on the internet based on the RDF standards of the semantic web (Berners, 2014). The data itself is released under an open licence meaning it can be reused and adapted for free. In some ways it acts as a virtual data cloud where anyone, who is granted permission, can change, create and consume data on an internet scale (Boxuan, 2012). By doing this, LOD has more meaning and comprehensive understanding rather than data that is simply collected and stored in a database where no one is able to access it (NetworkedPlanet, 2015). It is simply a more comprehensive manner of structuring datasets. Much of this data is collected by governments and multinational companies due to the vast amounts of data collected. Some of these types of data include geospatial, meteorological and census data (Land Portal, 2022); this is data that needs to be collected on a mass scale to make relevant conclusions of said data.

Indeed, teamwork can be referred to as the process of working collaboratively with a group of people in order to achieve a goal (October, 2022). This is important in many scenarios though most predominantly in a business or work environment where collaboration and communication with peers and management are key to successful operations and overall business health (Gaille, 2020).

How do teamwork and LOD combine?

Consequently, it would seem as though the topics of LOD and teamwork are very distant to construct a meaningful correlation. However, the motive behind LOD is for people to use the data for their own ideas, thus enhancing collaborations between individuals and institutions. One benefits the other and vice versa as both project ideas use and adapt each other's data. The key idea to take away is that LOD provides a multiplier effect of exchange and adaptation of data for various purposes (Bauer & Kaltenböck, 2012). Therefore, teamwork is demonstrated between businesses and institutions that exchange and capitalise on their LOD.

In the digital world, many technologies require software and data already sourced by other corporations to speed up tasks and ergo improve productivity. As these datasets are licensed to those who may be able to reutilise them prosperously, it provides a secure and reliable way of upscaling and improving data availability and enhancements (Izer, Skaf-Molli & Vidal, 2018).

Below are some real-life examples where LOD and teamwork have been fused to create some fruitful outcomes.

The first is regarding cultural institutions. A lot of these globally are willingly adopting LOD systems. In terms of enhancing their own position, LOD allows them to easily document and connect traces of certain artefacts with other ones already discovered and thus allowing them to obtain more specific historic significance (Alexiev, 2016). However, in relation to teamwork, Beshiri (2014) goes further by delineating that LOD can also be the basis of cooperation between cultural institutions. Archival material that has been shared from one institution can not only be linked to materials pertained by other establishments but rather can also facilitate further research and investigation due to LOD's interconnectedness. This teamwork can also extend to governing bodies to improve and disseminate the cultural heritage of a specific municipality or geographic region.

Another area where teamwork can increase the effectiveness of LOD is in the tech space. For example, institutions such as the Office of National Statistics have and publish much of their data and is encrypted through a LOD system (Networked Planet, 2015). People such as App developers can utilise this plethora of data to incorporate it into their apps. An example could be to use census data to see how many people are registered as disabled and then program an app that allows disabled people to see if certain car parks have disabled spaces for them to park. Ergo, the teamwork aspect is in the form that two different businesses can share their expertise via LOD to produce a product that is more elaborated than the raw dataset.

Additionally, Fink (2018) expresses how teamwork is expanding the mindset and creative narratives of art galleries and institutions. Specifically, with the good practices brought about through the adoption of LOD, artists are better able to produce and exhibit art that forms and emits a greater contextual narrative with the collaboration of artwork from other artists. Consequently, the American Art Collaborative has seen that more artists and art students are able to form better connections with the artwork on top of where it situates itself in cultural and historic context.

Lastly, another benefit of using LOD and its effectiveness on teamwork is providing more transparent governments (Land Portal, 2022). Through the sharing and dissemination and healthy adaptation of census data, Governments can better understand and respond to societal change and use this data to form various social and public initiatives that only help their population but also bestowed confidence in the public. This results in more amicable bonds between the public and government as the public are reassured that data about them is not

interpreted or manipulated in such a way that could cause them to harm due to the best practices that underline LOD. This could include economic or political exploitation (Posner, 2021)

In conclusion, teamwork is a fundamental part of how LOD can be used to its full potential. LOD allows for collaboration and partnerships between parties, be that in the public or private sector, to create more elaborate tools and services that benefit society. Due to underlying good practices of LOD, many of these products would not be possible without teamwork as it allows us to adopt LOD and use data sets in a secure and safe way that has positive effects for the data user and the creator. In other words, and from what we have seen, LOD could not be used as extensively as it is being used today if the concept of teamwork and team management was not its core principle.

2. 3. Target Audience and User Requirements

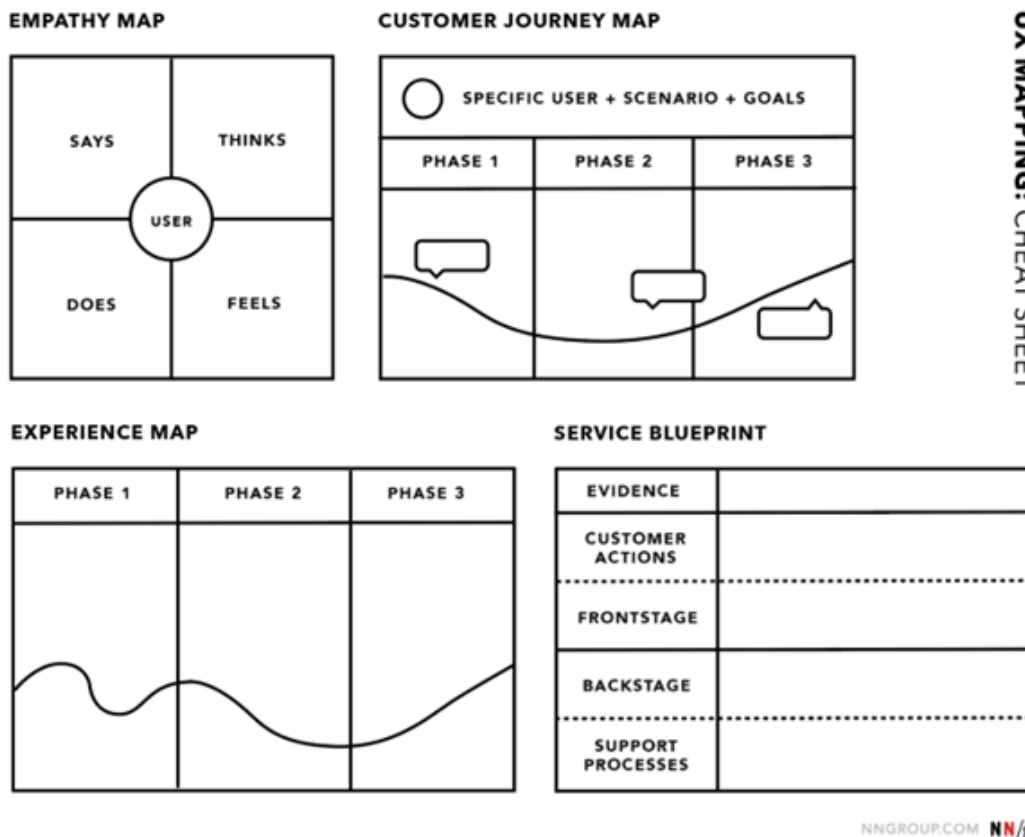
In order to properly implement cultural digital experiences, it's crucial to think about how the digital product will be experienced by the targeted end-users and not just by the tool creators, whether it being an app or website. In order to do that, we can do the design practice testing of the created tools from a user-centered perspective, the result being improved usability of the tool. The term for that is called user experience (UX) testing. Looking broadly, it can be used to improve product, marketing, UX, and merchandising decisions as well.

Our target group for the product are people with different backgrounds and experiences with different knowledge from us, which is why we must understand their needs and behaviours through the experience process. These are referred to as mental models. To gain understanding around it, we create visualizations, commonly referred to as mappings, which are used to describe various aspects and processes about the selected product. This allows us to get a clearer picture of how people approach the use of our product and whether their usage is aligned with our design idea, as well find the so-called "pain points" in the UX. Throughout the process, we can visualize the UX the average user will go through to accomplish their goal, and avoid misuse and confusion later when we push our product for the real use.

Experience mapping is one of the many options that UX creators and designers use in order to build the understanding of their product users. There are plenty of different UX mapping methods, and we will explain the most common of them.

Customer journey map, sometimes referred to as user journey map, focuses on the specific user's interaction with the selected product. It shows the whole process of the person's interaction

towards a selected goal, which is the reason for that interaction, the end being the accomplishment of that goal. That’s why journey maps are useful when the user has a specific need in mind when interacting with the product. It’s a detailed representation of all the actions the user will go through to get to that goal, it is their aim; for example, how the person will search for the information on a website, application, or interactive device. Journey map is always a linear, chronological process and is the series of a person’s goals and actions, presented by a timeline skeleton, which is then enriched by the user’s thoughts and emotions to create a narrative. The narrative is then used to get the insight and help with the design process for the tool. Journey map helps to break down bottlenecks by identifying user’s needs during the interaction, as well identify the pain and delight touchpoints. It also considers the thoughts and feelings of the user. Journey map is split into four “swim lanes”: phases, actions, thoughts, and emotions/ mindset. In the centre of it is the user. We create one journey map for each persona/ user type. Customer journey map can be used at any point in the design process: as a reference in the product design cycle, but in most cases, when we already have a finished product, and we’re trying to optimize the user’s experience (Gibbons, S., 2017).



UX Mapping Methods Compared

An empathy map helps designers to understand the user's mindset and build empathy. Unlike a journey map, it's not linear or sequential. It articulates what we know about each type of user and thus externalizes the knowledge about them, which helps us to understand them and aids us in the decision-making process. It gives overall perspective on four questions about them on the product that is being developed: what they think, say, feel and do. It's appropriate to use it at the beginning of the design process, or when categorizing notes about the user's feedback (Gibbons, S., 2017).

Experience map, as the name suggests, focuses on the experience, or behaviour, the user has while accomplishing the goal, and how the product fits into the broader experience. Unlike a journey map, it's not tied to a specific product. Since it explores a generic user's perspective, it's particularly useful when the specific target audience is unknown. The four key areas of the experience map are the same as in the journey map: phases, actions, thoughts, and emotions/mindset. The description of actions is also in chronological order. It's used to identify opportunities for new products, services, and features. In order to get a general understanding of human behaviour, it's recommended that we do it before a customer journey map, or when comparing different user experiences in order to converge them into a single one. Experience map is useful to do at the beginning of product design, because it helps us to understand user's experience without knowing much about the product just yet. One more great reason to use an experience map is that it allows the team to prioritize actions in their experience strategy and product timeline (Mayka, 2021).

Another commonly used UX mapping technique is called service blueprinting. At first glance, it has many similarities to especially experience map, because it's a visualization of the experience of a general user while aiming at the specific goal, as well it has touchpoints with customer journey map. Nevertheless, service blueprint can be best explained as part two of the customer journey maps. They can take in complex situations, but in comparison to both customer journey map and experience map, take in consideration not only the perspective of a user, but also provide the insight from the company side, this is the employees experiences in order to provide the best experience to everyone. That's why it's a good choice for all product and service providers which offer multiple choices to a single potential customer. With it, we can see how the employees interact with them too, and come handy when the latter is the key element of the interaction. It also considers the processes needed in the interaction, and is an ideal choice if that interaction is omnichannel and involve coordination of multiple departments. Because of its nature, it's chronological and hierarchical. The key elements to consider in service blueprinting

are customer actions, backstage actions, front stage actions, and support processes. It enables us to discover the weaknesses of an organization, optimization opportunities, and create organization-wide understanding of the provided services. It's recommended to use it after making customer journey mapping, when making changes of the processes, and when improving the weak points inside the organizations (Gibbons, 2017).

UX is a key element when considering digital-oriented products and services. It improves the harmony within the organizations, as well make user's overall experience much more pleasant and better. The key to it is in understanding the users, providers, and services and/ or products. It can also drastically improve the interest of the product or service, especially when the users are demanding a more interactive, and less linear experience. We should not forget the feeling of the conversation is important, and always think about a way to provide a story; and there's no better way to help us with that than UX mapping (Gibbons, 2017).

2. 4. Ideation

Ideation is not just a matter of getting the right people in the room, adding some post-its and beers to the mix, and waiting for 3 hours until the next disruptive venture is somehow brought into being.

A good ideation session is hard work! It is a structured process of guiding the right people through a number of carefully designed exercises to come up with innovative ideas.

There are a lot of tools available on the web that you can use to help you bring structure to your ideation session. So much so, that it has become hard to filter out the good tools from the bad. To relieve you from that stress, we have listed our top 10 ideation tools. That way you can have a more meaningful ideation session straight away.

Round Robin. Round robin is based on a principle called group authorship. As an idea is passed from person to person, it can grow and change in unexpected ways to uncover some unique and original concepts. Start with defining and writing down a clear How Might We (HMW) statement. Instruct each person to write down an unconventional solution on a post-it and have them pass it to the person sitting on his/her left. Ask them to write a reason why the proposal will fail and have them pass the post-it note to the left again. Instruct them to write down a way to resolve the critique. Iterate this 4-step process with different challenges.

Mash-up method. The Mash-up method is a fast and fun ideation technique created by IDEO that brings odd or unexpected things together to spark fresh ideas. So how does it work? The first step is to define a How Might We statement. After defining your challenge, pick two broad and unrelated categories. At least one of those 2 categories should tie into your challenge. The next step is to create a list for each category filled with elements of these two experiences. Try to list as many items as possible in two minutes. Time to mash-up. Combine items from both lists to generate new ideas. Try mashing up items that seem the most different and see if you can communicate the value of your inventions in ways that are relevant to your challenge.

Rip & rap. Rip & rap is very similar to the collages you might have made in elementary school. Only now you'll make a mood board around a defined HMW statement. You can use Pinterest or, if you're an older school type, you can cut out images from magazines, etc. Divide the participants into teams of 3 people. Each team has 30 min to form a collage. When the time is up, ask the teams to present their mood board to their colleagues. Ask participants to take notes on ideas they come up with based on other peoples' collages or other peoples' responses to their collage.

Brainstorming. Brainstorming is a much-loved group technique for coming up with ideas based on spontaneous, unfiltered creativity. The basic concept of training the brain to unleash "a storm of ideas" and get them uncensored back to paper was first formulated in 1939 by US author Alex F. Osborn and further developed by management theorist Charles Hutchison Clark. The brainstorming method aims at the quick and unfiltered collection of ideas, for example by asking the participants to simply "throw their ideas on the table". By brainstorming we mean a method of finding ideas during which the participants of the group contribute their ideas, without order and without filters. These proposals are initially collected without evaluations and without censorship, and are then analysed and deepened at a later time. As an idea-seeking discipline, brainstorming encompasses several aspects, forms, stages and dynamics. If you try your hand at this technique and know its advantages and disadvantages, you will make your next brainstorming session even more effective. While brainstorming is so tempting precisely because it doesn't have complicated rules, every session isn't necessarily successful. Find out in our article which rules and which aspects are part of a good brainstorming, when it is worthwhile to use this technique and how you can best prepare to put it into practice.

The 4 rules of brainstorming

-Quantity comes before quality: in brainstorming it is a matter of collecting a large number of ideas theoretically with the aim of hiding one of them that is better suited to the project or to one's intentions. Therefore, it is important to have a continuous flow of ideas, even if among these there are many foolish or weak in terms of content. Proposals perceived as wrong are also important to be later eliminated in contrast to valid ideas. Each participant must be assured that each contribution is considered and included in the choices.

-No criticism, discussion or comment during the session: To avoid disturbing or interrupting the flow of ideas or even causing silence in the room, this rule must be used. In other words: when speaking, one or more new ideas can be expressed. All other content should only be considered in the subsequent analysis phase.

-Record all ideas correctly: only if all ideas are reported, for example with the help of a blackboard or whiteboard, does the brainstorming session enter the evaluation phase without filters. Therefore, it is worthwhile to find a moderator or appoint a leader who is in charge of drafting a protocol and thus fixes most of the ideas during the session. It is important to remember, if some ideas are ignored and not reported, there is a risk of demotivating the participants.

-Think crosswise and let participants inspire each other. The "brainstorm" is composed of many independent ideas from each other, but nothing prevents us from taking a cue from one of the ideas already collected and developing a new one starting from this. Brainstorming has its own dynamic that can lead to the ideas of a session taking a specific direction or focusing on a common thread. In this case, the participants should not be afraid to accelerate the development of an idea or even to name one that goes in a completely different direction. Both mechanisms intensify brainstorming as a group technique and often lead to good results.

2. 5. Creative Use of Digital Technologies

As media and technology sectors continue to grow and reach more and wider audiences, it is important that the cultural institutions continue to keep up with the current trends. New media technologies are not only the new reality, they are the future that unlocks new ways of learning, engaging and interacting with many sectors, including exhibitions of cultural importance.

This chapter will explain the different media that are widely available, how they have been used in the past, and how they could be utilized in the future as well as, how they could benefit cultural institutions.

When referring to new media, consider the following technologies: laser scanning, VR/AR (virtual reality / augmented reality), Immersive installations, interactive installations and exhibits, virtual tours and online material and more.

After completing this sub-chapter, you should be able to:

- understand different digital technologies and their basic functions
- understand the importance of these technologies in the cultural sector
- learn how to identify and decide on which mediums best fit the project needs

Some mediums could be experienced remotely, from the visitor's house, whereas others are used to alter and augment the in-person experience of the visitors.

New media and creative technologies that can be experienced remotely

Online tools that bring the visitor to the institution's website

Interactive websites: websites that react to the user's cursor movement on the screen and reveal new information as the user hovers/scrolls or navigates the page. Interactive websites could be a great way to promote an ongoing exhibition that may include new digital technologies. They provide an immediate understanding to the audience.

An example of interactive website: <https://www.kikk.be/2018/en/home> (KIKK 2018 - KIKK Festival 2018 - 8th edition, 2018)



360 Tour of Tate Modern (screenshot)

Online Virtual Tours of Exhibitions: virtual tours could be either achieved by recording a guided experience through the galleries and the exhibits in the simple form of video, or they could also be produced as 360 videos that allow the visitor to navigate the space at their own pace and explore the artefacts in a video resembling the real physical arrangement of each room.

An example of virtual tours of exhibitions:

<https://www.tate.org.uk/about-us/projects/tate-modern-project/grimshaw> (360 tour of Tate Modern, n.d.)

Handling and interaction of online virtual 3D models of exhibits: Digitizing the artefacts and allowing people to rotate, zoom and spin the object in order to get a closer look and understanding of its form and appearance. When the 3D model of the artefact can be viewed in great detail and all around, rather than statically presented in a museum behind protective glass and at a distance, new observations can be made. It is quite unique to be able to handle even virtually an exhibition piece and really get to explore it.

An example of interaction with 3D models online:

<https://sketchfab.com/britishmuseum/models> (British Museum, 2022)

VR/AR technologies and kits: Virtual reality and augmented reality have made leaps during the last few years, making it possible for a user with only a smartphone and a cardboard VR kit to experience virtual worlds. This is a great opportunity for cultural institutions to reach new audiences even across the world. Making the institution available to a whole new audience, at a very low cost. The content presented within the VR experience could vary between 360 video of a site or a museum, as well as, a 3D designed universe.



Free 3D models provided by the British Museum

VR videos and content could be interactive or pre-recorded, and that would determine whether the video could be uploaded to a social network and be made available to anyone with access, or it would require a specialized app in order to operate.



VR Cardboard

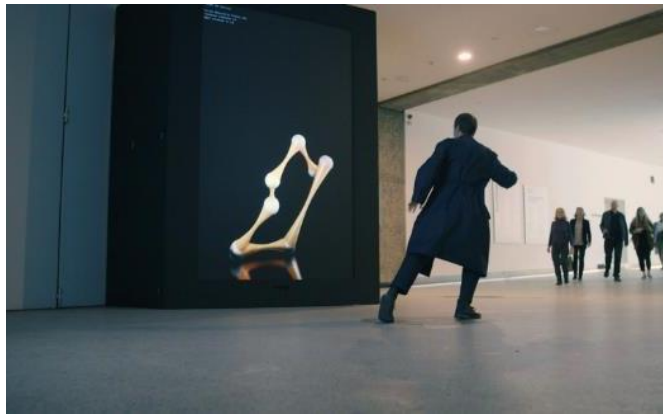
AR refers to augmented reality, where physical reality is overlaid with a digital element. It is usually experienced through specialized apps that use the camera of any smartphone to capture the physical layer and then using the screen, overlay digital elements that could also be interactive.

AR is widely available through prefabricated AR apps and some social network filters (e.g., Instagram). If the experience is detailed and intricate, the development of a new app may be required.

Here are some museums and exhibitions that use VR tours:

https://artsandculture.google.com/story/mwJiZHf_Y7FfLg (9 Virtual Reality Tours You'll Love - Google Arts & Culture, n.d.).

New media and creative technologies that can be experienced in-person



Example of Interactive Installation
(Motion-capture artwork – Universal Everything – ► Future You, 2019)

Interactive Installations: When interactive installations are broken down to their simplest form, they can be explained as 3 simple steps: sensing, processing and actuation. The installation observes the environment using various sensors, then gets the data, processes it and presents it back to the visitor in a multitude of ways. Interactive installations could be used to game-ify exhibitions, to engage audience and to visualize data.

Immersive Experiences: Usually involves rooms or spaces that are completely transformed into a completely different environment, either by using projections and soundscapes, or by transforming the spaces with physical materials so that it resembles a different environment.



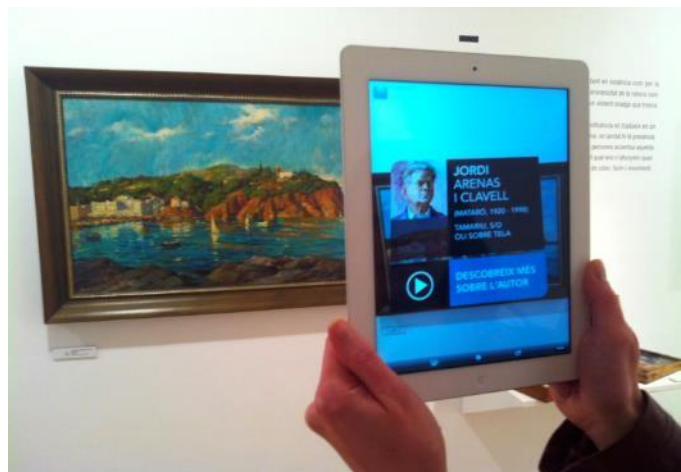
Immersive Installation by TeamLab
(teamLab: Continuity | teamLab, 2022)



Multi-sensory installation at La Cite du Vin
(The Buffet of the Five Senses, 2021)

Multi-Sensory Environments and Experiences: Where sensory activations are triggered through the exhibits themselves, should that be the smell of freshly brewed coffee at the museum of coffee origins, or the wind replicated in a museum room imitating weather conditions at a specific location, anything that activates the senses could be used in such environments. Smell, Taste, Auditory, Visual or Haptic activations are equally important in these experiences, this helps the visitors transport themselves in the exact conditions and context of the exhibit.

VR/AR: In contrast to the VR and AR that could be experienced remotely, this section explains that both of these technologies could be utilized in the home as well. Professional VR equipment, although widely available, it is not yet in most households, so setting up a VR station within the institution could benefit visitors by diving into virtual worlds that place them in a different time/reality or even planet. The AR technology could also be used within the space as various objects and locations could activate a digital layer and augment reality.



AR being used in a museum
(Where History Comes Alive: Augmented Reality in Museums, 2015)

2. 6. Digital Skills (Multimedia Design, Audio, Video Visuals)

Digital culture experiences are already a reality that will gain an even greater scale over time, making digital skills particularly significant. According to statistical data, as much as 54% of Allees Will Need Significant Reskilling by 2022, primarily emphasizing programming and App Development Skills, as technology-based jobs tend to grow (NJIT, 2021). Digital skills improvement can take place every day without reflecting on it - using conventional technologies such as mobile phones or the internet can be acquired as a strong basis for gaining higher skills. Intelligence in the Global Knowledge Networks allows you to understand the performance of the Collective Intelligence in solving both personal and global challenges, which include the cultural digitalization process (Menten, 2022). Virtual reality, computer games and Modeling Applications allow you to simulate real -world experience through technology, together with an understanding of digital technologies, capabilities and challenges. Ideally, digital skills begin to develop from an early age. It is important to understand that most of the resources that most have, such as computers, smartphones and more (Evidence for Learning, 2022).

Ways to learn how to manage digital technology:

1. Certificate Programs. Specialized programs introduce the fundamental principles of technology operation and help to acquire the skills needed. In response to the needs of the labor market, the learning program is purposefully arranged. Such training services are provided by both universities and private individuals.
2. Online Courses. Often free or relatively inexpensive, but also purposefully formed, online training programs and help to orient you in the world of technology and acquire digital skills. Online courses are extremely easy to apply to highly motivated individuals with at least basic technology management skills.
3. Self-Paced Learning. The Internet is rich in visual and textual materials that present the operation of technology and help to learn essential skills. The individual is free to choose everything - both relevant to him, learning methods and platforms and the duration of learning (NJIT, 2021).

The integrity of technology from modern everyday life allows us to talk about phenomena called human-computer interaction. Human-computer interaction (HCI) is a multidisciplinary field of study focusing on the design of computer technology and, the interaction between humans (the users) and computers. While initially concerned with computers, HCI has since expanded to cover almost all forms of information technology design (Dix, 2022). HCI is about understanding what it means to be a user of a computer and how to create related products and services that work seamlessly. In the future, HCI will become even more relevant, so it is useful to learn the basic digital skills now. The main challenge with HCI is that both technology capabilities and consumer needs are changing rapidly (TechTarget Contributor, 2005).

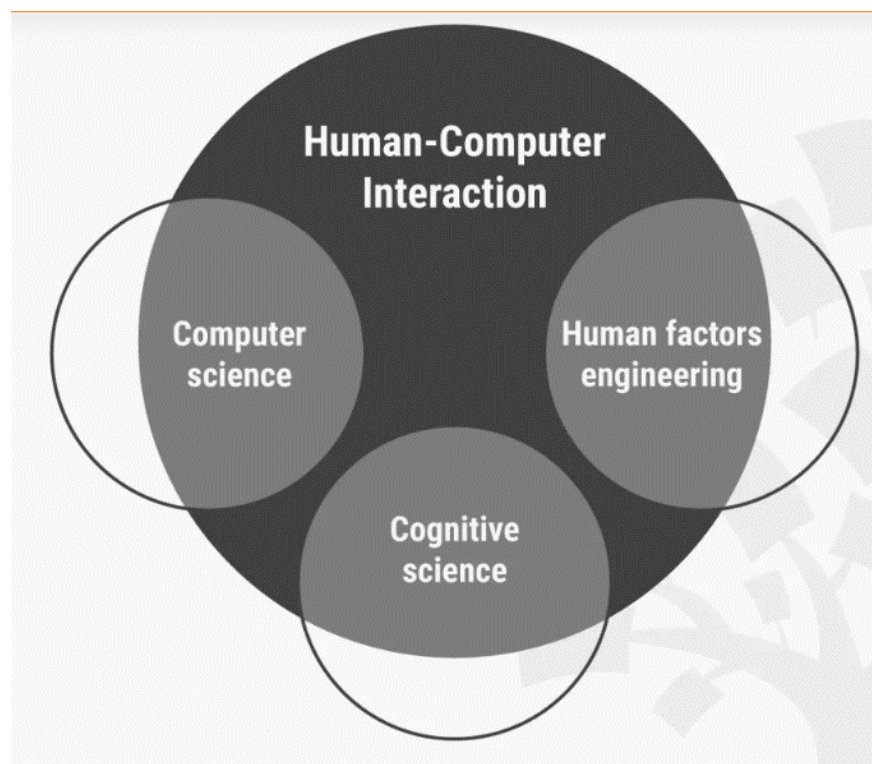


Figure 1. Human-Computer Interaction content

Digital content creation, multimedia (audio and video visuals and their combination for LOD)

Digital content creation, like any other creative process, consists of three main stages:

- 1) Content planning. What is the purpose and audience of the content of the work, and how it will be adapted to the changing technology and society? In the context of digital

technology, it is important to analyze how to ensure that the content created today will not be outdated in the near future.

- 2) Content creation. Tools and platforms are selected to implement the idea. If necessary, the content and the process of creating it are adapted to the altered circumstances. To this end, the Open Environment, where the data can be created, combined and consumed, is implemented by the Linked Open Data Concept, which gives the advantage over the developers of this technology.
- 3) Content delivery. In order for Digital Content Creation to be successful, it is necessary to ensure accessibility to as much of the audience as possible, choosing the right format - blog, video or audio records, infographics, or the like (Stapleton, 2020).

From the perspective of measuring consumed diversity, digitization makes it necessary to develop new measurement instruments that would make it possible to shed light on direct and different viewing, mobile content visualization, consumption via computers, smartphones, tablets, etc., and the effects of the multi-screen. In other words, instruments that go beyond the measurement of the offline audience, which was used until now to measure consumption. Different organizations and companies conduct measurements of digital media, varying in their degree of complexity and according to their instruments (Marengi, Hernandez Prieto, Badillo, 2016).

Digital culture should not be understood as a substitute for ancient culture; on the contrary, it is its adaptation to modern needs while maintaining the meaning and meaning of culture (14). Looking at digital culture and LOD datasets, it is worth noting that the use of LOD in cultural institutions remains extremely limited. **Limited LOD confirms:**

- 1) The nature of LOD pilot projects in cultural heritage institutions, although occasionally cooperating seems to be very experimental. Many remain at the concept proof stage, that is, the institutions' attempt to see what is possible. Often users cannot actually access data sets or interfaces, and documents are limited.
- 2) Trust remains an obstacle to greater LOD adoption. Computers cannot say whether some statements are incorrect or true. It is likely that once the source of the statement or results is approved or submitted, it will become best practice.

- 3) Published datasets have great potential for archive collections to be known. The more documentation is in the database, the more useful for researchers, but it still requires a lot of action.
- 4) More and more cultural heritage institutions are encouraged to use open data, but neither project still has so much philosophical LOD goals with technological experience (Edelstein, [et al.], 2013: 60).

2. 7. Digitization Process

Digitalization is the process of creating a digital copy of analogue material with all its associated data - creating a digital version of the primary source material. Digitization has been shown to be a complex and costly process, in which the translation of analogue content into a digital form is only a small part: much is dependent on the institutional framework, resources, and aims in which the digitization project operates, rather than merely considering technical issues about capture and storage (Terras, 2015).

A digital representation of an artefact is a representation of certain relevant characteristics of the artefact. It is not the original and complete artefact, nor even a metonymy or simulacrum of the complete artefact. It is only a representation of some “relevant characteristics” (Arnold, 2008). There are many different aspects of the creation and use of digital artefacts. It is inevitable that such artefacts will find their place in the range of techniques for historical documentation and analysis over time.

Digital systems rely on the binary numeric system, where all numbers are represented using only two symbols, such as 0 and 1, known as binary digits or “bits”. Strings of bits can build up a representation of text, image, sound, or 3D object, but the more complex the representation, the more bits are required to describe it, and the more complicated the mechanisms are that are required to capture, store, display, process, analyse, and convert the information held in the binary data stream (Arnold, 2008).

Digitization of library material is a very demanding and time-consuming process. It also requires professional knowledge and expensive and special equipment from the digitization providers. Due to lack of human and financial resources, some cultural institutions carry out digitization mainly in cooperation. (NUK, 2007)

Digital Capture

The purpose of digital capture is the creation of a digital copy of an analogue object. Digitization is dependent on capturing a representation of existing, analogue material. However, the resulting digitized representation of an original analogue object is not a replacement for the object (Straus, [et al.] 2022).

The semantic and visual information contained in the physical (analogue) material should be captured in a high quality digital version. The user must be able to read the full text in a digital copy of a book, magazine, newspaper, manuscript or any other textual document, including books and magazines that cannot be opened due to binding. It must also be possible to see all the details in photographs, illustrations, artwork, charts and maps that are necessary to understand the message contained in the material. The entire sound or video recording must be digitized. The three-dimensional object, should be possible to view from all sides.

Damaged film and audio-visual material shall also be restored or repaired. If possible, the filmmakers (director of photography, director) should be present during the restoration.

Before digitisation, the condition of the material should be checked to see if repair or restoration is necessary. In the case of damaged material (damaged pages, scratches on images, scratches on vinyl records, etc.), it is recommended that the restorers prepare the material for digitisation and restore it after digitisation. In such cases, it is good practice to find a second, better-preserved copy of the material that can be digitised (Slovenian Ministry of Culture, 2013).

European cultural institutions have developed a keen interest in digitizing cultural heritage, creating databases available on the network, and identifying global standards that are shared by all. The Europeana repository for example is an open access archive where digital copies, also 3D models, of cultural heritage objects can be viewed by a wide audience (Casu, [et al.] 2015).

The long-term preservation and access of digital exhibition files should follow established policies and procedures both in terms of local records management practices and access and preservation guidelines of similarly formatted materials within the collections.

Technical Guidelines for The Digitisation of Cultural Heritage define the basic technical standards used in the processes of digitisation of cultural heritage and cover the digitisation of photographic, audio and video sources, 3D models as well as 360° photography and video (Straus, [et al.] 2022).

Capture devices (Photo camera, 2d or 3d scanners etc) can operate on a variety of principles, with a variety of levels of precision and accuracy. There is no single scanning device or technique that can be applied effectively to all objects. Many different methods and approaches can be involved. It is recommended to produce more models of different qualities, but always with the aim of preserving key heritage characteristics of the original.

For each project it is necessary to define a method of permanent storage in accordance to the Guidelines for capture, long-term preservation and access to cultural heritage in digital form. The quality of digital documents is constantly increasing due to the speed of technological development and requires continued monitoring of advances so that the digital materials can correspond to contemporary demands. New solutions for the digital interpretation of cultural heritage are constantly being developed (Straus, [et al.] 2022).

3D Scanning

3D reconstruction offers a chance to digitize historic objects which are still extant, and also to reconstruct and visualize objects which are no longer extant and that can only be known from historic descriptions or depictions. With scanning it's possible to create a geometric model of an object from which a replica can be generated for display. It can also be used for animations and illustrations for presentations in visitor centres, museums and through the media, and therefore improving accessibility, engagement and understanding. The representation of a digital object typically consists of the surface geometry, on to which information about the surface properties (colour, texture) at each point is overlaid.

Many different methods can be involved. Each method has different advantages and disadvantages, including relative costs and accuracy, varying over time as further research addresses the limitations (Moitinho, [et al.] 2018).

The Process of Digitization of Library Materials in Analogue Form

Figure 1 describes a typical process of digitization of material in analogue form. The final result of the process is a library item in digital form, which represents the input of the Slovenian Digital Library (dLib.si) information system (NUK, 2007).

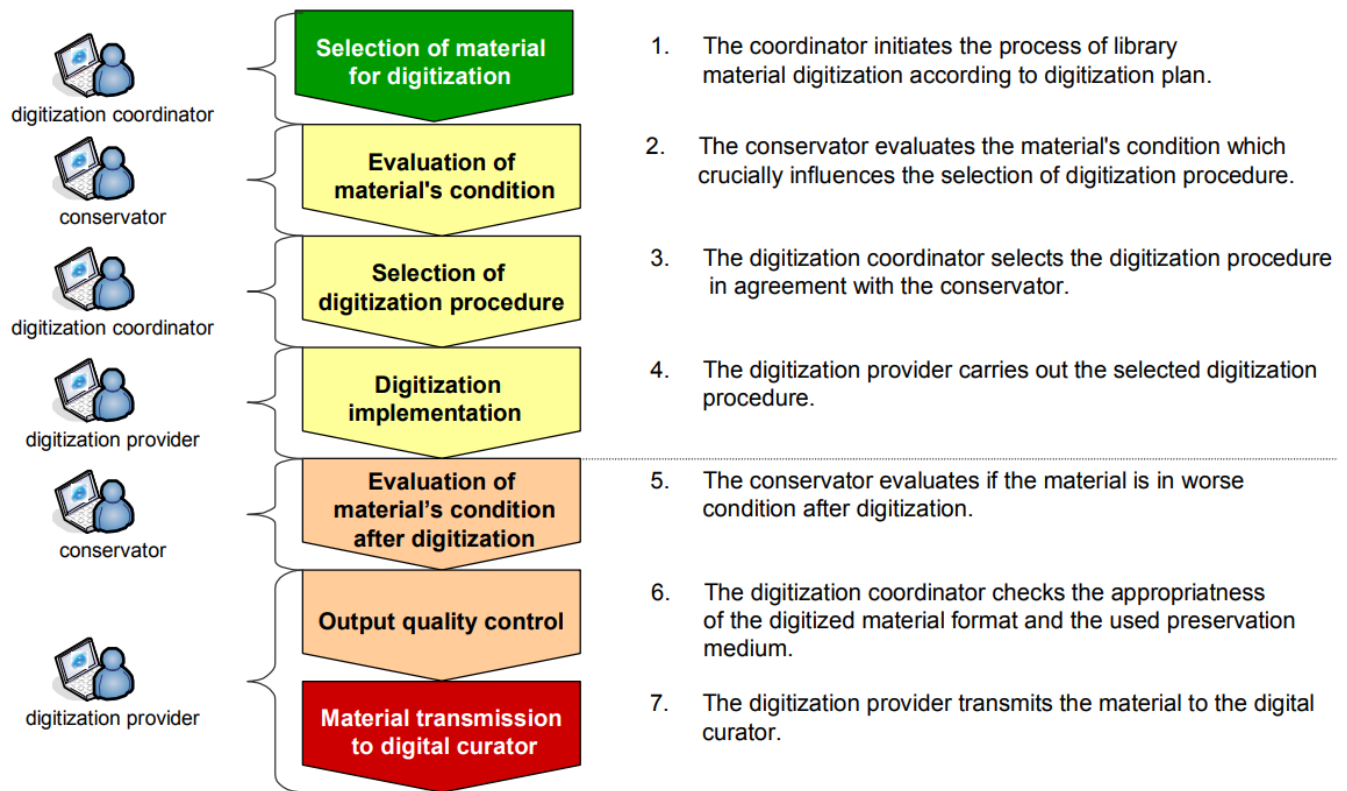


Figure 1: The process of digitization of materials

The most important activities of the digitization process can be seen in:

- conversion of physical or analogue library item into digital form of record (for instance, scanning, recording, image collection...),
- quality control of the digital copy,
- metadata assignment process, and
- transfer of the item, along with its metadata description, into the digital archive.

It is possible to make large quantities of digital records of a variety of collections so anyone can access them. An example of a successful project at the European level is European Travel. The project had two main objectives: Its first objective was to digitise a substantial number of resources from major university libraries and national libraries of Europe to make them available via Europeana. The materials included books, maps, manuscripts, photos, film negatives, postcards and other types of objects related to the theme of travel and tourism, one of the priority content themes identified by Europeana. Europeana portal links to tens of millions of

digital resources from over 2000 museums, archives, libraries and audio-visual collections from all over Europe ([EuropeanaPro, 2014](#)).

The range of digitized material in the cultural and heritage sector is as broad as the range of material held in libraries, archives, museums, archaeological sites, and private collections, including: printed books, printed journals, manuscripts, maps, photographs, photographic transparencies, music manuscripts, woodcuts, line drawings, paintings, archaeological site plans, archaeological finds, blueprints and architectural illustrations or plans, medical illustrations, documents, correspondence, newspapers, papyri, sculpture, clothing, artifacts, objects, furniture, buildings, archaeological sites, and any nature of ephemera (Terras, 2015).

Metadata

A key component of digitisation, which is particularly important for the long-term preservation and sharing of materials in digital collections, is to equip materials with metadata. Metadata makes possible several key functions – the identification, management, access, use, and preservation of a digital resource – and is therefore directly associated with most of the steps in a digital imaging project workflow: file naming, capture, processing, quality control, production tracking, search and retrieval design, storage, and long-term management. Although it can be costly and time-consuming to produce, metadata adds value to master image files: images without sufficient metadata are at greater risk of being lost. Equipping files with metadata is a key part of digitisation, especially as it pertains to long term storage and sharing of materials in digital collections. The registry of cultural heritage demands the use of metadata descriptions, specifically metadata descriptions following the Dublin Core standard. In addition to Dublin Core, we recommend following the specifications of Europeana Professional and the EDM - Europeana Data Model (Straus, [et al.] 2022).

3. Cultural area chapters

3. 1. Music

*For cultural institutions staff **with skills** in the IT, LOD and digital media.*

3. 1. 1. Presentation of cultural institutions

Musical cultural organisations are often referred to as musical conservatoires. These conservatoires provide professional music training, delivering musical higher education systems. Through the supply of degree programs within the curricula of music. In the UK, for example, there are nine conservatoires. These institutions offer programmes that qualify for professional music training, often specialising in areas such as popular music, jazz, or music technology. All the conservatoires are funded by either the UK government or the Scottish Government. In both cases, the funding is channelled through the higher education funding councils. Whose role is to mediate between the interests of the government and those of the higher education community. Therefore, conservatoires are funded according to the same principles as universities, although most receive a premium on this funding in recognition of the high costs of specialist training. However, it is important to note that all government-funded higher education institutions, including conservatoires, fund themselves through a combination of a government grant, student tuition fees, and other income. This comes as a result of government funding falling behind the rising costs met by running a musical conservatoire. Leading to a decision to increase admission fees from students. This has meant that in fact, government funding accounts for less than half of the income of almost all institutions (AEC Music, 2018). However, musical conservatoires remain subordinated to the state as the government sets limits on the fees that the institutions can charge.

Access to music and art culture has changed significantly under the combined effect of content dematerialisation, widespread use of broadband internet, and increased equipping of households with computers, game consoles, and smartphones. Over the last ten years, fixed devices have been largely replaced or supplemented by tools, most often mobile devices, that offer a wide array of features. A British study found that 53% of people active on the internet use digital media through web browsers and mobile applications to inquire about an event, music, or institution, buy tickets, view promotional video of performances or exhibitions, watch or listen

to full artistic work or even creating something artistic on the internet (Arts Council, 2022). In musical institutions, digital media and its communication standards improve the quality of contact with the public and interactivity and appeal of educational materials. Education materials have been brought about with the increase of widespread internet access. Nowadays, even teaching materials based on a work or aspects of the opera are more visual and interactive, making use of social media communication standards in order to gain appeal. Educational content must be easily accessible in order to be appropriated and used independently by members of the public, who, thanks to the internet are much more likely to educate themselves on subjects that interest them. Online users wish to have control of their learning experiences, which are increasingly personalised and less bound by geographical, time and material constraints. This is made possible by digitalisation and dematerialisation of cultural and artistic content. With technologies rapidly evolving, institutions must continually adapt and reinvent education media in order to keep abreast with changes (Pernelet, 2015). Digital media has enabled musical institutions to become more interactive and active, leading institutions to develop more and more projects inciting the public to participate in performances, explore venues, share information about a place, and even create music. Institutions, therefore, must strike a balance between innovation, ambition, and pragmatism when developing projects relating to digital and new technologies.

In terms of LOD, in the modern era musical institutions have been increasing their deployment of LOD into their everyday processes. This has included a transition towards open cultural data, which entails extracting data from cultural institutions and then redeveloping the data into machine-readable under an open license. The result of this is that information and data that has been stored away from the public in physical documents can be released and made accessible to the public who are interested in such information. This facilitates an increased understanding from the public when navigating the resources of musical institutions. Musical institutions are also making lower resolution musical pieces available for re-use while reserving high resolutions versions available for commercial sales and licensing. Ultimately, the key to unlocking the potential of open cultural data lies in the networked nature of the web of data. The internal and external benefits of linked data are in linking to other sources as well as providing linkable sources. Each open cultural dataset added to the web of data contributes to the wider network of content and knowledge and creates new possibilities for innovative experiences of our shared cultural heritage.

Digital competence provides the individual with the confidence to creatively and critically use technologies and systems. Once an individual has learned and acquired the necessary digital skills, the application of these skills is not limited to just a couple of capabilities and functions. Instead, they have learned how to engage and use technology, which enables seamless interaction and understanding of digital content that makes using, accessing, filtering, evaluating and creating, programming, and sharing digital content effortless and instinctual.

Existing Practices in Teaching and Learning Process

Technology-oriented tools/devices have long been an indispensable part of music as well as music education for many years. It is of great importance in music education for students and teachers and the future of music to follow closely and use the technological developments in the present age in which direct the future (Parasiz, 2018). The use of technology practices in existing musical practice are:

- Providing rapid spread of information
- Design of the individual learning environment
- Design of the active learning environment
- Learning to think critically
- Cooperative working opportunity
- Increasing interpersonal communication
- Global training opportunity
- Increased motivation to learn information

The technology that has been shown in the field of music has given a new perspective to the understanding of musical institutions. The tools in music combined with technology, bring a very practical form of technology in the music curriculum, provide an expanded for education for those interested in music and to help them understand the 21st music world.

The use of technologies can receive the content of the lessons in music, increase the motivation of the students by increasing their interest and participation in the lessons so this will bring effective/last learning and affect the achievement levels positively (Ibidem).

Education and technology are two basic elements that play an important role in bringing human life into a more active state. Rapid developments and innovations in technology are affecting individuals. It has become a necessity for people to use technology in their daily lives. For this

reason, IT, is being used as a tool to solve educational problems. With the use of technology in music education, it can be said that the fluency, clarity, permanence of the course, and teacher-student communication will be ensured at the highest level. The use of technology in music education is not for the purpose of eliminating the communication between the teacher and the student or breaking down the classical education system, but for using the advantages offered by them as a supporting resource. Traditional music education has become effective and multidimensional with the use of technology, and new technologies have transformed the music learning environment into a technological learning centre.

3. 1. 2. The role of youth

Within musical cultural institutions, it is recognised that the access of young people to music culture as musicians or users is an essential condition for their full participation in society. Young people's access to music culture can reinforce awareness of sharing a common cultural heritage and promote active citizenship open to the world (Interarts, 2008). These musical institutions recognise that cultural activities can allow youths to express their creative energy and contribute to their personal development which is essential for the creation and continuation of music in the future. However, musical institutions recognise that solely wishing for youths to visit musical points of interest is not enough. Therefore, many institutions have introduced new policy measures, consisting of subsidised prices, seasonal tickets, decreased subscription schemes, or free access for young people. Despite the effort of independent institutions, the objective of attracting young people as regular visitors is the responsibility of policy markets and public relations specialists and departments, who have larger resources and channels of communication to incentivised younger people.

Involvement of Young People

Younger demographics are currently not being reached by cultural institutions, especially those from disadvantaged backgrounds. Young people should be a target audience for arts engagement efforts to encourage a lifelong love of arts. These young people will go on to become future poets, sculptors, filmmakers, and musicians. Yet despite the great efforts of many cultural organisations and their funders, trend data indicates that young people's participation in arts and culture is

persistently flat, and in some cases declining across many forms. One in five people aged 16-24 does not attend or participate in arts activities (Tableau public, 2016).

Possibilities to Make Suggestions for Change and Improvement

At some music institutions, such as the Paul Hamlyn Foundation, ensuring schools-based music is delivered at a consistently high standard for all children and young people requires a renewed focus on innovation and partnership across the sector (Paul Hamlyn Foundation, 2022). Major changes in how schools are funded and governed, and the establishment of Music Hubs, are creating new conditions for schools-based music. There is potential to improve these structures and systems and to propose different ways to link elements of the musical ecosystem, which requires suggestions and reviews by stakeholders. Stakeholders can therefore take hold of the available resources currently at the disposal of music institutions and use them more creatively, more ambitiously, and more strategically to achieve our collective vision.

However, across musical institutions as a whole, there is the opportunity to improve the quality of provision and utilising the opinion of visitors, to create an evolved shared approach to quality, standards, inclusion, and progression of the musical arts. Institutions must put the correct channels and structures in place to receive feedback and then make suitable improvements as all stakeholders in the music eco-system need to work together to improve the quality of provision and to disseminate best and next practice (Ibidem). Teaching and leadership practice that is inclusive, differentiated, innovative, and creative; supported by the right resources, and underpinned by up-to-date research and evidence. This must become the norm, not the exception.

3. 1. 3. Future possibilities

The Goals of The Cultural Institutions

- To promote the highest levels of human aspiration and artistic integrity through the composition, documentation, and performance of music.
- Develop an analytical, creative, and intuitive understanding of music as a cultural language

- Afford students opportunities for cultural and aesthetic experiences through active participation in music, enhance their understanding and appreciation of the arts, and foster interaction between music and liberal arts
- Provide opportunities and guidance to prepare our citizens for a professional life in music through mentorship, internships, entrepreneurial experience, and training as educators (University of Maryland, 2022)
- To provide an education for the greater community that introduces them to the discipline of music through appreciation and performance, thus developing an informed group of advocates and affirming that music is an integral part of society and art education
- To support and foster an environment conducive to the professional and artistic growth of individuals interested in music
- To develop and foster an environment that acknowledges and affirms the unique contributions of the world's diverse population by creating and maintaining courses for music majors and non-majors in traditional, jazz, rock, folk, and non-Western music, and by programming music of diverse cultures on recitals and concerts
- To motivate learners to pursue their own interests and goals with confidence, and to facilitate young people's creativity.

Cultural Trends and Their Impact on Current Attitudes

The tight-knit relationship between music and culture is almost impossible to overstate. For example, policies on immigration, war, and the legal system can influence artists and the type of music they create and distribute. Music may then influence cultural perceptions about race, morality, and gender that can, in turn, influence the way people feel about those policies (Libraries, 2022).

The evolution of popular music in the United States in the 20th century was shaped by a myriad of cultural influences. Rapidly shifting demographics brought previously independent cultures into contact and also created new cultures and subcultures, and music evolved to reflect these changes. Among the most significant cultural influences on music are migration, the evolution of youth culture, and racial integration.

Even though pop music is frequently characterised as a negative influence on society, particularly with respect to youth culture, it also has positive effects on culture. Many artists in the 1950s and 1960s pushed the boundaries of socially acceptable behaviour with sexually charged movements and androgynous appearances.

The relationship between music and culture is reciprocal. Musical influences on culture include factors such as racism within the music industry, the content of particular genres of music that push conventional ideas of morality, and the physical appearance of individual performers.

The mass migration of Southern Black individuals to urban areas during the early 20th century brought the blues to the North. Influenced by their new urban setting, migrant musicians incorporated new styles, including vaudeville and swing, into their music.

Young people in the 1950s had increased financial and personal freedom giving them the power to influence record sales. Record companies began marketing rock and roll records specifically to teens, and the popularity of the new genre was enhanced by radio airplay and TV shows such as American Bandstand.

Large record companies fuelled racism in the music industry by hijacking the hits of Black performers and releasing censored cover versions by white artists. The practice cost Black artists royalties. Although many performers were angered by the trend, some believed it helped popularise their original recordings.

Positive Changes and Further Improvement

According to a McKinsey report (McKinsey, 2020), most respondents say their organisations consider it a priority to address skill shortages, few say their organisations understand how to equip themselves with the workforce skills they will need most.

The actions to take to train or upskill employees with IT, LOD, and digital can follow these recommendations:

- Understand which skills you need: companies need to recognise the skill gaps in their workforce. An effective diagnostic can show which skills the workforce possesses and which will be necessary for the future and the needs of the organisation (many of which will be IT, LOD, and digital media skills). Understanding which skills to develop in the workforce require a rigorous, empirical approach to comparing the supply of each skill with the business's strategic needs.

- Be strategic in how you close gaps. Companies must decide what actions they should take to address each gap. Filling most gaps will require a mix of approaches, such as hiring and reskilling. For each approach, it is necessary to decide which specific programs or initiatives to implement to gain the right skills in the workforce. This decision also includes candidate selection: which employees should be reskilled first? Meanwhile, companies should prepare the workforce for change by explaining the reskilling agenda, including each employee's future role and reskilling options.
- Build training capabilities and partnerships. Applying the science of learning will improve the outcomes of any reskilling effort. Companies should structure the learning journey to help employees retain new skills and apply them to their roles. To do so, the reskilling curriculum should blend in-person and digital learning opportunities. Employees should be assigned to train in a cohort of employees with similar experiences and should be involved with projects that allow them to practice skills while they learn. This is because organisations may need to cultivate a broad range of workforce skills. Fostering a culture of lifelong learning also can encourage employees to develop new skills.

*For cultural institutions staff **without skills** in the IT, LOD and digital media.*

3. 1. 4. Current challenges

One of the main obstacles to change in musical institutions, such as musical conservatoires, is to reconceive these institutions as public institutions. Actively engaging with the social issues of our times. Conservatoires may then become better known as institutions that support and nourish not just the dreams and hopes of the talented, elite, performers fortunate to enter their doors, but ultimately the aspirations of all musically inspired people (Tregear, [et al.], 2016).

Another obstacle to change is that musical institutions are often solely attracting music professionals, with little focus on attracting music lovers. As a result, performers are subject to purely entertaining. Whereas instead, they should seek to make a statement, seek, uncover or offer a truth, meaning, or message about the music they perform that also offers the audience something new to play with (conceptually, intellectually, spiritually, etc). In the musical institutions where this doesn't happen their work risks being perceived as just a pleasant distraction from everyday life or a self-serving indulgence for a privileged group of musical experts.

The Goals of The Cultural Institutions

The predominant goal of a cultural institution is to positively influence the maintenance, conservation, revitalisation, interpretation, and documentation of heritage, and facilitating citizens' interaction and engagement with heritage. Therefore, cultural institutions are important players in the promotion of cultural understanding, intercultural dialogue, and cultural diversity, and in the transmission of culture across generations. People from poorer backgrounds continue to be less likely to engage with the Arts, and the same is true of black, Asian, or minority ethnic heritage (Tait, [et al.], 2019). If you are disabled, come from a lower socioeconomic group, don't own your home, or don't have higher-level qualifications, you are less likely to have participated in the arts in the past 12 months. That is likely to fall further once recent government funding cuts and reductions in provision mean even fewer children are exposed to the arts. This report has identified three main barriers to engaging young people in the arts:

- Attitudinal barriers: a feeling that the arts aren't for people like you. It doesn't what time the show is or how much the tickets cost. You just feel like you don't belong.
- Functional barriers: Not being able to take part, regardless of how much you might want, because the opportunity isn't there
- Practical barriers: Not being able to come along, or not knowing that something was happening, because of an inconvenient time or location, prohibitive pricing or lack of information.

3. 1. 5. Possible solutions

Changes Without Additional Resources

- Identifying impacted groups who in the future should be offered support and resources
- Defining or re-defining the goals and objectives of a cultural institution
- Predicting resistance from future plans and strategies
- Assessing existing communication models and channels, and reallocating resources or voice to fit new strategy for change
- Internally training employees, upskilling individuals with new skills to do their job more effectively and efficiently

- Collecting feedback from individual customers to impacted employees
- Measure if planned changes are taking place within the organisation
- Identify gaps in organisational processes and develop suitable responses

Project's Contribution to the Implementation of Changes

- To make national groups of experts in the LOD management for cultural activities
- To increase knowledge and abilities in using LOD for improvisation and innovation in cultural services and experiences
- Enhancement of cultural heritage as open digital educational materials and tools.
- The setting up of multidisciplinary groups for organising and managing art-based training and educational activities.
- To explore museum activities, libraries, and archives, or other pilot projects for empowering youth in the management of cultural experiences
- Development of a European network for youth organisations working in cultural and technology fields
- Development of a European network for youth organisations working in cultural and technology fields

Leaders in the Cultural Institutions

Music leaders have accompanied human civilisation since time immemorial. Musical behaviour has likely played an important part in forging human social behaviour and will continue to shape societal beliefs and norms (Rabinowitch, 2020). Musical leaders have the power to aid in the promotion of human rights, through helping in the healing process, dismantling walls and boundaries, reconciliation, and education. Musical professionals from one culture have the power to exchange music with each other, they gain valuable insight into another way of life. Exemplifying the power to catalyse progress and remove social barriers.

3. 1. 6. Involvement of different groups

All of the groups found in societal life can be given the opportunity to participate in civic life through volunteerism, community service, and service learning. Citizens should be encouraged to serve as members of local communities offering their views on community issues or participating in student governments and influencing policy. However, not all groups within society are likely to be represented in local governmental bodies. Therefore, more has to be done to reach out to these isolated groups and promote social inclusion so that all-encompassing societal decision-making can take place. There are numerous ways to promote social inclusion and remove impeding obstacles:

There are numerous ways to promote social inclusion and remove impeding obstacles. Important are protection and empowerment of the vulnerable and marginalized, proclaiming the right to differ, and eliminating discrimination based on attributes, such as gender, age and ethnicity. Social inclusion can also be approached as an overarching cross-sectoral concept, which will then be incorporated, as an objective and a process, into sectoral policies, strategies, programmes, and other initiatives. Each policy or strategy must be reviewed as to whether it is inclusive, and if participatory measures are installed in the policy formulation, implementation and monitoring processes. This approach is particularly useful when tackling the structural aspects of social inclusion/exclusion, in areas such as poverty eradication, employment, and education. Institutional structures need to be transformed and institutional capacities need to be strengthened to promote social inclusion. Strategies need to be devised for enhancing visibility, taking into consideration the individual's needs and concerns, facilitating dialogue, and promoting community participation. The following sections discuss some of the existing frameworks and approaches and provide an overview of the conceptual framework considered to be most relevant in promoting social inclusion (DESA, 2009).

International Policy Frameworks pertinent to social groups

Achieving social inclusion requires long-term strategic response on the part of all institutions and organizations, also at an international level. There are mechanisms in place through a variety of international bodies and groups to support empowerment and capacity building of vulnerable and disadvantaged groups, including women, youth, older persons, persons with disabilities, and indigenous peoples. In this area, comprehensive frameworks have already been developed with

their implementation action plans or programmes adopted at the United Nations summits and conferences. Among others, the following are important: The Beijing Platform for Action; The World Programme of Action for Youth; The Madrid International Plan of Action on Ageing; World Programme of Action Concerning Disabled Persons. These commitments are expected to be implemented nationally and sub-nationally. Further efforts should therefore be centred around effective implementation of these frameworks and programmes of action concerning the vulnerable groups and individuals at national, regional, and local levels, in order to promote social inclusion.

Transforming the Mindset of People

While changes in legislation and policies supportive of vulnerable and marginalized groups, improvements in their access to resources and participation are fundamental steps to take, they do not by themselves, change relations of power, as their implementation is frequently obstructed by entrenched structures and values, and undesirable discourses, with culture and religion continuing to be used by a privileged few to legitimize unequal power structures. Unequal power relations must therefore also be challenged and transformed at the meso- and micro-level if social inclusion is to be enhanced. Social inclusion of the excluded groups can only happen if everyone becomes "part of the group" that defines the culture, values and standards of the society in which they live. Actions which can be used towards this purpose include education, dialogue and public awareness campaigns. 99 It is vital that the entire educational system is geared towards addressing the patterns of exclusion, and promoting pluralism, and respect for diversity and dialogue, as exclusionary behaviour is often perpetuated through educational curricula. School curricula promoting social inclusion should be established, for example, a curriculum offering theoretical understanding of how we fit into a larger global. Faith-based organizations and media can also play a major role in transforming people's mindset, and therefore should be included as important stakeholders in the endeavour in promoting social inclusion. Both faith-based organizations and media can be very effective in increasing socially inclusive discourse and reduction of use of language, which causes categorization and discrimination.

Young People's Contribution to Positive Changes

Volunteer

- Young people who engage in volunteering in their local community are given the opportunity to access and provide local touchpoints in the community, providing a real difference to groups in society who receive little support via funding or the roles/responsibilities within communities that need to be fulfilled.

Write to your political representative

- MPs need to hear from their constituents to uncover the problems within their local community and bring about change. It is especially important to hear from younger generations who will be the future leaders, business people, and citizens. Young people can use such official channels to raise awareness of issues they deem as important and need change. It is also equally important for local government representatives to have a way of communication with the youth in order to factor their needs and opinions into decision-making.

Use online platforms to reach others

- This generation of youths have a heightened ability to catalyse change through their mass use of social media. The power of writing blogs, sharing petitions, and standing up for what you believe in can foster universal change and acceptance of otherwise unheard views.

Giving other young people a role

- Young people seeking change have the power to inspire others to join you. Not only can young people teach other young people about important issues, but you can encourage them to teach others too, which can significantly contribute to change. That's one reason why many charities and organisations have resources for youth people who want to get involved as an ambassador for their cause. If you can create a team to join you, by giving everyone a role as an ambassador and a change agent, you're helping them to put their own ideas into reality and make a much wider difference.

Accessibility to People with Disabilities

Not everyone has equal access to culture either as a consumer or as an amateur or professional contributor. People with disabilities can face particular barriers owing to the inaccessibility of cultural premises, venues or, content. People in wheelchairs cannot attend a musical concert if the only into the hall is up a flight of stairs. These barriers persist even though the EU is part to the UN Convention of the Rights of People with Disabilities. Under the convention, the EU is committed to ensuring and promoting the full realisation of all human rights for all people with disabilities through the adoption of new legislation, policies, and programmes and the review of existing measures (European Parliament, 2019). Article 30 enshrines the right of people with disabilities to participate in cultural life: including access to cultural materials in accessible formats, television programmes, films, theatre, and other cultural activities; cultural performances or services, monuments and sites of national cultural importance. It also establishes the right of people with disabilities to develop and utilise their creative, artistic and intellectual potential, as both amateur and professional artists, and to have their linguistic and cultural identities recognised and supported – sign language for instance.

3. 1. 7. Heritage aspect

Music As National and World Heritage

Firstly, the definition of heritage must be understood. Heritage is both a source of identity and a receptor of value attributed to it by communities, institutions and people (Brandellero, Janssen, 2013). It encompasses a sense of time, providing a sense of one's own past (Lowenthal, 1985). Popular music heritage is present in national and world heritage in museums and archives, as well as in the use of these heritage pieces being used throughout society in media such as advertisements, films, and for individual-emotive uses. Valued for their attachment to musicians, or music genres.

The following songs are considered national heritage in the UK, as a result of their iconic ties to historic places, with tales of both real and imagined stories (English heritage, 2022):

- Zadok the Priest, HWv 258

- London Bridge is Falling Down
- Royal Birthday
- An English Country Garden
- Sussex By the Sea
- Medley Around the British Isles
- Water Music Suite

In terms of music considered world heritage, the UNESCO Collection of Traditional Music of the World included pioneering music from around the world. The following songs are a reflection of the immense variety of music-making and of the position, music holds across the globe:

- Afghanistan: Music in during the Civil War (1979–2001)
- Fiji: Songs of Love and Homeland—String Band Music
- Japan: Koishimaru Izutsuya: Master of the Kawachi Ondo Epics
- Oman: Arabian Weddings
- Peru: Andean Music of Life, Work, and Celebration
- Portugal: Festas in Minho
- Portugal: Music and Dance from Madeira
- Romania: Festive Music from the Maramureş Region
- India: Ranganayaki Rajagopalan—Continuity in the Karaikudi Vīṇā Style
- Uzbekistan: Echoes of Vanished Courts
- Uzbekistan: Musical Traditions of the Karakalpaks
- Venezuela: Afro-Venezuelan Music, volumes I and II

Music's Heritage Protection

Music is part of our everyday experience and should be respected, cherished, and maintained. It's also a very important component of our heritage that should not be taken for granted. One method to protect this musical heritage has been the distribution of music through audiotapes, vinyl, CDs, and digital media streaming services. These modern media are far less likely to deteriorate and become lost, preserving musical heritage and providing increased worldwide accessibility to music. Therefore, one type of preservation is the encouragement of the younger

population to interact with music considered to be heritage. This can be achieved through mediums such as tickets to concerts being at a reduced price for students and often free for children. Furthermore, it is becoming increasingly popular now for events to be live streamed, that provide a means of listening to younger generations and deliver the music using the means preferred and understood by younger generations.

However, these digital media forms have made it easier than ever to create and distribute new music. With such connectivity, we seem to have lost touch with our musical past (Global Heritage, 2022).

Digitization of Musical Heritage

By virtue of streaming services such as Spotify, Apple Music, YouTube, Tidal, Soundcloud, even musical heritage dating back to hundreds of years can be found and listened to online. These streaming services offer unrivalled accessibility and shareability that can retain and attract listeners to songs deemed to have a musical heritage. However, in the times pre-dating the surge of streaming services, such music was harder to find and to listen to when it could only be found on CDs, tapes, or vinyl.

Songs categorised as having musical heritage can be found online on websites detailing songs of musical heritage, with in-depth breakdowns and applications of the songs, to particular points in history. Furthermore, owing to streaming services, these songs can be found in streaming playlists and easily added to personal playlists.

Digital Technology's Role for the Preservation of Cultural Heritage

Devices such as the MP3 player, CD player, Vinyl deck, and now the likes of the Internet, Spotify, Soundcloud, and iTunes have all played and continue to play a role in preserving music of all types. This is all achieved by providing constant access to available music in these formats. With devices that rely on physical copies being able to be sold, traded, and borrowed fostering the sharing and distribution of music. In turn, preserving musical genres and eras. Devices and networks that rely on digital copies and streaming have taken this preservation a step further by providing access to millions of songs and artists, with a novel level of accessibility to music from past and present generations. Which fosters the distribution of songs that will forever preserve cult classics and music genres.

Genres such as Blues music are heavily rooted in the discrimination and slavery faced by African people. The Blues music is about the struggle of black people to survive and their efforts to obtain freedom. Therefore, by using this genre as an example it reflects how music can teach, describe and inspire listeners to learn about society in the past and this will influence their behaviour and ideologies in present society.

3. 1. 8. Digital resources and activities

RESOURCE 1

Name and link. The Contemporary Music Centre (CMC), www.cmc.ie

Introduction. The Contemporary Music Centre (CMC) acknowledges the unique role that music plays in the heritage of Eire. The CMC promotes modern music in Ireland and positions itself as an archive and resource centre for new Irish music. The site combines a curatorial approach together with a community-generated approach of many online music sites. It supports the work of music professionals across the island of Ireland including composers, performers, instructors, and students. It also provides a valuable resource for a cross-section of audiences. There is also an archive of musicians' works from across the Republic of Ireland and Northern Ireland. The aim of the site is to record digitally and physically, and preserve contemporary Irish music for future generations.

Tips on how to use. The resources on the CMC site are easily accessible. These include biographies, samples, pdf of sample pages, videos, downloadable podcasts, news and a shop. The site provides a good insight into modern Irish music. It provides personal reflections of composers and theoretical knowledge of Irish music, detailed information about specific cultural aspect of the music. Before setting the tasks, explore the site at a relaxed pace.

Activity 1. Pair work and whole group discussion

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. Evaluate the website based on its digital music samples, composer biographies, podcasts and interviews.

- A. Would a user gain a better understanding of Irish classical, folk and contemporary music based on the content of the CMC site? Provide examples.
- B. Will site users gain an insight into the theoretical and technical aspects of the Irish music showcased on the CMC site? Provide examples.
- C. Could a user understand the motivations behind a piece of music from the digitized material presented on the website? Provide examples.

Process. The instructor asks learners to evaluate the *CMC* website by reviewing its content and answering the two task questions A, B or C. Firstly, learners will navigate the website using the Composers, Music and Podcasts in order to answer the three questions. They will then select material from either Composers, Music and, or Podcasts to provide the examples.

Activity 2. Pair work

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. Evaluate the usability of the CMC website by casual users, professional musicians, music teachers and students.

Process. The instructor asks learners to evaluate the *CMC* website for materials adaptability for formal and informal learning environments. Firstly, learners will review the extent to which the method of presenting the material chosen on the website is attractive to users by considering colour and shape psychology, font, visual materials, informative content, image appropriability, layout, ease of navigation and accessibility; and secondly, how useful is the website for those wishing to adapt the content for informal learning contexts such as home teaching or use by informal teachers.

RESOURCE 2

Name and link. musictheory.net, www.musictheory.net

Introduction. The Music Theory website provides free on-line digitized lessons for those wishing to learn the technical aspects of music. The lessons can be used by a music teacher or a student for self-study. The accessible content includes Lessons, Exercises and Tools. There are additional tabs for Products, News and Content. The Lessons are theory-based

under the headings of The Basics, Rhythm and Meter, Scales and Key Signaling, Intervals, Chords, Diatonic Chords, Chord Progression and Neapolitan Chords. These lessons include an interactive commentary with graphics, and analysis are target chords, keys, scales, meter, and rhythm. There is also an interactive keyboard to practice playing the music. The Exercises are divided into Staff Identification, Staff Construction, Keyboard Identification, Fretboard Identification, Ear Training, and For Teachers. the For Teachers page is customizable. All the lessons are interactive with audio; the tasks include multi-choice chord identification exercises for instance. The Tools page is divided into Calculators, Utilities and For Teacher. All the tools are interactive.

Tips on how to use. The resources on the musictheory.net site is easily accessible and do not require registration or passwords. Firstly, explore the Lessons, Exercises and Tools tabs and familiarize yourself and your learners with the architecture, geography, and content of the site.

Activity 1. Individual work, class feedback

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. To evaluate one item in the Lessons page and decide on its suitability for teaching either children, adolescents, or mature learners. Summarize the content and share your thoughts with the class.

Process. The instructor asks learners to evaluate the content of the Lessons page. By reviewing and considering one aspect of its content, the learners will report on its usability, appropriateness and 'enjoyment' factor for lessons aimed at either children, adolescents, and adult learners.

Activity 2. Whole group activity

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. To evaluate the aesthetics of the website. This includes the aesthetics of the colour scheme and typography, the layout, its content and interactive learning apps and discuss the user-friendliness of the site for young learners, teens, and adults.

Process. The instructor divides the class into small groups. Each group discusses amongst themselves the following questions. Finally, the class presents their findings

1. Is the website structured in an intuitive way?
2. Is it easy to navigate?
3. In which ways will it retain the user's attention?
4. Is it easy to find information?
5. How would the functionality of the learning apps appeal to a wide variety of user?

RESOURCE 3

Name and link. Free Music Archive (FMA), freemusicarchive.org

Introduction. The Music Archive was established in 2009 by the radio station WFMU in New Jersey, United States. The site platforms original opensource music and other material that offers access and downloads free of charge. The site receives high monthly visitor numbers who download music for personal or educative use. The genres of music available on the site ranges from Jazz, Classical, Blues, International and Pop. The menu on the homepage is divided into Curators, Genres, Charts, About, For Musicians and For Film Makers. In the Curators, Genres, and Charts tabs there are downloadable tracks from various genres, countries, and regions. The About tab provides a history, philosophy, and motivation for the site; the For Musicians and For Film Makers tab provides information and tutorials on uploading music to FMA and links to other sites. There are also artist biographies. Tracks are played in a range of styles and instruments. Although the main language used is English, there are tracks in French, Spanish and Portuguese, among others. The FMA site is a virtual space for the collaboration between a cross section of those involved in music for pleasure, business and education including music curators, artists, radio stations, and music festivals, among others. The FMA site explains that it is motivated by the Creative Commons and the open-source software movement. It provides a legal and technological framework artist, musicians, and listeners to exploit the potential of music sharing. FMA also aims to compensate artists where possible.

Tips on how to use. The resources on the FMA site are easily accessible and do not require registering or passwords. Due to the size of the site and the quantity of material, it is

recommended that the instructor and students explore the site prior to the lesson to understand its geography and content.

Activity 1. Group work, Class feedback

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. To explore and discuss in what ways this site is an exploitable resource for one of the following activities:

- language learning (in informal or formal learning contexts)
- Source materials for a drama class
- Music for a dance recital
- Backing track for a film project
- Exemplar material for music lessons
- Material for exploring the music and culture of a particular region or country
- Use in a medical rehabilitation facility
- Use with visually-impaired learners
- A leaning-disabled child

Process. Put the learners into small groups. The groups discuss the activities before exploring the website's content for suitable material. Once the learners have selected suitable content, they are to discuss the content in relation to how it can be used in the nine activities listed above. The whole class then meets and discuss their findings with audio examples.

As an extension activity, the class could also demonstrate one of the nine activities with their selected material, for example, prepare a language class or a short drama activity.

Activity 2. Individual work, Class feedback

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), PC or tablet

Purpose. Students are to select one track from the site and write a short skit, lasting between 1 and 5 minutes, using a piece of music or commentary as a backing soundtrack.

Process. The students work individually. The student spends 10 minutes exploring the content of the Genres' tab; then they identify a piece of music or a commentary that they can use in their skit. The student then spends 30 minutes preparing the skit. The skit should last anytime between 1 and 5 minutes. The student then performs the skit. They will then be a peer review giving constructive feedback to the class.

Activity 3. Individual work, Class feedback

Materials needed. Smartphone, PC, or tablet

Purpose. Music can exhibit an emotional effect on the listener. In some cases, it can have a physical effect also. Students are to select four tracks from the site. They are then asked to think about how the track makes them feel, emotionally or physically. They are to visualise where they are and be prepared to play the track, present their thoughts, and discuss the music with their classmates.

Process. The students work individually. They spend 10 minutes selecting material. They then prepare a short oral presentation of approximately 3 minutes that tells the class the emotional (and physical) effects each of the four pieces of music has on them.

Activity 4. Group work, Class feedback

Materials needed. Whiteboard (WB), Interactive Whiteboard (IWB), Smartphone, PC, or tablet

Purpose. Music can help neurodivergent children overcome learning disabilities. It can stimulate cognitive functioning and language development. Learning disabilities start with auditory processing. Whilst a child's hearing is healthy, they find processing and understanding what they hear challenging. Some children are unable to process sound correctly; other children have attention deficits; other have problems with spelling, writing and overall learning, especially reading. Music strengthens auditory processing because music is processed in both hemispheres of the brain. Music also has other benefits including helping children overcome emotional trauma, physical impairments, depression, or psychological conditions.

Process. Students work in groups and devise a lesson plan to be used with one of the following groups: neurodivergent children, a teenager recovering from surgery, someone with depression. When compiling your lesson plan, think about the type of learner according to Howard [Gardner's Theory of Multiple Intelligences](#) (2011) which suggests there are 8 types of learners.

Once you have prepared your lesson plan, present it to the rest of the group for peer review and constructive feedback.

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of music genres	Recognize the importance of IT in the light of nowadays music world	Awareness of the need for digital competences in today 's modern world
Basic knowledge of how contributes to personal, regional, national and global culture.	Identify opportunities for teaching and learning value through music digitalization	Willingness to engage with digital technologies
Practical knowledge of how to identify materials for a music lesson	Blend music with the performative arts	Willingness to approach digital technologies in an ethical, safe and responsible manner
Practical knowledge of how to find helpful resources related to music	Identify opportunities to use music with people exhibiting learning difficulties	Openness to collaborate with digital technologies with a reflective and critical mindset
Factual knowledge of ways learning and teaching music is digitalized nowadays		Willingness to create digital music content to blend with performative arts

3. 2. Visual Arts

*For cultural institutions staff **with skills** in the IT, LOD and digital media.*

3. 2. 1. Presentation of cultural institutions

The National and University Library (NUK) is a public cultural institution. The library was established by the Republic of Slovenia and is financed mainly by the Ministry of Culture.

It is the main library of the University of Ljubljana for humanities and social sciences, the Slovenian legal deposit library and the trusted digital repository for Slovenian cultural and scientific heritage.

Best IT, LOD, and Digital Media Practices

The NUK uses digital media and information technology to carry out its work tasks as efficiently as possible, as well as to provide access to a variety of library materials and electronic publications. For searching material and information, the library offers various catalogues, databases and other information resources and services. As information technology evolves, new tools for searching and displaying content are also being developed. Metadata is essential for organising and selectively accessing content.

Digital technology has changed the way information is captured, managed and disseminated. The goal is no longer just the digitised product itself, but more sophisticated solutions or additional functionalities that enable a personalised experience of digital content.

Existing Practices in Teaching and Learning Process

Information technology has been influencing work processes for decades, most of which are now fully digitised. Technology is certainly also helping learning and teaching.

The National and University Library aims to provide the public with access to Slovenia's cultural heritage and to resources relevant to teaching and research. Digitalisation is of great help in this aspect.

NUK is also establishing tools for easier and faster access to digital content. The library is a centre of knowledge aimed at lifelong education of Slovenes, and at raising their cultural and educational level and information literacy skills.

Special library collections are also intended for in-depth scientific research and academic work. Along with their regular tasks, national libraries usually create special collections where librarians have an excellent overview of specific sections.

3. 2. 2. The role of youth

The National and University Library is the library of all Slovenians. Special care is also given to the students of the University of Ljubljana, for whom they act as the university library, in particular through the provision of materials, electronic resources, study space, assistance with research and training in the independent use of resources. Programmes, exhibitions and presentations are designed with all of this in mind to please the widest possible target audience. Of course, young

visitors, especially primary and secondary school pupils, are given extra attention when organising guided tours of the library.

Involvement of Young People

Users are an integral part of the library. Many visitors, users and members are students, including primary school students. The library's content is adapted to the age and preferences of its visitors. It is worth highlighting the various collaborations, such as with the Ljubljana Secondary School of Design and Photography, the Faculty of Natural Sciences and Engineering and the Academy of Fine Arts and Design, which have been working together for many years to organise exhibitions in the library premises. Such collaborations have proved to be extremely beneficial, as they allow contact, exchange of views and a better understanding of the younger generation of future users, who at the same time can co-create the library. Visitors' Possibilities to Give Feedback

User comments and feedback are essential for the improvement and development of library services, which is why regular surveys of user satisfaction with NUK library services are carried out in the form of surveys and focus groups. Users can get in touch every day in various ways on the library's website, as well as via all the social networking sites (Facebook, Twitter, Instagram, LinkedIn, YouTube), which are primarily designed for two-way communication.

As part of the promotion of EODOPEN, NUK is also reaching out to users to give suggestions for digitisation.

3. 2. 3. Future possibilities

The Goals of the Cultural Institutions

The library is committed to knowledge transfer and aims to offer users more sources of information and more materials. They plan to digitise Slovene libraries and develop tools for easier and faster access to digital content. They will continue to develop Slovene libraries and librarianship, disseminate knowledge and share experience, both in Slovenia and abroad.

Some digitised content is not user friendly and are not suitable for mobile and other portable devices. The EODOPEN project aims to create 15 000 items of digitally accessible material from the 20th and 21st centuries. The aim is to make the material available to users in a variety of

formats and to ensure that it is accessible to users of mobile devices Some materials will be adapted to the needs of blind and partially sighted users.

Cultural Trends and Current Attitudes

Open Linked Data is already in use. If content is shared with Europeana, Wikidata and geonames LOD are already in use. This makes the data more widely accessible and usable in different languages.

It is necessary to embrace new ideas and adapt to the changes brought about by the evolution of society and the environment. The NUK encourages and supports innovation in all areas.

Positive Changes and Further Improvement

What can drive positive change and further improvement? How to ensure that the entire team of the institution is with skills in the IT, LOD and digital media?

Over the last decade, cultural institutions have invested heavily in digitising cultural heritage. Slovenian cultural policy strongly encourages the creation of digital resources, especially through digitisation. However, there is a need for greater awareness among institutions, to broaden horizons, which requires more commitment. NUK is actively encouraging development of Slovenian libraries and librarianship, disseminate knowledge and share experiences, at home and abroad.

*For cultural institutions staff **without skills** in the IT, LOD and digital media.*

3. 2. 4. Presentation of cultural institutions

The Dolenjska Museum is a public institution funded by the Ministry of Culture and the Municipality of Novo mesto. It is a regional museum that covers the fields of archaeology, ethnology, cultural history and history and history of art. The museum also has a highly developed teaching service, and the Božidar Jakec Gallery and Kočevski rog branches are also part of the museum.

The biggest obstacles are: lack of investment funds and lack of adequate staff.

There are also problems with access to the museum, which is inadequate, especially for groups arriving by bus. Buses have to stop at a very distant bus stop, which discourages many people from visiting the museum. It is important to realise that the pace of life is getting faster and that people value their leisure time, which they tend to devote to further education, attending various events and other leisure activities. Since the mission of a museum is not only custodianship, which includes the basic tasks of the museum, it is also necessary to add new strategic guidelines, which are in line with the times and meet the needs and wishes of an increasingly demanding public.

The Goals of a Cultural Institution

The Institute carries out activities in the fields of archaeology, ethnology, cultural history, history and art history. In addition, it is active in the field of gallery activities and has a teaching service and a conservation and restoration service for archaeological material.

The museum is primarily responsible for collecting, recording, studying, documenting, preserving, protecting, researching and presenting the movable cultural heritage of the area for which it is responsible within the museum network. Through permanent and temporary exhibitions, the Museum ensures that movable heritage is properly presented to the general public. A very important mission of the museum is to preserve the cultural heritage, and then to present it in an appropriate way to a wider audience through exhibitions. Target audience is everyone interested in culture and visual heritage in all age groups, but the museum also has a broader segment in mind.

The staff want to increase international cooperation in both the exhibition and professional fields to continue the professional training of staff. They also wish to set up a permanent exhibition on the history of Novo mesto, for which additional space would have to be provided.

The museum also wants to complete the unified documentation and digitisation of the entire museum collection and link it to a simultaneous audit and inventory of museum objects by 2020. In the future, it should be considered to organise an International Archaeological Symposium in the Dolenjska Museum, which would involve other entities and would have more positive effects.

3. 2. 5. Possible solutions

Possible Changes without Additional Resources

For a museum to become a modern institution, it must also modernise and upgrade its exhibition, working and storage areas. The location in the Old Town is an advantage for visitors, but it limits the possibility of expansion.

Without additional resources, especially financial, it is difficult to make changes. The Museum is trying to reach an agreement with the Ministry of Culture to provide regular funding for the upkeep of cultural monuments of national importance. Changes should be introduced gradually and in accordance with financial possibilities.

The museum needs to improve its status through a wide range of museum activities. However, the programme should also be complemented in a meaningful way by other exhibition content that is deemed to be of interest to the institution, to have a positive economic impact and to increase the number of visitors to the museum.

Events should be creatively built upon, and visitors should feel that they are participating in a social event in addition to the professional content provided by the exhibition.

Ways of reaching a wider public must be sought at all times as a prerequisite for competing and achieving better results.

Project's Contribution to the Cultural Institution

The Museum agrees that it is necessary to include attractive, interesting events in the programme. The modern and uniform digitalization of the museum's material would certainly lead to positive changes. Collections would become even more visible and accessible. Learning with digital tools improves the understanding of cultural content, it would increase interest among young people and, as a result, more people would visit museums and galleries.

Leaders in the Institution

The museum provides professional training for its staff.

The fundamental virtues of the Museum's staff are; dedication to their work and high professional competence, on which the future of the institution must be built. The current

generation of employees has achieved good results, surpassing their predecessors, and the reputation of the Dolenjska Museum is growing both at home and abroad.

The quality of the team of professionals, the surroundings of the museum and the wealth of cultural heritage collected and preserved offer a great potential for the institution to become even more important in the years to come, and to surpass its current scope.

3. 2. 6. Involvement of different groups

Involvement of Different Groups for Changes

The museum has been working for many years with a group of retirees who are involved as volunteers, and could also involve young people more often, if they showed more interest.

The importance of cultural heritage and the preservation of visual literacy in today's hyper-visual world is crucial; the knowledge of how to read images is one of the competences that in today's world both in our daily lives and our social actions, constitutes one of the cornerstones of our understanding of our world.

Young People's Contribution to Positive Changes

Young people can undoubtedly bring their skills to bear on the development of new technologies. The museum also works with secondary school students, giving them the opportunity to undertake internships and holiday work. The museum works with young people where they can fill staff gaps. Especially when it comes to social media and online communication. That is why they like to work with media technicians. These collaborations have proved to be successful. The museum is doing quality teaching work, strengthening the link between kindergartens and schools and, in this way, creating educated and informed audience.

Accessibility To People with Disabilities

The museum has worked with people with physical disabilities in the past, but they have not made significant progress in this area, since there appears to be a low uptake in this demographic, even though everyone is welcome to attend the events. Cultural workers do their best to accommodate all people. The staff are committed to making buildings more accessible to

disabled people. The levels between the terraces in the outer courtyard should be removed, or ramps should be made.

3. 2. 7. Heritage aspect

Visual Arts National and World Heritage

Any work published as a publication is considered as cultural heritage. The artwork is kept in the library in accordance with the law. NUK under the Law on the Compulsory Copying of Publications.

The functions of the State Archives are performed by the Archives of the Republic of Slovenia, which is a body within the Ministry of Culture.

If the artistic product is, for example, a film, it is sent to the Slovenian Film Archive. The Film Archive is one of the units of the Archives of the Republic of Slovenia.

An art piece can be considered as heritage when it fulfils the conditions which are written in our cultural heritage collection policy. For example, a verified artwork by Božidar Jakac meets all the conditions to be considered cultural heritage.

Examples of Visual Arts Heritage

The digital content created is mainly aimed at studying or reinterpreting the past, or at improving the experience of and access to digital content. The results of professional and scientific efforts are smart 3D web navigation systems, virtual-reality 3D systems for virtual reconstruction, analysis and popularisation of cultural heritage, semantic structures in 3D models, semantic access to digital content on the web, different types of interactive access to digital content, etc. Linguists are most often involved in text analysis and semantic linking on the web. In museums, 3D modelling and virtualisation of exhibits or integration with archaeology are more common. Digital art is also emerging, allowing for a different experience of the artwork and greater engagement with its users.

Digital Library of Slovenia, dLib.si, dLib.si is an online library that is available to everyone - anytime and anywhere, via computer or mobile phone. The collection consists of the following:

- paintings: 3D objects, files, photographs, sheet music, posters, postcards, manuscripts, views, maps;
- texts: newspapers (articles, scientific articles), books, ARRS reports, higher education works;
- multimedia: virtual exhibitions, sound recordings; etc.

Protection of Visual Arts Heritage

NUK' Preservation and Restoration Department is responsible for the conservation-restoration and digitisation of important material and the legacies of writers and artists (pictures, photographic negatives, print material etc.). The digitisation process must ensure that the information contained in the physical or analogue object is fully captured. - with all the details in photographs, illustrations, artwork, maps, etc. The object must get its high-quality digital version. The three-dimensional object should also be captured by 3D digitisation processes, where feasible, from all sides.

Today, the goal is no longer just "gross" digitisation products, but more sophisticated solutions or additional functionalities that enable a personalised experience of digital content.

The Restoration and Conservation Centre of the Archives of the Republic of Slovenia is also responsible for restoration and conservation procedures, the preventive physical protection of archival records, and the provision of advisory services. The Centre works with archivists, librarians, curators, gallery owners and other stakeholders to safeguard the endangered cultural heritage. Specific methods of conservation and restoration are left to the professional discretion of restoration specialists, while the responsibility for storage conditions lies mainly with the broader society, which often does not have sufficient regard to the need for such investments.

First, artwork is properly stored in an acid-free passepartout, all harmful substances (e.g., adhesive tapes) are removed, and then it is carefully stored in a depot with suitable humidity and temperature. The entry in the inventory book gives the artwork a status protected by the law on the protection of cultural heritage.

Digitalization of Visual Arts Heritage

Anything that is not licensed under a PDM (Public Domain Mark) is protected. Some objects have one of the CC licences.

Publications obtained through the Obligatory Publications Service, that have a valid copyright, are available for in NUK. It holds pictorial material, portraits, photographs, a range of manuscripts, and other written cultural heritage. The results of the digitisation have been published online, making cultural heritage accessible to the wider public.

It's not clear how much visual art is digitalized in Slovenia today. In 2008, 56% of objects in national museums were documented analogue and 17% digitally, while in regional museums the proportion was much lower, with 18% of objects documented analogue and only 6% digitally. The Service for Movable Heritage and Museums (in cooperation with KulturAgenda, a foreign organisation) undertook the evaluation again in 2016. The main objective of the project was to evaluate and analyse the current practices and processing of documentation, digitisation of collections and data accessibility in 49 publicly funded museums.

Digital Technology's Role in Heritage Preservation

Digitisation makes cultural heritage accessible to a wider public and helps to raise the profile of the country or local area. Digital Library of Slovenia for example is an important feature since information resources are openly accessible to all users, and digital libraries are reaching out a wider audience than »classic« libraries ever did. The population of potential users is global with a wide range of information needs.

It is also a way of preserving heritage. Digital technology has changed the way information is captured, managed, and disseminated. The goal is no longer just "gross" products of digitisation, but more sophisticated solutions or additional functionalities that allow a personalised experience of digital content.

The digital content created, and the accompanying data provide valuable information for researchers in various fields in the evaluation, preservation, restoration and use of cultural heritage. The re-use of digital content allows multi-layered - both spatial and temporal - perception of cultural heritage.

The museum is also trying to introduce new technologies and new ways of displaying collections and exhibitions (virtual walkthrough, use of smartphones, etc.) to complement the presentation

of traditional exhibitions, and to introduce modern research techniques, which are already well developed abroad, but are still lagging behind in Slovenia.

In order to raise the quality, all employees must be constantly informed about new trends around the world and use it in their work. A clear vision for development, confidence in one's own abilities and professionalism are the basis for success in the current turbulent times and tight economic and financial conditions.

3. 2. 8. Digital Resources and Activities

RESOURCE 1

Name and link. Google Arts and Culture, <https://artsandculture.google.com>

Introduction. Google Arts & Culture is an online portal to real-world art, culture, and historical collections. The portal can be used for study, research, teaching, demonstration activities, art, entertainment. It was developed through close collaboration between Google and arts partners like museums around the world. From an education perspective this makes a wealth of rich cultural content available from the classroom.

The platform includes advanced search capabilities and educational tools. The contents of

Tips on how to use. The app is free to download and use, as is the website. You can sign in using a Google account, which allows you to save what you like for easy access later – a bit like bookmarking your best bits.

Activity 1: Examination of digital and digitized contents.

Materials needed. PCs, smartphones or tablet computers.

Purpose. The portal allows users to discover exhibits and collections from a variety of museums and cultural archives throughout the world. Students can access art that might otherwise be geographically difficult to experience.

Through the use of technology, the process of learning about cultural heritage can become interactive, simultaneously making it more educational, memorable, individualised and experiential. Users use digital technologies to securely acquire and use data.

Users can search for specific artists, or browse works from time periods, artistic movements, and collections. Augmented reality gives the viewer a sense of the scale for the work, allowing them to better experience the work as the artist intended.

Process. Let pupils explore. They can read a plethora of articles pertaining to historic works of art and artists, as well as informative pieces about past and modern cultural trends and important people. By going to the Explore page, users can browse the app's highlights like Art Camera, 360-degree videos, virtual reality tours, and street views. They can view specific artifacts and take virtual tours. Several works of art become available that can be dragged out into the space using augmented reality. This gives the viewer a sense of the scale for the work (Art Projector and Pocket Gallery tools). Once inside, users can click through the museum to explore various rooms. There is also an option to learn more about specific works in the tour as the user works their way through the museum. They can discover cultural sites from across the globe through games.

Activity 2. Group discussion

Materials needed. None

Purpose: During debates, students are able to gain a deeper understanding, appreciation, and evaluation of visual art. Students can become aware of the benefits that digitalized visual arts provide the general public, how technology contributes to the dissemination of art and possibilities of using (and abusing) digital technologies or information obtained.

Process. Pupils participate in guided conversations about how to find helpful resources related to visual art. The facilitator asks questions to evaluate the pros and cons of the app. Can technology contribute to the dissemination of art? Does it ensure preservation of the cultural heritage in digital form, thus digital contents of the past and present will be accessible to future generations? Can portal be used for study, research, teaching, demonstration activities, art, entertainment? Do digital libraries and galleries constitute an

essential component of the modern educational and scientific research process, and is one of the cornerstones of the information society development? Are games useful for consolidating knowledge?

Depending on the interests of the group, the specific resources posted on the site may be reviewed together.

RESOURCE 2

Name and link. The Night Cafe: A VR Tribute to Van Gogh,

<https://www.oculus.com/experiences/rift/1424068284285734/>

Introduction. The Digital Representation of the Van Gogh's The Night Café. The Night Cafe is an immersive virtual reality environment that allows you to explore the world of Vincent van Gogh first hand. User can enjoy his iconic sunflowers in 3 dimensions or walk around the chair he painted in his bedroom to see it from another angle

Activity 1. Explore the 3d representation of Van Gogh's painting.

Materials needed. VR headset

Purpose. New ways of experiencing art are explored by participants. Experience allows users to step into one of his paintings - The Night Café - and explore it in three-dimensional way. Virtual game creates a sense of presence in a place that's really only possible in VR.

Process. Facilitator introduce participants to VR headset, the controls and mechanics. Facilitator explains how setup is to configure the guardian boundary system. This is the safe space in your room you will play a virtual reality in. The guardian is meant to protect you so that you won't hit the wall or furniture when you are playing VR.

Activity 2. Whole group discussion

Materials needed: none

Purpose: Participants recognize differences between different forms of digital representation. They identify limitations of both physical and interpretational world, and recognize the importance of modern technology in the light of nowadays visual art world.

Process. The facilitator asks questions to evaluate the pros and cons of the 3d representation of paintings. Participants identify limitations - both physical and interpretational.

Is Van Gog's work well represented?

Can some interpretations of history be unacceptable: not factual, inaccurate, misleading, too simplified, offensive? What about other possible interactive experiences?

RESOURCE 3

Name and link. The National Gallery, UK; <https://www.nationalgallery.org.uk/>

Subpage 1: Sainsbury Wing) VR tour:

<https://www.nationalgallery.org.uk/visiting/virtual-tours/sainsbury-wing-vr-tour>

Subpage 2:

"Sensing the Unseen" tour

<https://www.nationalgallery.org.uk/visiting/virtual-tours/sensing-the-unseen-at-home>

Introduction.

The National Gallery of London is one of the world's most virtuous examples when it comes to immersive cultural experiences. It offers several free virtual tours that can be enjoyed right from home. From Google tour to tours dedicated to the Renaissance or particular artistic selections. (Collection of Early Renaissance paintings from 1200 to 1500).

Activity 1. Virtual tour of the national gallery 's collection

Materials needed. PCs or mobile devices. Optional: VR headset

Purpose: Participants explore Renaissance masterpieces from Northern Italy, the Netherlands and Germany, including works by Titian, Veronese, and Holbein, learns about art and rich cultural heritage in a new and fun way, and can move at their own pace.

The Sainsbury Wing, which includes artists such as Raphael and Crivelli, as well as some of the greatest treasures of the National Gallery Collection including the Wilton Diptych, Botticelli's Venus and Mars, and Leonardo da Vinci's The Virgin of the Rocks.

Process: Facilitators explains how to browse a 360 tour on your desktop or mobile. Gallery can be optionally experienced with VR headset. Users can click on the red circles to reveal more information about the paintings. Participants recognize importance of virtual tours, pros and cons.

Activity 2. Interactive experience Gossaert's masterpiece 'The Adoration of the Kings'

Materials needed: PCs or mobile devices. Optional: VR headset

Purpose: An app encourages good observation of artworks. Users can observe the painting close-up to reveal its intricate detail and wonder at Gossaert's artistry and mastery of technique.

Having the opportunity to learn without a direct influence encourages participants to value independent study.

Process: Facilitators explains how to explore and zoom into six scenes from Gossaert's 'The Adoration of the Kings' to see the painting's intricate detail and immerse yourself in a world of interactive sound. Users can listen as six short poems in the voice of Balthasar, one of the Three Kings, bring to life the painting's timeless themes of rupture, transformation and renewal.

In the experience, users explore six scenes from the painting brought to life with interactive sound. User can choose a scene to explore, move, zoom and discover sounds.

Learning Outcomes

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of the visual art sphere	Visual art, culture, and cultural awareness in education	Willingness to learn about visual arts
Factual knowledge of ways visual art is digitalized nowadays	Recognize differences between different forms of digital representation; Understanding concepts like digital capture, Simulated reconstruction	Openness to collaborate with digital technologies with a reflective and critical mindset
Factual knowledge of some of the most famous visual art examples, artists, medium, movement, places, and historic events	Understand where and how to find the required art pieces on the Web; Observation skills	Willingness to explore and observe
Practical knowledge of how to find resources related to visual arts	Identify opportunities for personal, social, or commercial value through the digitalization of visual art	Willingness to have an ethical and responsible approach to intellectual and cultural ownership
Practical knowledge of the benefits digitalized visual arts bring to the general public.	Recognize the importance of IT in the light of the modern day art world; Identify limitations of both physical and interpretational world	Awareness of the need for digital competences in today's modern world

3. 3. Cinema

For cultural institutions staff **with skills** in the IT, LOD and digital media.

3. 3. 1. Presentation of cultural institutions

Cinema and the film-making industry are an integral part of modern entertainment and cultural institutions and have created almost limitless opportunities for artists to break the boundaries of the human mind, dwell into imagination and shape both popular culture and society. Therefore, cinema is defined not only as the “art or technique of making motion pictures” but also as “something more than a technology – not just a new technological system of projected motion pictures, but one that, from the outset, involved projection onto a screen in a theatrical setting of some kind with a paying audience” (Musser, C., 2017, p.34).

Cultural institutions related to cinema are mostly private institutions, such as Google Cultural Institute and Internet Archive but there are also EU initiatives such as the European Foundation, an initiative of the European Union that empowers the cultural heritage sector in its digital transformation. In addition, another important cultural institution in Europe related to cinema heritage is the National Museum of Cinema (Museo Nazionale del Cinema) in Turin, Italy, which is a private institution managed by the Maria Adriana Prolo Foundation and is among the most important institutions in the world for its rich heritage and the diversity of scientific and educational activities related to cinema.

In Cyprus, there are few cinema-related initiatives that are both private and supported by the government. One of the biggest initiatives is the Cyprus Film Days International Festival (CFD IFF), the official competition festival of Cyprus is dedicated to the art of full-length fiction films. The festival is organised by the Cultural Services of the Ministry of Education, Culture, Sports and Youth of the Republic of Cyprus and the Rialto Theatre and has been held annually in Nicosia and Limassol since 2001. It is important to mention that since the initiative is supported by the state, Entry is free for students and children, as well as disabled people.

A pivotal time in the development of the world cinema scene was the transition to digital cinema, the introduction of digital visual effects, digital 3D, and digital spectatorship and exhibition and the transition from shooting on 35mm film to digital, besides the opposition of many major filmmakers to the latter (Belton, 2012).

The digital era and the growth of the Internet has resulted in a significant increase in the production of many sorts of digital content and practices, such as blogs, websites, apps, enhanced publications, maps, music, videos, broadcast materials, etc. Cultural heritage institutions such as galleries, archives, libraries, and museums have invested significant amounts in digitising their assets as well as technologies geared at expanding public access, such as multimedia digital platforms, including social media (*Ercole, Gennari, Dibeltulo and Van de Vijver, 2016*). Therefore, it is now expected from cultural institutions staff to be up to date with the IT, LOD and digital media skills and apply them in this context.

In this section, we will explore the connection with LOD, the connection with work processes in cultural institutions and what are the possibilities and advantages of LOD in the cultural and creative sector, and cinema. More specifically, we will explore the example of converting Cinema Context, an online Dutch film culture dataset to RDF (van Wissen et al, 2021).

In the paper, the authors describe their experience converting a relational database with Cultural Heritage (CH) data into Linked Open Data (LOD) and also share the different possibilities emerging from this process. The process is described in a thorough way in the paper, including information such as the “steps of data cleaning and modelling, up to publishing and evaluating the result” (van Wissen et al, 2021, p.1).

In short, what the authors suggest is that through this process and through LOD and by allowing more flexible links to other information (like buildings, persons, and heritage objects), a dataset can be upgraded and prospects can open up for widening and renewing historical and cultural research. Also, they mention that the specific vocabulary, schema.org, can be applied easily to cultural heritage data (van Wissen et al, 2021, p.4). In conclusion, one of the major advantages of LOD is that it can extend the capabilities of various sectors, since it is justified by the abundance of linked data, which enables new usage scenarios, creative applications, and sophisticated mashups and this can have an immense impact on the content created and stored by cultural institutions.

3. 3. 2. The role of youth

Cinema is a powerful contributor for culture, education, entertainment and politics. As mentioned in a 2011 interview by Tom Sherak, the then President of the Academy of Motion Picture Arts and Sciences:

“Film is a reflection of society, both present and past. Film and its innovations sometimes have to catch up to society but sometimes it leads society too. Movies are stories, movies are people who

come out with ideas about something they want to say, something they want to tell someone... Some movies take sides- you can agree or disagree with the content. Some movies take sides and create a conversation, and that conversation can be in any area; be it political, social, or even within specific disciplines such as fashion. Movies can create controversy, and tell difficult stories.”
(Shah Mbe, 2011)

According to data collected by the European Audiovisual Observatory, in the report “The Exploitation of Film Heritage Works in the Digital Era” young audiences are really difficult to reach (2016, p.48). For this reason, cinema and cultural institutions need to find new ways to attract young people.

For example, the Cyprus Film Days International Festival organises in addition to the screenings, a series of film workshops for children and youth-led by film professionals and has a specific programme curated specifically for children and young people. The Cyprus Film Days for Children and Youth is especially curated for young children aged between 9 and 14 years and its goal is to enhance the perception, aesthetics and intellectual maturity of young viewers. By introducing young audiences to quality world cinema, the festival gives them the opportunity to enjoy films, as well as to participate in workshops led by acclaimed film professionals; an initiative which aims at inspiring and developing children's imagination and enriching their emotional world. The workshops are addressed to children aged 9-13 and teenagers aged 14-19 and include topics such as new technology of immersive reality and 360° cinematography, improvisation and acting, filmmaking with handheld devices and animation, among others (Programme for children and youth 2022 - Cyprus Film Days International Festival, 2022).

3. 3. 3. Future possibilities

Since 1895, cinema and the film production sector have evolved profoundly and the digital innovations have been a major factor that led to these changes. Most people nowadays prefer to see films on television “whether terrestrial, satellite or subscription video on demand services” (A very short history of cinema, 2020). The majority of mainstream productions are now shot on digital formats, with post-production procedures such as editing and special effects taking place on computers.

We have seen that Video on Demand (VOD) platforms, such as Netflix, HBO Max and Hulu have taken over in the western societies. As Internet and technologies developed further in the 1990s, consumers began to gravitate towards non-traditional modes of content, which culminated in

the arrival of VOD. The only requirement is that the user has an internet connection and they can stream content either through a television, a computer, a tablet or even a Smartphone.

While subscription video on-demand services are a legal structure of movie consumption, the Web is full of unlicensed online movies (most commonly known as pirate movies), that can cost huge financial damage to media and film producers and therefore the key goal for cultural institutions related to the cinema is to realise the importance of the role of the viewer in the film industry.

Finally, to ensure that the skills of the employees in the cultural sector reflect the rapid technological changes and can lead to positive change and further improvements, they need to develop professionally constantly. This is another goal of cultural institutions and they need to provide opportunities for building the capacity of their teams. There are many opportunities available nowadays, for example, the Digital Culture Courses (Erasmus+ European Project), that offers free online courses offered by Dublin City University through the UniCampus - DigiCulture environment dedicated to adult learners with low digital skills. They offer a variety of MOOC courses in digital skills for the creative industries. Some of the courses include basics such as “The Internet, World Wide Web, and introduction to the digital world” and “Digital Content & Publishing”, but also more advanced content such as “Data Protection and Open Licenses” and “Digital Audiences and Digital Analytics”.

*For cultural institutions staff **without skills** in the IT, LOD and digital media.*

3. 3. 4. Current challenges

Cinema is undeniably a significant cultural, educational, entertaining, and political force. As a result, films, movies, and cultural cinema institutions do not only interact with current social, economic, and political events and societal changes, but they can also educate, influence, and direct people, and they can be a tremendous force both as educational and motivating tools, but as well as a propaganda tool. (Keçeci and Agocuk, 2017). This is one of the main obstacles and goals for cinema institutions, as they need to ensure that they can address properly the current societal changes and lay the foundations for education, searching, and cross-sectoral dialogue. Another major challenge that cinema cultural institutions have to address is how to attract young audiences that are usually budget-sensitive and are more difficult to reach (*European Audio-visual Observatory, 2016*, p. 54). Thus, cultural organisations should aim to reach as many target groups as possible, especially younger audiences, using different channels and methods.

Finally, another challenge cultural institutions have to face is to empower their teams and staff members to understand the importance of IT and digitalisation, since it can help them advance in their sector and improve their practices at work.

3. 3. 5. Possible solutions

There are many changes that are possible without additional resources, but of course cultural organisations need to have the vision and will to implement them. For example, when they design audience development strategies, it is critical to develop a tailored and creative film programming plan, especially when it comes to engaging young or harder-to-reach audiences. An organisation should always be attentive to different audiences' needs and be open to feedback and change. Moreover, cultural organisations should focus and invest in digital strategies to improve the experience of various target audiences.

The Digital Cultural Designer project can become a repository of ideas and best practices that can be used by cultural organisations across the globe from various cultural fields. The archive of the project's website can serve as a starting point for learning about essential concepts and the most basic procedures for developing a digital experience. Since the main goal of cultural institution teams is to reach as many target groups as possible, there is a need for people leading these changes and guiding towards keeping up with the digital era.

3. 3. 6. Involvement of different groups

As mentioned above, a cultural organisation should be attentive to the needs of various groups of the society in order to evolve and implement positive changes. Organisations should aim to educate people from a young age on the importance of cinema and filmmaking. This can be achieved through various activities to encourage interest and foster knowledge in cinema and film heritage. A good example is the Cyprus Film Days International Festival that organises annually a series of film workshops for children and youth-led by film professionals and has a specific programme curated specifically for children and young people (Programme for children and youth 2022 - Cyprus Film Days International Festival, 2022).

In addition, social media and online platforms can also be useful tools to target and involve different groups in a very affordable and efficient way. Through social media and social networks, cultural organisations can promote the creation of social communities focused on cinema and

heritage and this can be a driving force for positive change and engagement of various audiences, especially younger audiences.

A group of the society that usually is excluded from culture and cultural activities is people with disabilities. People with disabilities have the right to access cultural venues such as theatres, cinemas, and museums, as well as to enjoy cultural materials, books, films, and music in an accessible format, according to the United Nations (UN) Convention on the Rights of People with Disabilities (2011). The Convention also emphasises the right of disabled individuals to participate in cultural life as amateur and professional artists. However, people with disabilities still face many barriers in cultural life and cultural organisations need to make many improvements in this area (European Parliament, 2019)

The European Commission adopted a series of actions that promotes participation and accessibility in culture and can support cultural organisation in being more accessible, such as:

- the accessibility of the content and interface of Europeana.
- the European Accessibility Act, an EU directive adopted in 2019 that establishes rules for electronic devices, websites, and audio-visual media services that are accessible to individuals with impairments and functional limitations.
- the EU disability card that ensures equal access to benefits across borders for people with disabilities, mainly in the areas of culture, leisure, sport, and transport. The card is piloted in eight member states, among which Cyprus, and is expected to be recognised in all member states by 2023.

3.3.7. Heritage aspect

Cultural heritage refers to a group's or society's tangible and intangible heritage assets that have been passed down through the generations. “Cultural heritage includes artefacts, monuments, [...] museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible cultural heritage (ICH) embedded into cultural, and natural heritage artefacts, sites or monuments (UNESCO Institute for Statistics, 2009 UNESCO Framework for Cultural Statistics).

The connection of Cinema and cultural heritage is rather special. Though cinema and films are not recognised conventionally as intangible cultural heritage, there are scholars that argue that

a more holistic approach to cultural heritage would include the below concept of cinema heritage: “*tangible forms (such as the history of cinema theatre buildings and of the spatial dimension of cinemagoing), intangible forms (such as oral histories related to the cinemagoing experience) and digital forms (such as programming databases, and audio-visual archival material)*” (Ercole, Gennari, Dibeltulo and Van de Vijver, 2016).

As mentioned in a publication of the European Audio-visual Observatory, *The Exploitation of Film Heritage Works in the Digital Era* (2016), it is very challenging to define film and cinema heritage works, as “the category includes “classics” as well as “cult” movies, sometimes relatively recent in terms of release.” Also, usually, the target audience consists of a more mature audience and it is difficult to attract younger audiences (*European Audiovisual Observatory, 2016, p.46*). This is one of the many challenges that cinema and film heritage works face along with the fact that they refer to niche target groups and markets. In addition, language and cultural fragmentation can hinder cross-border circulation and usually require strong promotional efforts (*European Audiovisual Observatory, 2016, p.50*).

France is the country in Europe where film heritage is supported and promoted better, through media literacy schemes organised by the National Centre for Cinema and the Moving Image, an agency of the French Ministry of Culture (*European Audiovisual Observatory, 2016, p. 54*). Another initiative worth mentioning is the *Unlocking Film Heritage initiative and Digitisation fund*, one of the biggest film digitisation projects in the United Kingdom involving the BFI National Archive as well as national and regional audio-visual archival organisations (Unlocking Film Heritage Digitisation Fund FAQ, n.d.). However, it is worth mentioning that a limited amount of film heritage titles is commercially available, because rights holders do not see digitalisation as a reasonable investment in terms of future profits (*European Audiovisual Observatory, 2016, p. 56*).

A relevant initiative in Cyprus, is the National Inventory of Intangible Cultural Heritage of Cyprus by the Cyprus National Commission for UNESCO (Cyprus National Commission for UNESCO, n.d.) that does not yet include any national films as intangible heritage works.

In conclusion, the cinema cultural heritage sector urgently requires a multi-level, integrated strategy that can bring policymakers, film heritage institutions, and industry participants together to advocate for the recognition and protection of film heritage works and bridge the gap between financial priorities and cultural objectives.

3. 3. 8. Digital Resources and Activities

RESOURCE 1

Name and link. AUDIOVISUALCY: An Online Forum for Videographic Studies,
<https://bit.ly/3NwVPIf>

Introduction. AUDIOVISUALCY is an online forum on Vimeo created by Catherine Grant, (Professor of Digital Media and Screen Studies at Birkbeck, University of London, until August 2020); featuring non-commercial video essays or works of audiovisual screen studies that have an analytical, critical, reflexive or scholarly purpose. The video essays focus on the aesthetic, semiotic, cultural and social aspects of cinema, offering analyses of various film genres, cinematography techniques, recurring themes (e.g., memory, gender, frames), etc. This Vimeo group offers a curated selection of short video works by a mini-community of video essay creators, scholars, film experts, etc. from across the world. The featured videos are carefully reviewed by 73 designated group moderators.

Tips on how to use. The video essays are freely accessible to the user (Vimeo sign up not required) who also has the option of participating in online discussions with the group's moderators, group members or other users. The user can easily access resources by filtering the videos based on [date](#) of upload, [alphabetical](#) order, no. of plays, no. of likes and duration. The forum also has a search functionality allowing the user to filter results based on the theme of their search. AUDIOVISUALCY also offers links to [\[IN\]TRANSITION](#), the first peer-reviewed academic, award-winning journal of videographic film and moving image studies, while its resources can also be accessed through Facebook and Twitter.

Activity 1. Video Essay screening & Group discussion

Materials needed. Laptop, HDMI cable, speakers and projector/monitor, access to the internet

Purpose. Evaluate the possibilities and limitations of online learning for cinema, using a selected video essay from AUDIOVISUALCY as an example.

Process. The activity starts with the screening of a short video essay from AUDIOVISUALCY (e.g. [close by. Georges Franju and the moving frame](#)), followed by a Q&A session moderated by the facilitator. The participants are asked to evaluate the pros and cons of online learning, taking the screened video essay as a point of reference to kick-off the discussion. The facilitator is encouraged to steer the discussion towards the medium's possibilities and limitations, focusing on the concepts of participation and interaction in digital learning and whether digital learning resources could replicate the interactivity of physical learning (e.g. facilitating an online discussion where the video creators and the viewers can exchange views as to the concepts and/or opinions expressed as part of the video studies). If yes, what would that look like? The participants are then asked to create an action plan for organising such an online interactive discussion.

RESOURCE 2

Name and link. INTO FILM, <https://www.intofilm.org/>

Introduction. Into Film aims to provide rich online content for the educational, cultural and personal development of children and adolescents (5 – 19 years old) through the use of film. The platform offers an online film streaming platform, extra-curricular film clubs, learning resources, online training opportunities, an annual film festival, Film Awards, challenges, competitions, etc. More than half of UK schools have successfully incorporated Into Film resources within their classroom teaching, achieving a wide range of effective learning outcomes in their use of film.

Tips on how to use. The Into Film programme has been specifically designed to serve the needs of schools and youth across the UK, but is also freely available to users across the globe. Accessing Into Film resources requires user registration and allows the management of user preferences and account settings. The platform also offers links to film recommendations and reviews, film news and articles, online safety resources, film screening requirements and licenses, etc.

Activity 1. Whole group discussion

Materials needed. Laptops, access to the internet

Purpose. Evaluate the digitization of learning resources for cinema

Process. The facilitator asks questions to review the accessibility and user-friendliness of the material that is available on the Into Film website (taking into account both the educators and learners' perspective). The facilitator then asks the group to evaluate the feasibility of developing a similar online learning resource at the local level, for children in primary and secondary education and brainstorm on which steps would be required for its successful implementation.

RESOURCE 3

Name and link. CineMontage, <https://cinemontage.org/>

Introduction. CineMontage is the Motion Picture Editors Guild official Magazine, which has been in circulation for approximately 40 years. The standalone website, was launched in 2016, featuring exclusive online articles as well as the magazine's quarterly published articles in print. The website publishes exclusive interviews, stories and articles about its members and post-production industry practitioners ranging from film editing, sound design, film history, technology, etc.

Tips on how to use. The website offers a past issues archive, industry news, editor's note and resource filtering through tags. The website is freely accessible to all users and its resources are also available on Facebook, Instagram and Twitter. The website offers a vast range of articles related to issues surrounding cinema and film production, labour news, etc.

Activity 1. Brainstorming & Mapping of local resources and capacities

Materials needed. Paper/post-its and markers

Purpose. Evaluate the possibilities and limitations of digitizing the material/outputs of local film practitioners unions and institutions, cinema magazines, journals, periodicals, etc.

Process. The facilitator asks questions about the digital tools and resources used by the participants' local cinema and film industry, media and press (i.e., in the field of cinema) and online resource availability. The participants are then asked to brainstorm and identify the main risks and challenges in making this material freely available online. The participants will be asked to consider the financial and technical capacities of relevant local institutions, and the IT skills of staff. This exercise aims to identify the key barriers and goals at the local and EU level. An action plan is then put in place in order to generate positive impact in the short term and long term. The action plan includes: objectives, goals, assessment of the current situation, stakeholders mapping, plan of action, risk assessment and contingency plan.

Learning Outcomes

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of the world of cinema	Recognize the importance of digital skills in the light of nowadays cinema world	Awareness of the need for digital competences in today's modern world
Basic knowledge of how cinema contributes to individual and community development	Identify opportunities for personal, social or commercial value through cinema resources digitalization	Willingness to engage with digital technologies
Practical knowledge of how to find helpful resources related to cinema	Developing critical thinking and a growth mindset	Openness to collaborate with digital technologies with a reflective and critical mindset
Factual knowledge of ways cinema and film production is digitalized nowadays	Recognize the importance of digital skills in the light of nowadays cinema world	Willingness to approach digital technologies for learning



Practical knowledge of how to support cinema and contribute to its sustainability in today's modern world	Developing leadership and team work skills	Willingness to collaborate with others and with digital technologies
Practical knowledge of how to analyse the aesthetic, semiotic, cultural and social connotations found in films and teach and learn about film	Critical thinking, knowledge transfer and communication	Willingness to approach digital technologies for learning in a reflective manner
Factual knowledge of ways film studies and film analysis are digitalized nowadays	Learning how to create change	Willingness to engage with others online in a safe and responsible manner
Practical knowledge of how to exchange views and opinions with others about films	Learning how to collaborate with others and problem solving as to how to overcome the barrier of a lack of physical contact in online learning	Willingness to approach digital technologies in an ethical, safe and responsible manner
Basic knowledge on how to create their own films		
Practical knowledge of how to teach and learn about cinema		

3. 4. Theatre

For cultural institutions staff **with skills** in the IT, LOD and digital media.

3. 4. 1. Presentation of cultural institutions

The Performing Arts (theatre) subsector has seen the strongest growth in value added and employment in the last decade. Following the Report “*Market analysis of the cultural and creative sectors in Europe- A sector to invest in*” the subsector has grown at a 8.6% CAGR between 2013 and 2017, the strongest among all the creative and cultural sector reaching EUR 44.7 billion in 2017 and representing on average a contribution of 0.6% towards each Member State’s value added (European Investment Fund, 2020).

At a 9.4% CAGR, employment in Performing Arts has grown more than in any other subsector reaching 1.81 million workers in 2017 with a total of 814,530 companies (on average 3.2% of companies in each Member State). The number of workers employed by the EU’s Performing Arts subsector reached 1,814,367 in 2017, 549,512 more than in 2013. Employing 40% of the subsector’s workers “Creative, arts and entertainment activities” is the main economic activity in terms of employment. This segment includes activities of performing artists (e.g., actors.), support activities to performing arts (e.g., activities of directors, producers, stage-set designers etc.) and the operation of arts facilities (theatre halls). “Other professional, scientific and technical activities n.e.c.” is the main economic activity of the EU’s Performing Arts subsector, representing 61% of its value added. This includes notably activities carried out by agents and agencies on behalf of individuals involving the obtaining of engagements in theatrical productions. “Activities of employment placement agencies” represent 39% of the industry’s value added. These include for instance activities of theatrical casting agencies.

Advancements in digital technologies are opening the doors for new ways of content production and distribution making creative content available to larger audiences, as well as creating more immersive experiences which might attract non-traditional audiences (e.g.: on-demand experience for theatre), as well as creating more immersive experiences which might attract non-traditional audiences (e.g.: immersive virtual theatre). As a result, digital consumption of performing arts content generates new revenue opportunities. The performing arts sector can inspire individual and societal change towards environmental sustainability.

The Performing Arts industry is most relevant for the UK's economy, where it amounts to 1.3% of the national value added. Other countries where the Performing Arts share on the national value added are higher than the EU average are: Bulgaria (1.1%), Ireland (0.9%), Czech Republic (1%), Slovakia (0.8%), Italy (0.7%), Sweden (0.6%), representing on average the 1.2% of the workforce in each Member State. The highest shares of Performing Arts employment out of national employment are found in Ireland (3.7%), the Netherlands (2.7%) and Hungary (1.9%). On average, Performing Arts companies represent 3.2% of the total number of companies in each Member State. The highest shares of Performing Arts companies out of the total number of companies are found in the Netherlands (9.4%), Hungary (5%) and Estonia (4.5%).

Theatre and performing arts are of outstanding importance for Europe with their diversity of forms that transcend language barriers. Both have a twofold relevance as an art form and as a public space for cultural-political dialogue since ancient Greece to the present. The European Theatre Initiative plays a central role in this perspective wants to create an overall structure for its approach towards European performing arts and in particular the theatre sector. The medium-term aim is to translate this into a strategic way to support the sector. In the long-term, the theatre initiative is set to shape a coherent approach towards the sector. This means filling the gaps between already existing support under *Creative Europe* and pilot projects such as the recently launched platform for distributing performing arts works, and the individual mobility scheme i-Portunus.

The study "The situation of Theatres in the EU Member States" has been the first EU-wide study launched in gathering data on the European theatre sector, implementing the first "European Theatre Forum 2020: European Performing Arts in Focus" in November 2020. The results of the study have not been launched yet, they aim to provide input for policy recommendations and follow-up at European level.

The corona virus crisis affected this sector the most, due to its venue and visitor-based nature. The halting of activities and the cancellation (or postponement) of events, shows and festivals generated a chain of negative effects, which were difficult to compensate even when venues were able to reopen and events could be organized (with limited capacity) following the "*Cultural and creative sectors in post COVID-19 Europe Crisis effects and policy recommendations*" (European Parliament, 2021). Behind every theatre performance, festival, event, there is also a large ecosystem populated by several actors carrying on support activities, such as technicians, stage builders, costume and make-up designers, light designers and companies supporting in the organization of shows and events. The scale of the damage goes therefore far beyond the pure

absence of box office revenues. Commercial deals related to catering, revenues coming from advertisers, or in some cases fees expected from organisers and participants of workshops and master classes. An even more complex condition was that of self-employed performing artists. The less risk-averse approach of venues made them withdrew from agreements without compensating the losses and offering alternatives (postponements or rescheduling). In some countries, they could not even rely on public support as they were not eligible to receive it. In addition, it should also be considered that most freelance performing artists are portfolio workers. Thus, bans on movements and social distancing measures prevented them from networking and meeting potential employers.

The direct loss of income deriving from the cancellation of festivals and events also had an indirect negative side effect on local economies. In addition, the cancellation of all music, dance, theatre and circus festivals had also a negative impact on local communities at social level, whose sense of cohesion is strengthened during these events. Performing arts have also shown immense creativity and innovativeness, adapting the format of shows and festivals. During the Great Lockdown period, digital technologies have been used to switch to new formats, such as digital theatre (University of Exeter, 2020), and, when the strict containment measures started to be lifted in many countries, festivals and events previously organised in close places switched to open-air formats or readapted completely as was the case for the Gent Festival (Gent Festival, 2020). Cross-sectoral partnerships have also been established to react to the crisis. A cross-sectoral collaboration between local festivals and the tourism sector was initiated in Edinburgh to appeal to the loyal festivals' participants to travel to the city in the post-COVID-19 era (Edinburgh Tourism Action Group, 2022). The pandemic crisis added to the urgency of these needs around issues such as sustainability, digital and virtual context as well as linguistic diversity. The data collected in the "University of Bocconi study on the Impact of Covid-19 on performing arts", from 41 top performing arts institutions across 6 countries (France, Germany, Italy, Spain, UK and USA), aim to show how institutions could rethink their post-pandemic strategies. The top 5 competences required for the future of the Performing Arts sector are audience engagement, digital competences, marketing and communication, new managerial approaches, and fundraising (more needed in the US). This can be linked to American institutions being less reliant on public funds, and thus having a greater need to find other private funding sources. As European institutions receive a larger share of public funding, they could rely on a more secure 'safety net' during the crisis. The differences in the effect of the crisis on American and European institutions proves the importance of government support for the survival of the sector. The

arrival of public support could only partly compensate the severe loss of income and help venues and organisations to cover (at least) remaining fixed costs.

At the same time, the research shows that private funding stimulates innovation in institutions, which could be crucial for their long-term success. While executives believe that audience engagement, marketing and digital competences are important for the future of the sector, it was surprising to see business partnerships as the last on the list of priorities, despite a potential for bringing in additional revenue streams and achieving a competitive advantage. Finally, the results of this research show it is probably time for the performing arts sector to start a debate about the need of rethinking strategies and business models, to ensure both economic survival and innovation. In the light of the fast-changing and uncertain environment, the ability to adapt is needed now and will become even more relevant going forward (SDA Bocconi, 2020).

3. 4. 2. The role of youth

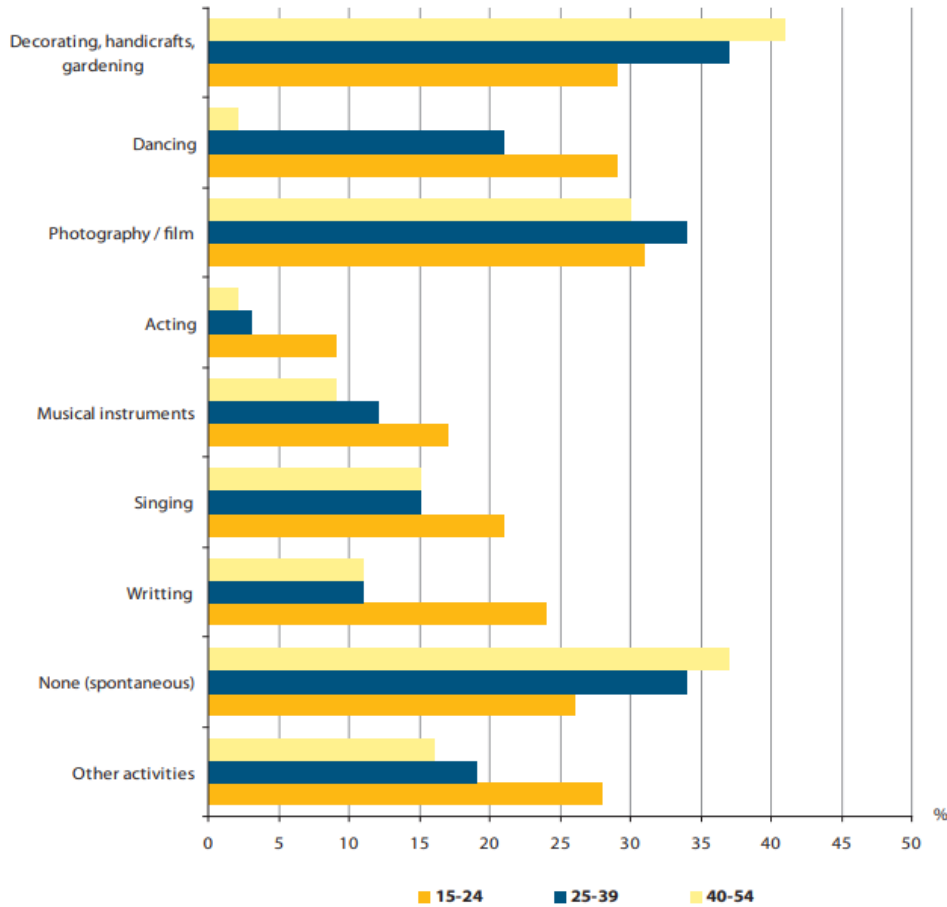
The attendance of live events by youth, following the 2009 report “Youth in Europe - A statistical portrait 2009” depends on their variety and quality but also on other factors such as other entertainment opportunities. Moreover, live performances are often more expensive than, for instance, cinema tickets, which could explain why differences in attendance rates are less pronounced between age groups than for cinema. In nearly all countries, more than half of the 16 to 24-year-olds attended at least one live show in the year preceding the 2006 survey (see figure 1). This share even reached more than 70 % in Estonia, Lithuania, Portugal, Slovakia, Iceland and Norway. Young people in Austria, Iceland and Norway appear to be more inclined to attend live performances than other young Europeans: respectively 19 %, 21 % and 24 % of 16 to 24-year-olds in these three countries attended live performances more than six times in the year preceding the survey. In contrast, live performance attendance tended to be significantly lower in other parts of Europe. In Italy, Malta and Poland, more than half of the population aged 16–24 did not attend a live show during the 12 months preceding the survey (Eurostat, 2009).

	None			1-6 times			> 6 times		
	16-24	25-29	30 and over	16-24	25-29	30 and over	16-24	25-29	30 and over
EU-27	44.0	49.3	60.6	47.7	43.7	34.5	8.3	7.0	4.9
BE	44.6	43.4	58.4	46.2	46.6	35.5	9.2	10.0	6.1
BG	:	:	:	:	:	:	:	:	:
CZ	46.4	55.0	67.8	44.4	39.6	29.2	9.3	5.4	3.0
DK	37.5	36.6	44.4	54.0	54.8	49.3	8.5	(8.6)	6.3
DE	44.3	48.7	47.6	49.5	47.1	47.1	6.3	4.2	5.3
EE	27.7	33.4	52.4	63.6	59.7	42.6	8.7	(7.0)	5.1
IE	42.8	46.1	54.4	47.2	44.5	41.0	(10.0)	(9.4)	4.6
EL	47.9	50.2	74.1	45.7	45.1	24.5	6.4	(4.7)	1.4
ES	45.7	49.7	69.1	43.7	40.7	26.1	10.6	9.6	4.8
FR	39.0	43.3	57.2	51.8	48.9	38.2	9.2	7.8	4.6
IT	52.3	60.2	76.4	42.1	34.7	20.9	5.6	5.1	2.7
CY	36.5	50.7	65.5	58.1	44.2	31.2	5.4	(5.1)	3.4
LV	36.5	47.3	62.2	58.4	47.9	35.3	5.1	(4.8)	2.5
LT	27.9	45.4	61.1	63.1	51.4	36.0	9.0	(3.2)	2.9
LU	35.0	48.5	48.8	50.0	39.5	41.6	15.0	12.0	9.6
HU	38.5	54.0	72.1	45.5	35.0	21.6	(16.0)	11.0	6.3
MT	68.3	75.1	82.8	29.4	23.2	15.7	(2.4)	(1.7)	1.6
NL	42.2	35.1	49.8	52.0	55.9	43.1	5.8	9.0	7.1
AT	41.7	41.6	47.1	39.7	40.3	35.3	18.6	18.1	17.6
PL	51.4	67.4	82.5	44.1	30.1	16.4	4.5	2.5	1.1
PT	26.6	33.4	64.0	63.2	58.3	32.5	10.2	8.4	3.5
RO	:	:	:	:	:	:	:	:	:
SI	46.3	52.9	63.0	46.9	38.8	30.5	6.8	8.3	6.5
SK	26.2	37.4	55.7	64.7	56.3	41.5	9.1	6.3	2.9
FI	36.0	31.5	40.8	49.6	51.3	48.1	14.4	17.2	11.1
SE	33.3	33.1	43.9	55.3	58.3	49.3	11.4	(8.6)	6.9
UK	44.5	41.1	49.4	44.8	49.4	43.2	10.8	9.5	7.4
IS	16.4	19.3	27.7	62.6	59.6	58.4	21.0	21.1	13.8
NO	28.8	30.1	40.2	47.0	44.7	46.7	24.2	25.2	13.1

Source: Eurostat, EU-SILC ad hoc module on social participation 2006

Figure 1 – People who attended a live performance in the past 12 months, by frequency and age group, 2006 (%)

According to the Eurobarometer survey, young Europeans tend to participate more in artistic activities than their elders in their leisure time. Among the population interviewed in 2007, photography and film (31 %) were the preferred activities of young Europeans aged 15–24, followed by dancing (29 %), decorating activities (29 %) and singing (21 %) (see Figure 2).



Source: Special Eurobarometer No 278 European cultural values 2007⁽⁷⁾

Figure 2 – Participation rates in artistic activities, by age group, EU -27, 2007 (%)

Young people aged 15–24 also enjoyed writing, singing and playing an instrument more than the older generations. Acting was not a very popular activity, as less than 10% of the people surveyed had performed on stage in the 12 months preceding the survey, but overall, the share of people who took part in a play was higher among the 15 to 24-year-olds than among the older population.

The European Theatre Convention’s artistic collaboration project Young Europe III focused on theatre as a place of identification for young people in Europe. Over two years, nine ETC Member Theatres collaborated in groups of three to develop new theatre texts and productions on the topics of rage, democracy, identity and the future. A publication for the creative community of theatre professionals, presenting reflection and best-practice examples to make theatre with and for young people, initiated by the ETC European Theatre Convention.

Before the crisis, various cultural initiatives targeted vulnerable or marginalised groups like refugees or migrants. Other projects highlighted the importance of arts education for children and youth with two objectives: the transmission of skills (like creativity, intercultural and other social competencies) and the access to art as a recipient or as a tool for self-expression and empowerment. Through innovative formats and participatory methodologies, artists and cultural actors engaged with other sub-sectors, such as health, social care, prison settings and deprived communities. Especially these initiatives were of utmost importance also during the 2020 crisis, when many people were confronted with loneliness or situations of violence. This cross-sectoral engagement, even though crucial for society, has always been underfunded. Reflections on art and social inclusion were also taken up on a project basis during 2020, but a wider outreach of such initiatives with the coverage of most or the whole EU territory became not visible. Innovation, research and the arts remain still on a project logic which does not allow for a long-term planning and rarely provides sufficient time and space for artists and creatives to develop sustainable initiatives (ETC, 2021).

Moreover, across the EU, 1.2 million young people (aged 15 to 29 years) were working in the field of culture in 2020. They represented 16.4 % of cultural employment, a proportion slightly lower than the average share of all young people working in the whole economy (16.8 %). The share of young workforce (15-29 years-old) in cultural employment varies considerably between the EU Member States. In most Member States, the percentage of young employed people did not exceed 20 % of the overall cultural employment. This share varied from 10 % in Italy, up to 21 % in the Netherlands, and 24 % in Malta. Young people accounted for a higher share of cultural employment than their share of the total employment in eight of the EU Member States. The biggest difference was recorded in Bulgaria, where the share of young people in cultural employment was almost 4 percentage points higher than the average share of young people in total employment. By contrast, young people were relatively under-represented in terms of their share of cultural employment in Sweden and the Netherlands (4 p.p. lower than in total employment) and Croatia (6 p.p. lower) (Eurostat, 2020).

3. 4. 3. Future possibilities

Linked Open Data (LOD) as a new way of sharing information about digital/physical resources allows connected computers to better use information related with the resources. LOD allows to

enrich information about resources possibly improving the user experience when using the resources or on finding them.

The first experience in publishing as linked data the information is represented on ECLAP portal about multimedia content on performing arts. The system provides access to information about content, the terms of the taxonomy used to classify the content and also structural information like connections with groups managing the content, use in playlists and collections. Moreover, information about annotations on audio/visual content is provided and also information about users is available (e.g., the 'friends' graph). The enrichments made on geographical information present in the content metadata (e.g., city/country of the performance) allowed to link content with the GeoNames database that is available as linked data (Bellini, Nesi, 2011).

ECLAP is both a Best Practice Network and provider of Content and User Services. As Best Practice Network, ECLAP consists of working groups that analyze the state of the art and identify the best practices and guidelines to cope with technical and strategic problems of the performing arts sector. To this end, three main ECLAP Working Groups (with corresponding blogs and forums) have been set up to cover the areas of: digital libraries and models for performing arts content, intellectual property management and tools, and digital content-based tools for teaching and learning of performing arts in the new era. For facilitating the networking and discussions, ECLAP is also a repository of technical documents, demonstrators, best practices and standards that can be used to better understand the sector problems and find corresponding guidelines, state of the art solutions as well as future activities and project proposals.

The ECLAP Content and User Service exploits the use of advanced social media and semantic computing technologies and solutions for the content enrichment, aggregation and distribution of rich multilingual performing art content towards PCs and mobiles. Presently, ECLAP distributes more than 110,000 distinct objects (video, audio, images, texts, 3D), from 31 content providers, in up to 13 major metadata languages, towards a community of about 2000 registered users, world-wide distributed. This data is available and it can be used by semantic crawlers to find information about performing arts and other linked data systems can reuse our ontology or taxonomy terms or link to our content. Moreover, the relations among the information that is present on the portal can be visualized using the ECLAP social graph that allows to navigate these relations allowing to find new content or some unexpected relation. However, the work is still in progress for linking the dataset to other source of information like DBpedia but also to identify person names that are present in the descriptions to create an authority file of people in the performing arts.

*For cultural institutions staff **without skills** in the IT, LOD and digital media.*

3. 4. 4. Current challenges

However, some users of the ECLAP portal have expressed difficulty in orienting themselves, in finding the resource. Unless the user is an expert, therefore a scholar, and looking for a particular actor, or director, for example, he has difficulty in finding the resource because he is faced with a monumental hierarchical layered database of tools and metadata that require some expertise. On the other hand, the "antiquity" of some graphic choices and the slowness in navigation suffer from the inability to update and improve the portal once the project is finished. A problem of complexity in the representation of data exists, which often do not generate understanding, despite the great variety and richness of contents. INCOMMON. INCOMMON aims to study, collect and contextualize those encounters between theatre, music, visual arts, cinema and video art that have taken the form of shows, in particular those created as collaborations between artists; apply the concept of "will-to-the-common" in the field of counterculture art; emphasize the importance of artistic communities on the local and international scene; create a digital archive of the performances of the Italian artists of the period. INCOMMON produce a global approach, oriented to the collection, digitization, restoration and dissemination of direct documentation and related materials of the Italian artistic production of the great creative, political, existential wave of counterculture, preserving and making accessible a heritage otherwise refractory to conservation (Gavrilovich, 2020).

3. 4. 5. Possible solutions

Funding for staff development could focus on the development of digital competences. In this way, knowledge of the basics of IT would not become an advantage but rather a common feature. With the onset of the COVID pandemic, a wide range of solutions were sought to make art accessible to consumers and to create opportunities for artists to survive. The discovery of new art formats could be an incentive for all institutions to fear the lack of various resources to apply modern methods and implement modern ideas.

The Digital Cultural Designer project can also be an incentive to draw attention to sources that are already freely available. Discovering good practices online that demonstrate the theatre's ability to adapt to modern technology can also be inspiring.

3. 4. 6. Involvement of different groups

Admittedly, some institutions lack the opportunity for people with disabilities to get to know the theatre up close, which is especially true where regular theatre performances are shown. Understandably, the application of modern technology would provide a much more enhanced experience for all people, regardless of their social status.

Even more, a larger relocation of the theatre to the digital space would expand the circle of both observers and active participants.

3. 4. 7. Heritage aspect

The global crisis had a strong impact on the cultural heritage sub-sector. In most cases these venues are visitor based, due to the closing of museums and heritage sites and strict bans on internal movement and tourism; which is the primary source of income for many heritage sites. In Western Europe 94.6% of museums had to close their doors during the lockdown, while in Eastern Europe 98.7% were forced to close.¹⁰⁰ Using a representative sample of around 1,000 museums across the EU-27, 44% indicated that they lost up to EUR 1,000 per week, 31% lost up to EUR 5,000 per week, 18% lost up to EUR 30,000 per week and 8% lost over EUR 50,000 per week. The big museums lost between EUR 100,000 and 600,000 per week. Museums in touristic regions looked at an exceptional income loss of 75-80%. Within this last category, museums in capitals were among the most affected by loss of income, with an average loss of around EUR 40,000, in comparison with a EUR 20,000 loss in urban areas and EUR 5,000 in rural areas. Some of the most impacted museum's fear that they will eventually have to close permanently. The loss of income did not concern only the core activities of museums, but also ancillary services, which are outsourced activities in many cases. Companies owning and managing museum cafes and bookshops as well as transport services for exhibitions saw a significant loss of income due to venue closure and postponement/cancellation of exhibitions. The impact on museum employed staff was not so severe. Around 70% of the 1,000 museums surveyed reported that they had to adjust tasks and move all staff to work from home, but that they did not have to lay-

off staff. In comparison with other sub-sectors, museum staff were able to work from home. The same trend is recorded in religious heritage institutions. On the contrary, contracts with freelance and non-standard workers were temporarily laid off or halted, making the freelancers category much more fragile than that of employees. In many cases, consultancy work for museums is their first source of income. In general, the situation of the nonstandard workers seems to be alarming everywhere, since more than 50% of freelancers saw their salaries suspended. Europa Nostra reports that many conservation and restoration professionals had to take unpaid holidays as projects in museums and monuments were suspended and budgets had significantly been reduced.

Most of the museums (80%) and religious heritage institutions (83%) increased their online presence (online communication, virtual tours, online exhibitions). Online services that increased the most were those requiring less additional financial resources and/or experience and skills (hashtags on social media or activities around an already existing online collection), while services that required time, resources and skills (podcasts, live content, online learning) increased the least. Data show that across Europe around 56% of museums have dedicated staff for digital tasks, although not on a full-time basis. This data highlights not only the high use of non-standard workers, but also the fact this staff undertake in some cases new emerging tasks, such as those related to digitalization¹¹⁷. Most of the museums that increased their online presence also recorded an increasing number of online visitors, accessing especially educational material. However, no data show an equal increase in revenues, mainly because most of the online content was accessible for free.

It is suggested a hybrid recommender system (RS) in the cultural heritage area, which takes into account the activities on social media performed by the target user and her friends, and takes advantage of linked open data (LOD) sources. Concretely, the proposed RS:

- (1) extracts information from Facebook by analysing content generated by users and their friends;
- (2) performs disambiguation tasks through LOD tools;
- (3) profiles the active user as a social graph;
- (4) provides her with personalized suggestions of artistic and cultural resources in the surroundings of the user's current location.

The last point is performed by integrating collaborative filtering algorithms with semantic technologies in order to leverage LOD sources such as Dbpedia and Europeana. Based on the recommended points of cultural interest, the proposed system is also able to suggest to the active user itineraries among them, which meet her preferences and needs and are sensitive to her physical and social contexts as well. Experimental results on real users showed the effectiveness of the different modules of the proposed recommender (Samsonetti, [et al.], 2019).

3. 4. 8. Digital Resources and Activities

RESOURCE 1

Name and link. www.teatrodellorsa.com/create-with-open-data/

Introduction. A performance of Theatre of Orsa in Reggio Emilia, Italy that tells about the city, its evolutions and its future, using the digital archives of the municipality <https://opendata.comune.re.it/> and translating them into a theatrical performance. It responded to the public call of action of the Municipality "Create with open data" conceived to make the citizens aware on the open data, a cascade of numbers which, if read in relation to us and to others, helps the community to imagine and build the future.

Tips on how to use. You can easily access resources that include improving your performance writing, creating the right learning environment, and other information relevant to professional playwrighting and hobbyists alike. Not only does it provide theoretical knowledge of the world of performance, but it also provides detailed information about specific cultural experiences of theatre based on dataset.

The performance combines the coldness of numbers with the warmth of literature and poetry and the theatre provides the keys to enter because, it still remains an ancient place where men meet and are read in their complexity.

The municipality dataset have thus been analysed and translated into music and video art plus two narrative voices with a nod to cinema, literature, to art: thus the citizens of Reggio Emilia became 171,655 "beating hearts", the 166 roundabouts of the city many "opportunities to smooth the corners of traffic", 4 public drinking water fountains "eight million bottles of never born plastic", hectare of urban gardens in the city, with seven

hundred thousand book loans a year, that reading is growing among children, in seven or eight years, 29% of the children who will be born will be of foreign origin, and it is curious to note the variation of the names, with the Sofia and the Giulia firmly in the lead, but with the growth of the Aisha.

Activity 1. Whole group discussion

Materials needed. None

Purpose. Evaluate the digitization of the city where you are based.

Process. The facilitator asks questions to evaluate the pros and cons of the performance and the municipality dataset where you are based.

Activity 2. Turning brainstorming into action plan

Materials needed. Whiteboard, markers

Purpose. Evaluate the possibilities of digitizing the municipality dataset into a theatre performance.

Process. The facilitator asks questions about the digital tools and resources used by the institutions represented by the participants. All this is compared to the digital capabilities of the presented project. There is a brainstorming session in which participants are asked to identify the main challenges in finding data, processing them and translating into a performance. Brainstorming identifies key barriers and goals that are relevant to the whole group of participants. An action plan is then put in place with the help of the facilitator to bring about positive change in the short term and long term. The action plan includes: object, goal, stakeholders, assessment of the current situation, and specific actions.

RESOURCE 2

Name and link. Building a Linked Open Data Ecosystem for the Performing Arts
<http://linkeddigitalfuture.ca/research/#ontology-repository>

Introduction. The BFH Institute for Public Sector Transformation accompanied the Canadian Arts Presenting Association 's Linked Digital Future Initiative, which works to leverage the potential of linked open data in the area of the performing arts. The initiative focuses on the primary value chain of the performing arts, made up of artists, production companies, presenting organizations, ticketing platforms, and operators of arts facilities. It facilitates to get an overview of the entire performing arts value network and to reach a better understanding of the various stakeholder perspectives on what may be called the International Knowledge Base for the Performing Arts Linked data that is not only about putting a new technology to use, but even more so about creating a shared vision and developing a collaborative spirit among partners that hitherto have hardly been aware of each other, which in some parts has a rather local or regional focus, but in other parts is clearly international in scope.

Tips on how to use. This best practice provides an overview of the various stakeholders and their usage scenarios with regard to a shared database, aiming to create an International Knowledge Base for the Performing Arts based on linked data technology, relying both on Wikidata and the classical linked data approach, building a platform consisting of several layers (see figure 1):

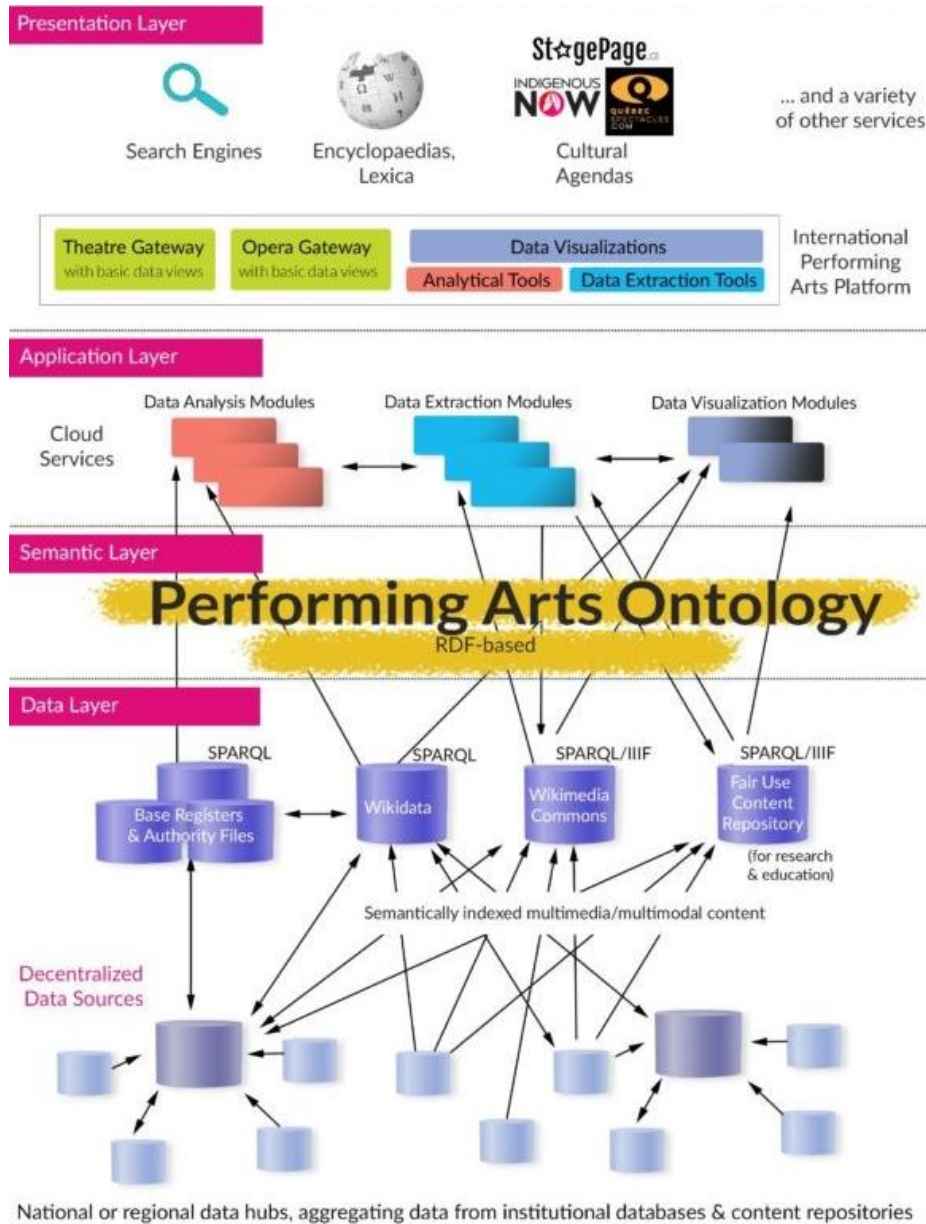


Figure 1: Architecture of the linked open data ecosystem for the performing arts

- a data layer, consisting of decentralized data sources and several data hubs aggregating and interlinking data relating to the performing arts;
- a semantic layer, consisting of a shared data model, a so-called “ontology”;
- an application layer, consisting of various cloud services for data extraction, data analysis, and data visualization; and

- a presentation layer – the actual platforms and software applications end users interact with.

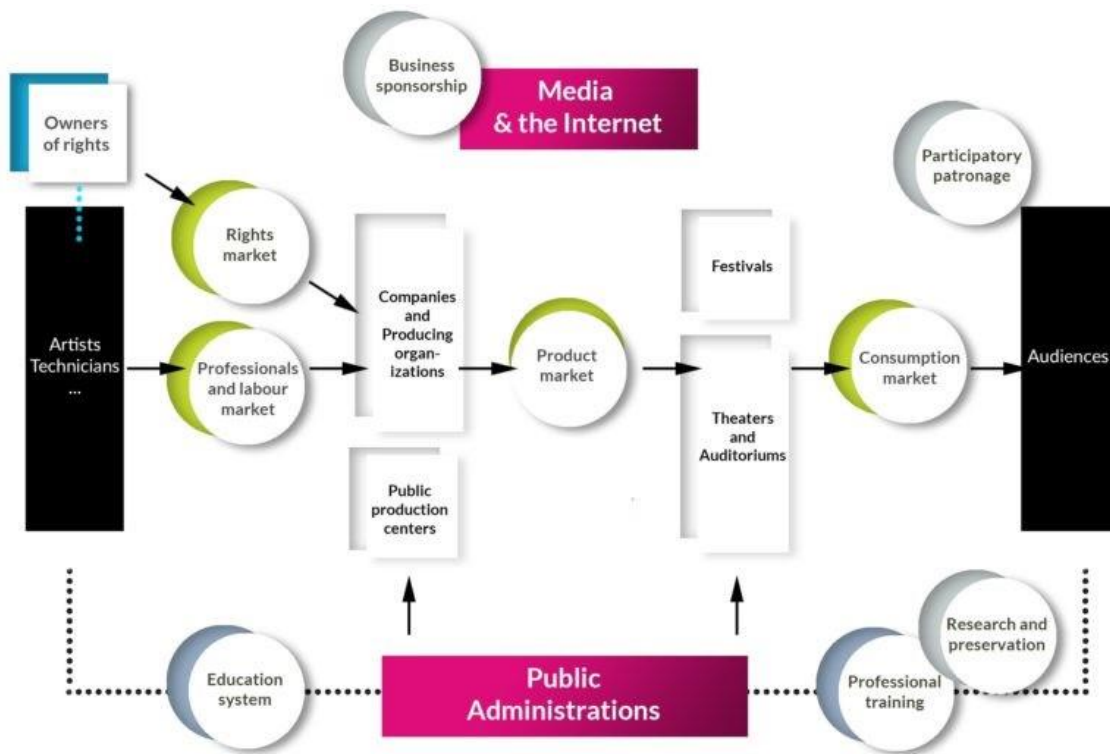


Figure 2: Value network

In order to get a better understanding of the key stakeholders of such a distributed database, it started out from an overview of the performing arts value network and systematically described the usage scenarios from the perspective of the various stakeholders in view of a linked open data ecosystem for the performing arts. As represented in figure 2, this value network comprises not only the primary value chain of the performing arts, made up of creators and artists, production companies, presenting organizations, ticketing platforms, and operators of arts facilities, but includes further stakeholders playing a role in the wider ecosystem of the performing arts, such as the media, educational institutions, institutions of professional training, researchers, or heritage institutions with collections relating to the performing arts.

Figure 2: Value network

To assess their needs in terms of data, the various stakeholders were assembled into seven categories, for which it was established, on the basis of the usage scenarios that previously had been identified, what kind of data these different groups would require for their activities. In an overview table the data that is common to all of them was highlighted (figure 3). As it turns out, there is quite a large core of data relevant to various types of stakeholders. This indicates that it would be worthwhile for them to cooperate more closely in order to leverage the many synergies in the area of data management.

Type of Data (Classes and Attributes)	Production	Presentation & Promotion	Coverage & Re-use	Live Audiences	Online Consumption	Heritage	Research & Education
Performing Arts Production							
- title	x	x	x	x	x	x	x
- genre	x	x	x	x	x	x	x
- work(s) performed, set list	x	x	x	x	x	x	x
- production company	x	x	x	x	x	x	x
- venue	x	x	x	x	x	x	x
- first performance date	x	x	x	x	x	x	x
- premiere type	x	x	x	x	x	x	x
- number of representations	x	x					
- people in key roles of the production process (stage director, conductor, choreographer, set designer, costume designer, dramaturge, translator, adaptor)	x	x	x	x	x	x	x
- people in key roles of the performance (cast, musicians)	x	x	x	x	x	x	x
- technical staff	x	x					

Figure 3: Extract of the overview table of required data

Activity 1. Whole group discussion

Materials needed. None

Purpose. Evaluate the performing sector network of data.

Process. The facilitator asks questions to evaluate the pros and cons of the performance and the dataset available in the performing sector where you are based.

Activity 2. Turning brainstorming into action plan

Materials needed. Whiteboard, markers

Purpose. Evaluate the possibilities of building a network.

Process. The facilitator asks questions about the digital tools and resources used by the institutions represented by the participants. All this is compared to the digital capabilities of the presented project. There is a brainstorming session in which participants are asked to identify the main challenges in finding data, processing them and translating into a performance. When creating a data ecosystem, it is important to consider the key stakeholders and how they would benefit and contribute to a common ecosystem. The participants are asked to map the performing art value, which is important to identify the common data core of the linked open data ecosystem for the performing art. The starting point could be the industry classification systems (United Nations 2008, Eurostat 2008, Statistics Canada 2017), for example that identified twenty key stakeholder groups. For each of these groups could be identified possible usage and contribution scenarios, along with indications as to what kind of data they require and may potentially contribute

Brainstorming identifies key barriers and goals that are relevant to the whole group of participants. An action plan is then put in place with the help of the facilitator to bring about positive change in the short term and long term. The action plan includes: object, goal, stakeholders, assessment of the current situation, and specific actions.

Learning Outcomes

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of the theatre sphere	Identify how nowadays theatre development is influenced by technological development	Awareness of the need for digital competences in today's modern world
Basic knowledge of how palywriting contributes to individual and society development	Identify opportunities for personal, social or commercial value through dataset	Willingness to engage with digital technologies
Theoretical knowledge of how much digital culture contributes to modern day theatre	Develop critical and problem solving skills	Willingness to approach digital technologies in an ethical, safe and responsible manner
Practical knowledge of how to find helpful resources related to theatre	Discuss theatre evolution throughout the years	Willingness to set goals to motivate yourself and develop skills of resilience and confidence
Factual knowledge of ways theatre is digitalized nowadays		Openness to enact a problem-solving attitude that supports the learning process

3. 5. Dance

For cultural institutions staff **with skills** in the IT, LOD and digital media.

3. 5. 1. Presentation of cultural institutions

Most institutions and organizations that implement dance classes are fully or at least partially supported by the state, so their services are free or low-cost. The Lithuanian Academy of Music and Theatre has a state-funded dance study program that allows to prepare extremely high-level contemporary and classical dance artists. Like other higher education institutions in the country, this Academy publishes most of the documents related to its activities, as well as regularly

updates the media library with performances by members of the community in various competitions and artistic activities (LMTA, 2022). Slightly younger people, that is, school-age children, can study dance professionally at the Mikalojus Konstantinas Čiurlionis School of Arts in Vilnius (Satish, 2019). Like many other schools in Lithuania, especially known nationally, M. K. Čiurlionis School of Arts provides many data related to the school's activities online. Notable is the phonoteka – the first computer database in the country to teach music theory and history, which contains video and audio recordings for the independent work of senior students and teachers or interested people (CMM, 2022). Launched in 2019, the virtual platform, which contains digital material for lessons in music history, instrumentation and analysis of music, and polyphony, allows you to illustrate lessons and make them more attractive to the modern user. Now this information is provided only in Lithuanian. However, due to the specifics of the art, the content of this sound library is easily understood widely. Both the Academy and the School of Art are admitted through a multi-level selection process.

The Lithuanian Dance Information Center is very significant in Lithuania, having started its activities in 1995 on its own initiative. The centre takes care of collecting and disseminating information about dance; produces new works by Lithuanian choreographers; takes care of education (Dapšytė, 2022). The comprehensive presentation of information in the public sphere is proof that the Center is focused on openness to the public and full development; although digitization is not yet fully realized; we can talk about important steps being taken in this direction. For example, getting involved in the Digital Leap program.

Digital Leap is one of the best international practices, which offers training programs and free learning resources – Cookbooks (digital handbooks) (Digital Leap, 2022). The use of digital platforms is at the heart of this initiative. The prepared material can be used and tested from various perspectives - as a teacher, mentor or facilitator.

In other European countries, there are slightly more practices in the use of digital tools. In the United Kingdom, for example, there is the U.Dance program, which brings together dance creators and teachers of all genres (U. Dance, 2022). The annual festival in different cities in 2020 and 2021 has been moved to an online format, further increasing the reach and dissemination of information to interested people. Moreover, online classes take place regularly throughout the year (Ibidem).

Finally, UNESCO is home to The International Dance Council (CID), an umbrella organization that brings together all the dances around the world. This NGO brings together dance professionals and amateurs from more than 170 countries around the world (Ibidem). Given the universal

nature of the language of art, international and inter-institutional cooperation could be strengthened.

3. 5. 2. The role of youth

According to data collected by researchers, dance as a sport has become particularly popular in recent years, both among children and adults (Uspurienė, [et al.], 2016). It is considered that a particularly significant start in the development of physical characteristics of the body is among children aged 9-11 years (Torrents, [et al.], 2011). It is clear that in order to achieve high results, it is necessary to begin training at the earliest possible age, which is why many of the above-mentioned organizations and initiatives emphasize a lot of effort in popularizing dance among young people. As such, the U. Dance program announces that it has already reached more than 200,000 young people (U. Dance, 2022). In addition to this program, it is worth mentioning the Digital Series, which brings together choreographers and teachers working with 13-21 age groups (Seattle Theatre Group, 2020), as well as the Dance With Digital Online movement, presenting dance as a way to cultivate physical and mental health (Union Dance, 2022). Education and training from an early age is especially important for the above-mentioned secondary and higher education institutions - a professional is educated both physically and psychologically. Therefore, it is important to start as early as possible. In addition, as professional dancers note, adulthood is often the limit when it comes to making key decisions about recognition and recognition (Ballet dancers guide, 2022).

Examples that respond to global trends can also be seen in Lithuania. A variety of platforms and digital tools such as Kahoot! are used to engage young people, making them ideal for working with even young children. Finally, schools have a responsibility to look for different methods and tools. With the help of video material, various dances, their performance techniques and tendencies in the field of art are presented, thus developing diverse personalities (Švietimo portalas, 2021).

3. 5. 3. Future possibilities

The examples reviewed show that the adoption of digital tools, LODs and digital media practices is still in the process, so there is room for under-exploitation. One of the possibilities for increasing the accessibility of digital cultural experiences is international cooperation and

exchange of good practices. The Digital Leap platform, for example, involves dancers from 28 countries in the overall learning process (Digital Leap, 2022). Sharing both theoretical knowledge and practice can and does have a significant impact on progress. Such cooperation is especially important for small countries, such as Lithuania, which lack not only financial resources but also human resources.

The availability of digital tools is another important factor in changing the current situation. Databases, archives and methodological material available online can be a real salvation for people living in any corner of the world. One example to follow is the Mapping Touring project, which is supported by The Ohio State University and BETHA Grant (2017). This project “employs archival research and data visualization to examine touring by ballet and modern dance companies in the first half of the 20th century” (Ibidem). Of course, financial resources are needed to implement such initiatives. This could be a combination of national budgets and European Union funding. The Digital Europe Program, funded by the European Commission from 2021 to 2027, is promising and covers the areas of supercomputing, artificial intelligence, cybersecurity, advanced digital skills and ensuring the wide use of digital technologies across the economy and society (Digital Europe Programme, 2021). Understandably, art is an integral part of social life.

Dancers, choreographers and their audiences are often seen as innovative and adventurous, so it can be said that a solid step have already been laid in this cultural area for creating memorable digital cultural experiences. Today, the creative process of dance can be seen as a product created by imagination and technology (Preciado-Azanza, Akinleye, 2020). It is crucial for developers to understand that modern technology is useful for both communication and the final version of a work.

Digitization should not be understood as an activity of one employee or a specific department. It is important that all staff understand the importance of this and therefore work to make the process smoother and more seamless. Modern technologies are diverse, and mastering each technology or channel requires specific knowledge, but some platforms are completely easy to manage even without special knowledge or skills, so this is the facilitation offered by technology and worth taking advantage of.

For cultural institutions staff **without skills** in the IT, LOD and digital media.

3. 5. 4. Current challenges

Many small dance studios, especially in small towns, have little visibility in digital media. Due to the lack of finances and the attitude of the community, their activities are known mostly locally and only in some cases by participating in various initiatives in Lithuania or worldwide. Organizations lacking IT skills can be both public and private, but one of the main obstacles is the lack of professionals who are not only able to communicate dance techniques but also have the necessary management skills to find sponsors and various distribution channels. There are many dance studios in Lithuania, the activities of which can be learned a little on the Internet, but it is only possible to see the art they create and the methodological material used live. Thus, although the digitalization boom in the dance industry is increasingly being talked about in general (Harmony Bench, 2020), it is still difficult to put it into practice at the local level.

There are two large groups of dancers - amateur and professional. The activities of both of these groups revolve around dance, all revolving around the dance industry and contributing to the spread of dance as an art. However, the attitudes and connections of the representatives of these groups to this art differ qualitatively. For professionals, the dance industry is their main activity, which is expected to earn, achieve significant career results, identify themselves with the history of art. In such cases, publicity is accepted as an integral part of the work - professional dancers actively share behind-the-scenes and performance impressions on social networking accounts. There are many free, multi-user channels for sharing news, such as Instagram or Facebook.

The situation is different with amateur dancers who devote only a small part of their time to this cultural field. Although they also create performances for the public, they often focus only on live audiences. In addition, as it is not their main activity, it is not an essential source of livelihood; so, the main focus is on the creative process itself, enjoying it and simply providing yourself with meaningful leisure time. This is true of senior dancers, for whom dance lessons are primarily a guarantee of good physical and mental health (Alves Santos, [et al.], 2020). Naturally, in the case of amateur dancers, digitization or disclosure of performance data is a secondary thing.

3. 5. 5. Possible solutions

One of the easiest solutions to implement without requiring additional resources is video on social networks and dance study websites. On the one hand, it makes it possible to increase the availability of dance in society (Harmony Bench, 2020), as well as to increase the awareness of a particular institution and the availability of services. Those who want to master dance technique at least a little more professionally must constantly train the body by performing various physical exercises and improving movements. Modern technologies allow you to broadcast high-quality dance performances and share various methodological materials at no extra cost. It doesn't even require additional skills from staff - just a smart device and access to a social networking account. The most popular social networks are basically free and the audience they can reach is huge. Significant and additional benefits of social media are the development of networking and the reach of various audiences. For people working in the dance industry, this can be a strong push forward. In this way, it is possible to find partners who will help not only during the creative process, but also after the search for opportunities to organize performances, increase awareness and facilitate reaching target audiences.

The generation of ideas can have a significant impact on progress. The Digital cultural designer can become a collection of ideas that can be used by cultural institutions in different countries and bring together representatives of different cultural areas. The archive of the website created during the project can be a starting point for learning about key concepts and the simplest practices of creating a digital experience.

Given the digitalisation of time and the ability to keep up with innovation, a separate position can be identified for the person directly responsible for providing information to the public. If financial means do not allow for the recruitment of an individual, volunteers or traineeships could be used. Finally, the dancers themselves should be interested in publicizing their achievements and performances. Awareness increases opportunities to perform in different parts of the world, creates a circle of fans, and opens up new opportunities.

3. 5. 6. Involvement of different groups

As with many other arts and professions, it is especially important for dancers to begin developing the necessary skills in early childhood. Dancing improves physical well-being and contributes to the improvement of mental health, so enough attention should be paid to getting to know dance in kindergarten or school. It is noteworthy that in many cultures, dance is an

important part of traditional culture. Therefore, the dance can present both the history of the country and demonstrate the change of art over the centuries, moving from the earliest movements in a particular area to modern, well-known techniques around the world.

Volunteering, which is becoming very popular around the world, is also a good solution for institutions that lack human and financial resources. The benefits of volunteering are mutual and comprehensive, and the very concept of volunteering is being applied in many areas of activity, publicity and digitization. Volunteering should be seen as an opportunity for all age groups to improve their skills and abilities and to participate in cultural processes.

Studies show that as many as 70% of digitization initiatives fail due to employee rejection (Bucy, [et al.], 2016). It is therefore important to ensure that all staff value and recognise the meaning of the changes being implemented in the same way. It is important to emphasize that digitization is not an additional headache - in the long run; it is a very useful option that facilitates many everyday procedures.

Choreography and the art of dance are also adapted for people with disabilities. One of the best examples of this is the Infinity Dance Theatre. The theater in New York is open to people with a variety of physical disabilities (Martin, 2014). Successful empowerment of people with disabilities is evidenced by the media centre on the official theater website, which includes photos and videos (Lunn, 2022). While this is not yet common, it is worth paying attention to different audiences when thinking about creating digital cultural experiences, and when required even 'thinking out of the box'.

3. 5. 7. Heritage aspect

The main custodian of both tangible and intangible cultural heritage is UNESCO. One part of it is the List of Intangible Cultural Heritage and the Register of Good safeguarding practices. Since 2004, the Baltic song and dance celebrations have been on this list - a celebration that has united all the Baltic States for almost a century, presenting folk dances, songs and other traditions in a new way, but not far from the roots. The significance of the celebration for the culture of the countries is also proved by local laws. For example, the Law on Song Festivals was drafted in 2007, emphasizing the importance of this unique phenomenon for the vitality of the country's culture, the fostering of regional culture, and the unification of the nation (Lietuvos nacionalinis kultūros centras, 2008). Under this law, celebrations must take place regularly and constantly to look for opportunities to expand (Ibidem).

To a greater extent, the protection of this tradition is taken care of by the Committee for the Protection and Development of the Baltic Song and Dance Festival Tradition, whose functions include the exchange of information, the organization of expert meetings, and the organization of other events (UNESCO, 2008).

Song festivals are filmed and recorded, so there is an opportunity to remember past performances compared to next year's performances. In addition, it is undoubtedly an important methodological material that allows to get acquainted with traditional dances, to ensure their continuity and popularity.

Folk dances are perceived as part of the country's cultural heritage. But there are no major initiatives to preserve them using digital technologies, and no public plans are planned for the near future. It is important to emphasize that a lot of work is being done on the effectiveness of legislation and intangible heritage documents. This is also shown by various studies commissioned by the Ministry of Culture of the Republic of Lithuania, such as the "Study of Cultural Heritage Protection and Services and the Functions of Institutions Participating in the Protection of Cultural Heritage" in 2019 to improve the legal and institutional framework way" (Jaržemskis, [et al.], 2019).

It is likely that one country will not take without additional external support or incentives, but individual initiatives to record dances and share them with a wide audience allow tradition to survive not only as a memory but also as a practice - passing on knowledge of movements, dance steps and the like.

3. 5. 8. Digital Resources and Activities

RESOURCE 1

Name and link. The Dance Data Project, <https://www.dancedataproject.com/>

Introduction. The Dance Data Project is a global resource for the study and analysis of major national and international dance companies, venues, and choreographic awards. In addition, DDP surveys ballet competitions, festivals, and scholarship programs worldwide. They provide a resource for those seeking information about female choreographers, set, costume & lighting designers, as well composers of classically based dance music. Additionally, they also cover recent news and provide an archive of articles related to issues

surrounding classical dance, including pay transparency and equity, hiring and harassment policies.

Tips on how to use. You can easily access resources that include improving your dance skills, creating the right learning environment, and other information relevant to professional dancers and hobbyists alike. Not only does it provide theoretical knowledge of the world of dance, but it also provides detailed information about specific cultural experiences of dance.

Activity 1. Whole group discussion

Materials needed. None

Purpose. Evaluate the digitization of dance art material based on one example.

Process. The facilitator asks questions to evaluate the pros and cons of the Dance Data Project website. It reviews the extent to which the method of presenting the material chosen on the website is attractive to users - both professionals and curators and fans of the cultural field. Depending on the interests of the group, the specific resources posted on the site may be reviewed together.

Activity 2. Turning brainstorming into action plan

Materials needed. Whiteboard, markers

Purpose. Evaluate the possibilities of digitizing the material of cultural institutions locally.

Process. The facilitator asks questions about the digital tools and resources used by the institutions represented by the participants. All this is compared to the digital capabilities of the presented project. There is a brainstorming session in which participants are asked to identify the main challenges in digitizing or making more accessible material available, the financial and technical capacity of public and private cultural institutions, and the IT

skills of staff. Brainstorming identifies key barriers and goals that are relevant to the whole group of participants. An action plan is then put in place with the help of the facilitator to bring about positive change in the short term and long term. The action plan includes: object, goal, stakeholders, assessment of the current situation, and specific actions.

RESOURCE 2

Name and link. Learn to dance, <https://www.learntodance.com/>

Introduction. Learntodance.com is a database of different dance lessons. The site is full of free video tutorials for beginners. The variety of dances and easy-to-provide information allows you to acquire the necessary skills and knowledge. This website offers learning these dances - belly dancing, ballet, Irish step dancing and many more - completely free of charge and opens up opportunities to deepen your skills to a higher level.

Tips on how to use. The site presents basic information about each dance style and includes short videos. Educational videos are differentiated according to style, required skills, audience, and more. There are also easy-to-use tips on how to learn dance moves faster and easier.

Activity 1. Identifying the elements required for successful dance digitization

Materials needed. Whiteboard, markers

Purpose. Understand the process of digitization of dance

Process. Participants are given time to review several selected tutorials on learntodance.com and self-assess their pros and cons. The facilitator then invites a group discussion to assess what elements are relevant to a successful dance visualization. Attention is paid to such aspects as: technical possibilities, idea, longevity, relevance to the audience.

Activity 2. Visual presentation of instructional videos

Materials needed. Video editing programs, PC or tablets

Purpose. Develop creativity by presenting digital material

Process. Participants are given time to review and self-evaluate the visual side of the site. Participants create drafts of their visualizations using available video editing programs and present them to others. Each suggestion is discussed and feedback is provided, along with deciding which options would best meet the needs of the modern user.

RESOURCE 3

Name and link. SPAC Learning Library, <https://www.spaclearninglibrary.org/>

Introduction. The SPAC Learning Library - A website created by the Saratoga Performing Arts Center that hosts online dance and music lessons and educational videos for children. All material is available on both the website and the YouTube channel. The developers aim to grab children's attention not only through educational content but also through visual presentation.

Tips on how to use. The site offers programs suitable for children under the age of six and under. There are plenty of ingenious and creative educational videos, printable handouts, and worksheets. The information on the website is concise and visual.

Activity 1. Creating a dissemination plan

Materials needed. PC or tablets, whiteboard, markers

Purpose. Create a dissemination plan for site content

Process. The facilitator divides the training participants into smaller groups of 3-4 people. After evaluating the content of the SPAC Learning Library, each group provides a draft dissemination plan that could be used to attract the target audience of the projects - pre-

school children and their parents. The key condition is that the dissemination plan must include digital technologies.

Learning Outcomes

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of how dance contributes to individual and society development	Recognize the importance of IT in the light of nowadays dance world	Awareness of the need for digital competences in today's modern world
Practical knowledge of how to find helpful resources related to dance	Identify opportunities for personal, social or commercial value through dance digitalization	Willingness to engage with digital technologies
Factual knowledge of ways dancing and learning dance is digitalized nowadays		Willingness to approach digital technologies in an ethical, safe and responsible manner
Basic knowledge of the dance sphere		Openness to collaborate with digital technologies with a reflective and critical mindset
Practical knowledge of how to teach and learn dance		Willingness to have an ethical and responsible approach to intellectual and cultural ownership
		Awareness of the importance of applying previous learning skills to future learning

3. 6. Time-based arts and mixed media arts

For cultural institutions staff **with skills** in the IT, LOD and digital media.

3. 6. 1. Presentation of cultural institutions

Unlike other arts, time-based arts and mixed media arts are more noticeable through private initiatives rather than public institutions. Time-based and mixed media arts are becoming part of the self-expression of various creators, looking for new forms and opportunities to convey desired ideas.

One of the most successful examples is the Solomon R. Guggenheim Foundation Museum, located in New York, Venice, Bilbao and Abu Dhabi. As early as 1999, the Variable Media Initiative was launched, adding a new specialty of time-based media conservation to emphasize the special needs of media artworks in the collection. Various practices and methods continue to be used to make collections relevant to modern man and thus to make meaningful technological decisions. The Smithsonian Time-based Media & Digital Art Working Group, a pan-institutional initiative to improve long-term strategies for the preservation of works of art, works on a similar principle. Time-based media art is considered integral to the technology that allows this art form to survive and present works other than those offered by traditional artists. The National Gallery of Art in Washington offers a digital cultural experience with works by Bruce Conner, Rineke Dijkstra, Nam June Paik, Bill Viola, Jane and Louise Wilson (National Gallery of Art, 2022). In recent years, the foundation has been laid for the creation of a new group responsible for developing installations and discussing their needs with all stakeholders - developers, fans and technicians.

Time-based art is also receiving attention from festival organizers. Mention should be made of the VIDEONALE festival, which presents experimental works of art and creators from around the world. The evaluation includes works created not earlier than 2020, in other words, completely new and in one way or another reflecting the spirit of the time. Similar initiatives can be seen in

Islands Time-Based Art (ITBA), which presents a variety of practices from the world of these arts (Honeycombs, 2022).

One of the best-known organizations in the field of multimedia is the European Multimedia Associations Convention (EMMAC), which responds to the latest trends in augmented reality (AR) and virtual reality (VR) (Wikipedia, 2022). Mixed media art, meanwhile, is quite diverse, making it often difficult for institutions to share responsibilities in order to nurture this branch of art, often a type of art supported by individual enthusiasts.

3. 6. 2. The role of youth

In the time-based arts, young creators have a special role to play, often with a desire to rebel against established order and principles of creation. However, it is clear that older developers are also welcome and supported. International organizations such as the aforementioned Guggenheim Foundation are quite open to innovation and feedback. As usual, for-profit organizations are always interested in attracting the widest possible audience and receiving positive reviews.

Mixed media Arts is aesthetic-based and uses elements and instruments of current and emerging technologies to create works that convey feelings and ideas. The act of innovation has expanded so much in our daily life. In order to realize the language and symbol systems of our current culture, it is important to look at works that are produced from a wide spectrum of sources— from individual visions to the marketable media industry. Creativities in Art and life are so much dependent upon each other and interrelated. The study of the image and sound elements is an essential prerequisite to the proper shaping of ideas into communication.

As in kindergarten through fourth grade, learners relate the meaning of several texts in the media arts to their own real-life experiences or personal wants for entertainment and information, and they begin to examine relationships among textual meanings and the needs or experiences of others. Learners begin to explore the media arts as learning resources and learn how to analyze, interpret, and evaluate media art types. They learn to select among the media arts according to appropriateness of information and effectiveness of technique, and they begin to apply the range of basic skills needed for experiencing, criticizing, producing, and presenting all media arts genres. They draw upon their imaginations, experiences, or explorations of ideas and feelings in developing their own media arts productions and learn how to communicate and express

themselves by generating, capturing, manipulating, producing, and presenting information using the media arts.

For capturing the youth, we must approach with basic methodology to practical knowledge of this method of art that can be used to teach and learn various level of training.

Mixed-media art seems a bit more universal, although it really also responds to the need for young people to try new forms, methods, and achieve incredible results. This art is so diverse that it can be very difficult to attribute it to one or another target group. Like-minded people have the opportunity to reflect on each other's work and achieve the best result together. Especially now that all the creative tools are easily accessible and affordable.

3. 6. 3. Future possibilities

One of the main stimuli for the introduction of modern technologies is the desire to expand its activities and make it as attractive as possible to modern audiences. Private initiatives and institutions are certainly pursuing this. In the case of time-based arts, a closer link between creation and technology seems inevitable, and even more so, it is likely that more and more works will move to virtual space in the near future, which will become one of the main features of the work. The same is true for the popularity of LOD (linked open data) in the arts - linking data stored in different repositories allows the user to access information about their search much faster (Oomen & Baltussen, 2012). This could allow the work to be seen in a variety of forms, including digital.

Mixed media arts are also inevitably confronted with the global digitization process. Digital media can in themselves be an art form that can be associated with traditional artistic tools, methods, and forms. As you know, mixed media is difficult to fit into a single definition, which often makes it difficult to find the right information in one place for both fans of this art and people looking to do it for free or professional. As a result of this dispersal, the introduction of LOD would make it possible to create a system that would greatly facilitate the search process and the creation of cultural experiences.

For cultural institutions staff **without skills** in the IT, LOD and digital media.

3. 6. 4. Current challenges

One of the major challenges facing all institutions working with time-based and mixed media arts is funding. Although IT is already a reality and a large proportion of societies have at least the minimum skills to use digital technologies and use digital media, this is still an area that requires considerable financial resources. In the arts, where technology plays a significant role, it is not only necessary to innovate once, but also to keep pace with trends in order to respond to both consumer needs and the latest opportunities.

Another significant obstacle is the popularity of these arts. Obviously, the more people engage in a particular art, the greater the diversity of competencies and attitudes necessary. In contrast to traditional arts such as dance, art or music, time-based and mixed media art remain less well-known, making it more difficult for the consumer to engage in these activities or to find relevant cultural experiences. Although institutions representing these arts usually appear to be open to change and ready to expand their reach, they still lack visibility in the public sphere.

In areas with smaller populations or less developed IT infrastructure, it can be difficult to engage in some of these arts. It is therefore important to seize the opportunities offered by digitalisation to address every day, seemingly simple and easy challenges.

The low uptake of LOD is also due to the fact that it is quite difficult to find meaningful information about time-based and mixed media arts, let alone possible digital cultural experiences, using widely available online search tools. When it comes to linking data, the terms used to describe the arts should also be harmonized - although English has a well-established tradition of using them, the same cannot be said for other, less popular, languages.

3. 6. 5. Possible solutions

Digitization should become a priority. This would allow the use of available resources and the achievement of the set goals. Each institution should develop a strategy that sets out its immediate and far-reaching plans for the day-to-day application of digital technologies.

A digital cultural designer can become a stepping stone to discovering digital experiences and applying at least some of the existing ideas to their own activities. As this project reveals, the framework steps do not require additional resources but interest and involvement itself. The

creators and administrators involved in contemporary art are undoubtedly constantly in the field of innovation; all they need to do is steer interest in the right direction.

3. 6. 6. Involvement of different groups

Art today is imagined as capable of inclusion. It could also be called a social mission carried out by artists in various fields.

Mixed media, which combines many different techniques, could be a particularly attractive field of art for people with different inclinations, aptitudes, and qualities. It is very important to have people in the institutions who can lead the community in arts activities. The same goes for time-based arts.

Adapting digital technologies and LOD principles would allow people with disabilities to be fully included. It would also make sense for the arts themselves, as time-based art would respond not only to technological innovation but also to the most sensitive social, cultural or even political issues. In other words, art would become a bridge between different groups in society.

3. 6. 7. Heritage aspect

In the time-based and mixed media arts, several exceptional, more well-known, artworks can be mentioned.

Time-based works of media art have an element of duration, such as sound, performance, light, or movement, that is revealed to the viewer over time through a slide, film, video, software, or the Internet. Because these works of art are technically and technologically obsolete, it is often left to the Conservator to determine, recognize, and respect the conceptual nature of these works. Technology-based art is considered more sensitive to damage, loss, misinterpretation, and misinstallation than a traditional work of art because of its highly specific and sensitive relationship to time, space, and concept.

The Mellon Time-Based Media Art Preservation Curriculum at NYU, the very first of its kind in the U.S., takes a multidisciplinary approach to achieving these goals and is embedded in the conceptual framework for contemporary art preservation that is already a strength of the programme. Offering an overview course on time-based media technologies and their maintenance, as well as advanced technology training in the second and third years of study, the program is based on a coalition of IT experts, engineering, and film and video preservation.

Students may also choose from additional classes offered through other NYU graduate departments, such as the Motion Picture Archiving and Preservation Program, the Interactive Telecommunications Program, and Museum Studies.

Early examples of time-based media date back to the 1960s, especially the art of Bruce Nauman, who recorded events to be reproduced in the gallery. His "Corridor of Performance", created in 1968, was the record of a performance in which people descended through a dark narrow tunnel. Since Nauman's early research, artists have also experimented with the elasticity of the medium to expand time and space. In 1993 Douglas Gordon slowed Alfred Hitchcock's *Psycho* to twenty-four hours. Artworks that have long been considered valuable can be considered heritage.

In heritage protection, historical objects of mixed media are remnants of a unique past. These are objects made up of various substances, which can be organic or inorganic. For example, headgear made of textile, leather, metal and feathers; an ethnographic object with wood, plant fibers, leather, shells, and bone; or wax Madonna with textile clothes under a glass dome decorated with silk flowers. Their conservation status is often fragile due to the nature of the materials used and the advanced decomposition stage. In order to protect historic mixed media sites for future generations, their degradation rate should be slowed. In addition to conservation and restoration procedures, this can be done by choosing well-thought-out environmental conditions. However, all materials have their own optimal conditions, which are influenced by the specific properties of the material, the state of preservation of the artifact, and the interaction between the material and the material. This makes it difficult to make recommendations for historical mixed media objects and often has to compromise (Anaf, Debulgaep, 2019).

A risk-based approach has been developed to support decision-making in setting well-thought-out conditions for the preservation of historical mixed media objects. Over the past decade, risk management approaches have been at the forefront of preventive conservation in general. Well-known methods such as the ABC method (Michalski, Pedersoli Jr., 2016), the Cultural Values Risk Analysis Model (Waller, 2003) or QuiskScan (Brokerhof, Bülow, 2016) are used to identify, analyse and assess key risks. collection. The method we propose is based on existing methods and risk terminology. It helps conservationists assess the relative importance of the different materials that make up a mixed media object. It takes into account the quantity of the substance, its value in the context of the object, use, and the expected loss of value when a certain hazard is encountered. The result provides heritage conservationists with an objective basis for compromising on the preservation conditions of historic mixed media objects. In addition, it

allows you to compare different scenarios to choose the most appropriate one (Anaf, Debulgaep, 2019).

3. 6. 8. Digital Resources and Activities

RESOURCE 1

Name and link. Smithsonian: Time-based Media and Digital Art,

<https://www.si.edu/tbma/time-based-media-digital-art-si>

Introduction. This website represents the Smithsonian's Time-based Media & Digital Art Working Group activities and resources. The database is full of information for those who want to become professional time-based media and digital media specialists, as well as for those who are interested in this art and want to get acquainted with the most popular works of art.

Tips on how to use. The easy-to-understand structure of the website includes basic theoretical information and a variety of digital sources - workflows and tools; interviews with professional developers; equipment and documentation available to the working group, and finally external sources. All theoretical and practical information is available freely and free of charge to any user.

Activity 1. Creating presentation videos

Materials needed. Video editing programs, PC or tablets

Purpose. Develop creativity by presenting digital material

Process. Participants are given time to review and evaluate the visual side of the site. Participants create drafts of their visualizations using available video editing programs and present them to others. Each suggestion is discussed and feedback is provided, along with deciding which options would best meet the needs of the modern user.

Activity 2. Creating graphics for the website

Materials needed. Canva, PC or tablets

Purpose. Create a visual presentation of the webpage

Process. All trainees individually create posters using the Canva program to convey the content of the page. Participants are free to choose which resources on the page to emphasize the most and which specific features of time-based media art to convey. After completing the task, all participants are invited to present their prepared posters and are given feedback.

RESOURCE 2

Name and link. Time-Based Media Art Conservation,
<https://ifa.nyu.edu/conservation/time-based-media.htm>

Introduction. This is an introductory website for The Institute of Fine Arts study program for the training of Time-based media art conservation professionals. It provides all the basic information about the skills needed to properly preserve time-based media art, as well as the history of this art itself.

Tips on how to use. In addition to the theoretical information on the website, attention should be paid to The Conservation Center Virtual Tour. It is also a good example of LOD - it is possible to discover systematic information about other time-based media art conservation programs and initiatives, primarily in the United States.

Activity 1. Whole group discussion

Materials needed. Projector, PC

Purpose. Discuss art conservation practices

Process. The whole group watches a virtual tour of The Institute of Fine Arts Conservation Centre. It is then discussed together which art preservation and conservation practices dominate the country. The group discusses what could be applied to the country's art institutions, based on the information provided on the website. Finally, the role of modern technology in ensuring the longevity of art is assessed.

RESOURCE 3

Name and link. MSU Texas, Open Access Resources: Mixed Media,
<https://libguides.msutexas.edu/c.php?g=1057974&p=7700794>

Introduction. This is the Texas Library's publicly available information on all freely available mixed media art data. Links to both textual and visual material are provided.

Tips on how to use. Each link is briefly described, making it easy to navigate the information that is readily available online. Linked data gives an overall impression of what can be expected to be discovered.

Activity 1. Creating a lesson plan

Materials needed. PCs or tablets

Purpose. To be able to use open sources in the educational process

Process. Participants are divided into smaller groups of 2-3 people. Each is assigned a 40-minute lesson plan on mixed media art. The main condition is that the open resources listed on the reviewed website must be used. The prepared plans are presented and discussed together.

Learning Outcomes

<i>knowledge</i>	<i>skills</i>	<i>attitudes</i>
Basic knowledge of today's time-based arts and/or mixed media arts	Recognize the importance of IT in the light of nowadays Time-Based art and Mixed Media art world	Awareness of the need for digital competences in today's modern world
Basic knowledge of how to contribute to individual and society development	Identify opportunities for personal, social or commercial value through the digitalization art medium	Willingness to engage with digital technologies
Practical knowledge of how this art can be used to teach and learn on various levels	Openness to enact a problem-solving attitude that supports the learning process	Willingness to approach digital technologies in an ethical, safe and responsible manner
Practical knowledge of how time-based arts and/or mixed media arts support development of the society	Willingness to set goals to motivate yourself and develop skills of resilience and confidence	Openness to collaborate with digital technologies with a reflective and critical mindset
Factual knowledge of devices, software and networks that contribute to making and preserving time-based arts and/or mixed media arts		Awareness of the importance of applying previous learning skills to future learning

Summary

The national-based curriculum developed by the organizations implementing the Digital Cultural Designer project is intended for cultural institutions specializing in various arts - music, visual arts, cinema, theater, time-based, and mixed media arts. This curriculum provides information on digital competence development based on specific trainings, integrative modules, digital cultural resources, and other offerings. The project aims to develop an understanding of the need for digital cultural experiences, technical capabilities, and LOD as one of the key factors in improving the experience of cultural users.



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