inDICEs

Measuring the Impact of Digital Culture

Deliverable 3.1

Policy analysis of value chains for CHIs in the Digital Single Market

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D3.1 – Policy analysis of value chains for CHIs in the Digital Single Market

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1 Executive Summary

The task *Policy analysis of value chains for CHIs in the Digital Single Market* (T 3.1) was focused on the analysis of the value chains for CHIs in the DSM to foster the understanding of current business models of interaction between CHIs and creative industries and how such models can reinforce access to culture and European identity. Within the inDICEs project, we aim to understand the effects of the digital revolution on modes of cultural and creative production and on their economic and social impact. To achieve this, we decided to look at the CH sector in the context of the structural inter-dependencies and the impact it has on other sectors and the societies. Taking into consideration the changing perception of the role and responsibilities of cultural heritage institutions, as well as the impact of the COVID-19 pandemic, in the following document we discuss the issue of the value of digital cultural heritage, focusing on the impact it has on societies and the European policies concerning digital heritage resources and the Digital Single Market and propose a framework for understanding digital cultural heritage value chains, created on the basis of case studies analysis of the (re)use of digital cultural heritage.

1.1.1 Deviation from work plan

No deviation from the work plan.

1.1.2 Plans for the next period

The work presented in this document will be – in the subsequent stages of the inDICEs project – used to produce policy recommendations that would strengthen the European Commission's work in empowering and including every citizen, strengthening the potential of every business and meeting global challenges with our core values.

2 Introduction and Objectives

The underlying assumption of this paper is that the Cultural Heritage (CH) Sector, a largely not-for-profit subsector of the CCI might be seen as a key enabler of the advancement of the CCI in Europe. Within the inDICEs project, we aim to understand the effects of the digital revolution on modes of cultural and creative production and on their economic and social impact. We believe that non-industrial or sectors such as the visual and performing arts, and particularly the museums, libraries, and (audio-visual) archives, although less market-oriented and essentially relying on public subsidies for their economic viability, play a key role in the conservation and transmission of knowledge and skills and in the exploration and creation of new, path-breaking ideas. The impact of the Digital Single Market (DSM) on the CH sector (and vice versa) is a particularly interesting and challenging topic. In the CH sector, digital reproducibility of content is not part of the core business model but is a tool to facilitate circulation and use, often outside the market context. While a DSM perspective focuses on economic and market impact, from the viewpoint of the CH sector, content use has cultural and social effects as well as an indirect spillover effect that is essential for the economy.

More recently, a shift can be observed in the perception of the role of culture - and the CH sector in particular. There is a parallel, shifting relationship between cultural activity and the generation of economic and social value added. This shift is captured by Pier Luigi Sacco who describes the move from the Culture 1.0 model, which is based on a patronage system, through the Culture 2.0 model, with mass production of cultural products that is controlled by entrance barriers of access to technologies and resources, to Culture 3.0 model, that blurs the boundaries between producers and users (Sacco 2011). According to Sacco, in Culture 1.0 model *culture doesn't create economic value, needs to be financed by wealthy individuals, thus the amount of cultural production is limited, so are*

the audiences. In Culture 2.0, characteristic for the post-industrial world, *mass production allow to deliver new cultural products, but also to make them available to much wider audiences, and at increasingly affordable prices*, however *the access to productive technologies is difficult and financially expensive*, *so that would-be cultural producers are filtered by complex selection systems, that differ from one cultural sector to another*. In the Culture 3.0 model users become producers and while *the Culture 2.0 revolution has been characterized by an explosion of the size of cultural markets*, *the Culture 3.0 revolution is characterized by the explosion of the pool of producers, so that it becomes increasingly difficult to distinguish between cultural producers and users* (Sacco 2011, 6-7).

This shift should be accompanied by a new policy perspective and structural funds programming that takes into account the Culture 3.0 framework. According to Sacco, we should give up a notion of the cultural and creative industries *as a specific macro-sector of the economy, and a notion of the demand side as a market-mediated audience* (Sacco 2011, 9). We should rather focus on the structural inter-dependencies between the cultural and creative sectors on one hand, and other sectors, *and we have to reason in terms of the demand side as a partially market-mediated pool of practitioners increasingly interested in active cultural participation and access* (Sacco 2011, 9).

Taking all that into consideration, we decided to look at the CH sector in the context of the structural inter-dependencies and the impact it has on other sectors and the societies. In the **following sections** of this chapter we try to capture the way in which the perception of the social role and responsibilities of cultural heritage institutions is changing and how it affects the digital cultural heritage and its value, especially in the context of the global pandemic of COVID-19. In the **third chapter** we discuss the issue of the value of digital cultural heritage in more details, focusing on the impact it has on societies, looking at different definitions and theoretical approaches. In the **fourth chapter** we take a closer look on European policies and provide a review of policy documents concerning digital heritage resources and the Digital Single Market. In **chapter five** we present the

summary of a case studies analysis that allowed us to grasp how digital cultural heritage is being (re)used by different actors and what are the purposes of such (re)use. This analysis and the previous chapters served as a basis for a framework for understanding digital cultural heritage value chains, presented in the **chapter six**.

2.1 The new role of Cultural Heritage Institutions

This shift is also reflected in the new developments in the CH sector itself. With the growing institutional interest in audience development (Bollo et al. 2017) participatory models (Simon 2010), and community engagement, CH sector is looking for ways of engaging audiences as users and creators as well as ways of measuring their impact. The Europeana Impact Framework is an attempt to support institutions in this regard. We also see a shift in how institutions define their role in society which can be exemplified with a recent debate among museum professionals on the new museum definition proposed by ICOM (International Council for Museums). The first sentence of the proposed new definition states: *Museums are **democratising, inclusive and polyphonic** spaces for **critical dialogue** about the pasts and the futures*. It focuses on the inclusiveness of institutions and their practices, their role as actors in society and the importance of equal access to cultural heritage. Last but not least, it emphasizes cooperation and co-creation with the involvement of various communities as well as calls for the active involvement of institutions in many dimensions of social life and its contemporary challenges: *They are participatory and transparent, and work **in active partnership with and for diverse communities** to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing*. The emergence of museum activism (Janes & Sandell 2020) is also worth noting, as both authors of the book on the subject treat it as a sign of change: *Only a decade ago, the notion that museums, galleries and heritage organisations might engage in activist practice - marshalling and directing their unique resources with explicit intent to act upon inequalities, injustices and environmental crises - was met with widespread scepticism and often*

derision. Seeking to purposefully bring about social change beyond the walls of the institution (...) was viewed by many museum workers, sector leaders and external commentators alike as inappropriately political and partisan. (...) Today, the idea remains controversial but there are signs of what we hope will be an irreversible shift in the way we think about the role and responsibility of museums as knowledge based, social institutions. (Janes & Sandell 2020, xxvii). Although there are major differences between institutions of the whole CH, we can observe the general tendency towards more open, inclusive and transparent ways of operating, more access to knowledge and resources gathered by the institutions, more readiness to cooperate with various actors from different sectors and more focus on social relevance (Simon 2016) and **impact**.

2.2 Digital Cultural Heritage

The process of digitisation of cultural heritage has opened up new ways in which digital heritage resources might circulate and be relevant for different communities and actors across the sectors. For over a decade initiatives such as OpenGLAM (GLAM: galleries, libraries, archives, museums) have been advocating for more equal and unrestricted access to digital cultural heritage available for free reuse. The Open GLAM Survey (initiated by dr Andrea Walles and Douglas McCarthy) aimed at uncovering the global picture of Open GLAM was inspired by the shared need for a single resource providing an up-to-date picture of open access policy and practice (McCarthy 2019). As one of the authors admits, *as well as an information gap, there seemed to be implicit bias in Open GLAM towards major European and North American institutions: the Rijksmuseum, National Gallery of Art, the British Library etc. Even if unfair, this perception risked open access being seen as something 'just for the big Western museums' and less relevant or accessible to smaller institutions* (McCarthy 2019). Open GLAM Survey covers both objects and data that GLAMs make available on their own websites and on external platforms (like Wikimedia Commons, Europeana, the German Digital Library and Github). So far the list includes more than 850 institutions from around the world. Thanks to the

survey, being a living source of knowledge, we now have a better overview of open access policy and practice.

Among the advocates for free unrestricted access to digital cultural heritage were also other global communities and networks such as Creative Commons Global Network and Wikimedia. The GLAM-Wiki initiative is aimed at helping *cultural institutions share their resources with the world through high-impact collaboration alongside experienced Wikipedia editors,* underlining the fact that this presents an *unparalleled opportunity for the custodians of our cultural heritage to present their collections to new audiences.* From within the cultural heritage sector, Europeana has played a significant role in opening up collections and bringing them closer to their audiences as well as inspiring digital projects based on heritage resources.

2.3 Understanding the Value of Digital Cultural Heritage

The value of digital collections became a subject of interest among experts, who in the early XXI century started looking more closely at the benefits institutions reap from charging fees for access to digitized materials from their collections. Rights policies and reproduction charging models in American museums were a subject of scrutiny of the Mellon Foundation study (Tanner 2004). As the author, Simon Tanner, concludes, *it is clear from the results of this study that the level of revenue raised by museums through imaging and rights is small relative to the overall revenue earning capacity of the museum from retail, ticket sales, membership and fundraising* (Tanner 2004, 40). It is not the profitability of these activities that is a driving force for these services, but the need to promote collections and address the users' expectations. At first, common concerns among representatives of the heritage sector included the fear that by making collections available online, the number of visitors would decline, and worries about content published online being used in a way that's not in line with the museum's mission or downright offensive or harmful (Kapsalis 2016), which can be referred to as a need for intellectual control. Smaller institutions, which do not have large budgets, were also worried that openness is a big, well-financed institution's game, often

providing the Dutch Rijksmuseum as an example. Such big institutions do not need to worry about their brand when their collections are made available online and somewhat lose the connection to the particular institution, which was another concern for smaller-scale institutions with less recognizability.

In the subsequent report prepared for the Mellon Foundation by Kristin Kelly, the focus was the experience of open access in 11 museums. While summing up the key conclusions of her report, the author of the study states that revenue matters less than many institutions think it does, and providing open access is a mission-driven decision, not a calculated one. She references earlier reports and analyses of American institutions, noticing that institutions generally do not analyze actual costs and that they cite gross rather than net revenue, and investment in technology, although costly, supports mission-driven activities, such as collaboration across the museum, better collections care, and a higher level of educational outreach when images are available online (Allen 2009). An earlier report for the Mellon Foundation examining the sale of digital and analogue formats of images of works in 51 institutions in the United Kingdom and Europe concludes that none of the analyzed institutions had fully recovered the associated costs of imaging (i.e., the costs of creation, management, storage, and providing service) solely from the sale of digital images (Tanner, Deegan 2002). Institutions using the possibility for making a profit from selling access to digital images often set up a prize basing their estimation on how much a particular piece of art is worth in the context of other institutions' charging policies (Tanner, Deegan 2003). Thus the actual cost of producing that digital image was not necessarily the result of the institution's costs of providing access to its digital copy which is not always precisely estimated. Simon Tanner and Marilyn Deegan found out in their research that for users a cost difference between printed and digital copy sold by an institution is only around 10,5%. At that time it was much more profitable to sell digital images because it was much cheaper for institutions to produce them. On the basis of the analysis of case studies, Kapsalis concludes that while many of the advantages of open access are confirmed, most of the fears that are often mentioned by museum professionals (e.g. loss of intellectual control of institution's resources, reductions in the number of in-person visits) are largely unfounded (Kapsalis

2016, 12). In the meantime, the pressure on museums to abolish image fees has been growing (Grosvenor, 2018).

New insights about the economic potential of cultural and creative sectors in Europe came with the KEA Report (KEA 2006). As Sacco notes, referring to the CSES study (CSES 2010), these figures are likely to be underestimated. According to Sacco, r*easoning on the basis of the Culture 2.0-3.0 transition, it becomes easier to explain why and how culture matters for the general economy. The key of the argument lies in moving the focus from the economic outcomes of cultural activity to the behaviours that cause them: In order to understand the effects of culture outside of the cultural realm, we have to consider how cultural access changes the behaviour of individuals and groups. One of the most evident effects has to do with the cornerstone of the Culture 3.0 phase:* ***Active cultural participation****. By active cultural participation, we mean a situation in which individuals do not limit themselves to absorb passively the cultural stimuli, but are motivated to put their skills at work:* ***Thus, not simply hearing music, but playing; not simply reading texts, but writing, and so on.*** (Sacco 2011, 9).

Looking more closely into what is the value of digital cultural heritage and how it is created, we were inspired by the Culture 3.0 framework proposed by Sacco as well as the notion of various areas of impact that cultural heritage has on society and economy, following the new understanding of the role of CH institutions.

2.4 Towards a post-pandemic future

As research has shown, the global pandemic of COVID-19 will have a huge effect on the CH sector. According to a study carried out by ICOM, 82.6% of respondents predict that due to the pandemic, museum programs will have to be limited, with 29.8% expected the number of employees will have to be reduced. 12.8% of participants are concerned that their museum may be closed. Data collected by NEMO (Network of European Museum Organizations), focused on Europe, provides a picture only slightly more positive, noting also the effect that a 50-70% decrease in tourism will have on the CH

sector. European institutions will lose a significant part of their revenues from ticket sales or museum shops. Museums will be able to accept from 20% to 50% of the regular number of visitors - depending on the characteristics of their buildings (as visitor quotas depend on museum architecture). On the other hand, many institutions have taken a crash course on digital transformation (or some aspects of it), and often implemented changes successfully. According to ICOM data, 15% of museums reported an increase in activities related to digital communication, and 50% - in activities on social media.

A recent study conducted by LIBER (Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries) discusses the impact of COVID-19 on academic libraries. Physical and mental health as well as safety of staff is among the top concerns regarding working within the physical realm of libraries (LIBER 2020, 19). According to the study, *there is a definite focus towards increased online training. Creating and maintaining engagement in the form of more online training and events. Contact with library users is greatly missed by many participants* (LIBER 2020, 20).However, there is also a concern among professionals about digitisation potentially reducing the value of libraries by alienating audiences and creating unequal access: *Digitisation is on everyone's minds and agendas. There is a digital divide now, and we need to be careful not to alienate those who are behind in digitalisation, said one participant. Some libraries have fully digitised, and some have always been digital, but many are still in the process, and at different stages or phases of transformation. What is certain, is that libraries need support in a transition to full or almost-full digitisation. This comes in many shapes and forms, such as financial support, online services/activities, tools and training* (LIBER 2020, 20).

CCS, as largely venue-based sectors, are the hardest hit by social distancing measures and the effects of the pandemic are expected to be long-lasting (Travkina et al. 2020). As Travkina and Sacco underline, *the sector has innovated rapidly, notably with accelerated digitalisation* (Travkina et al. 2020, 3). While some of the institutions' efforts were focused on looking for quick and instant solutions to the sudden separation with the audiences, the crisis is also perceived as an opportunity to reflect and look for new solutions. The importance of the slowdown for the possible change of

perspective appears in debates about the cultural sector. It seems that the pandemic has proved the importance of culture in times of crisis as recalled by cultural professionals' communities and networks, highlighting the role of culture as one of the essential elements of post-pandemic programs (eg. Europe Day Manifesto. Cultural Heritage: a powerful catalyst for the future of Europe, The 2020 Rome Charter). The last few months have clearly shown the importance of culture and creativity for society: *The arts and creative activities play a crucial role in the well-being and cohesion of the community, shaping values; they represent the key to assure freedom of expression and innovation* (KEA 2020, 2). CH professionals learn and reflect on the effect that the global pandemic has and will have on the sector, imagining different scenarios and debate the role of culture in Europe's recovery from the COVID-19 pandemic and the future of Europe. Lots of commentators emphasize that the availability of cultural content and the very fact that many institutions provide free and unrestricted access to their collections online contributed to the preservation of mental health and well-being of societies in 2020. According to the study published by KEA, *The crisis is the opportunity to acknowledge the economic and social importance of CCS in nurturing social cohesion, in making places and territories attractive to locals and tourists and in providing jobs. CCS plays a crucial role in the wellbeing of communities and social cohesion. They are leading collective sense-making. They are part of an essential ecosystem which values freedom of expression, innovation, the sharing of collective experiences and emotions. Artists express our collective consciousness* (KEA 2020, 12). The experience of the global pandemic seems to be proving that we should be thinking in terms of the impact that the CCS have on societies and try to capture the role of digital cultural heritage, having in mind that the path towards rapid digital transformation taken by many CH institutions in response to the pandemic will be enhancing the variety of interactions with heritage content online (strengthening Culture 3.0). Considering the impact of culture on different macroeconomic areas, we need to remember about the importance of media literacy, digital competences and access in this context. As Travkina and Sacco note: *massive digitalisation coupled with emerging technologies, such as virtual and augmented realities, can create new forms of cultural experience, dissemination and new business models with market potential. With the*

lockdown, many public and private providers moved content online for free to keep audiences engaged and satisfy the sharply increased demand for cultural content. While the provision of free and digitally mediated cultural content is not sustainable over time, it has opened the door to many future innovations. To capitalise on them, there is a need to address the digital skills shortages within the sector and improve digital access beyond large metropolitan areas, with the additional consideration that digital access does not replace a live cultural experience or all the jobs that go with it (Travkina et al. 2020, 3). A post-covid reflection should take into consideration individual needs, new poverty and the need to guarantee access to cultural contents as inclusive as possible.

3 Understanding the Value and Impact of Digital Cultural Heritage - an overview of theoretical approaches

3.1 Introduction

Digital projects inevitably bring new challenges for evaluation, as their potential is inextricably linked to their ability to enable new forms of interaction and behaviour. However, they don't exist in an independent sphere of activity unlinked to the rest of the institutions and contexts in which they operate. As with any activity, digital projects operate within a complex ecosystem of interaction, creating numerous impacts both within and outside of institutions. This is further complicated by the many ways cultural institutions have utilised digital technologies, leading to a multiplicity of forms, functions, and expectations that do not necessarily lend themselves well to standardised forms of evaluation (Green and Andersen, 2017).

How to best measure the value of digital culture given the challenges listed above by Green and Anderson? What is the most suitable methodology to assess the economic and social impact of digitisation of cultural heritage on the access to European cultural goods and services and their modes of production?

The chapter provides an overview of a selection of existing different approaches to the issue of value and impact in the context of cultural heritage. Among existing approaches, below we analyse three theoretical perspectives:

- Balanced Value Model by Simon Tanner
- Europeana Impact Framework (based on Simon Tanner's model)
- Pier Luigi Sacco's eight-tiers approach in Social and Economic Value Creation through Culture.

The three approaches are described and analysed below in order to create a theoretical background to the research initiatives and activities performed under the scope of the inDICEs project. All three incorporate a great appreciation for the value of cultural and creative production and the even bigger need for a multi-perspective evaluation of its effects. They ought to help structure the activities linked to impact assessment and creation of cultural and creative value, help build relevant and balanced strategic contexts around them, and identify key purposes behind the research.

3.2 The (reviewed) Balanced Value Model

The Balanced Value Impact Model (BVIM or the BVI Model) initially proposed by Simon Tanner from the King's College in London in 2012, reviewed and revised in 2020, brings together aspects from different impact assessment communities into a cohesive and logical process, both theoretical and practical, that is specific to libraries, galleries, museums and archives (GLAM). For the purpose of the report *Measuring the Impact of Digital Resources: The Balanced Value Impact Model*, Simon Tanner defines impact as *measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended* (Tanner 2012). In his most recent book, *Delivering Impact with Digital Resources Planning strategy in the attention economy,* in which he is presenting the updated BVIM, Tanner proposes minor changes to the definition, admitting that it considers the higher aspirations of impact assessment which translates impact into *measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community* (Tanner 2020).

Tanner identifies a huge range of benefits and value in digital resources and collections that go beyond the economic dimension: *at the highest level these benefits can be summarized as learning; research; consumption; strengthening communities; building collaboration and the British university brand*. Thus, Tanner suggests *that defining modes of value for a digital culture that are not solely economically driven but which do contain indicators of value that can be measured and can*

demonstrate change are important to consider the impact particularly of digital resources (Tanner 2012).

According to Tanner impact is a form of assessment of an intervention that includes both qualitative and quantitative methods with measurements done ex-ante and ex-post juxtaposing the intervention with the potential needs of benefiting stakeholders (Tanner 2020). The application of the BVI Model is driven primarily by the needs of the organisation that is responsible for the resource (for instance a digital resource). The stakeholders are a crucial part of the context and drivers for why the impact assessment happens, but essentially the BVI Model is meant as an organisation-led and not a community-led tool.

Tanner proposes 5 Modes of Cultural Value, which go beyond the economic value created with digital heritage resources. These are not absolute values engaging with tangible and intangible value for impact assessment, as there are other methodologies at hand, including Frey and Pommerehne's work on cultural values and Pearce and Özedemiroglu's work on use and non-use values (Tanner 2020). As Tanner proposes, there might be other values that may be established if needed. His model however is based on the Balanced Scorecard approach (Kaplan and Norton, 1992; Marr, 2012) and stresses the importance of Modes of Value.

Each mode relates to *a way or manner in which the cultural value occurs or is experienced, expressed, or achieved most frequently in a given set of data* (Tanner 2012). These 5 Modes are: Utility Value, Existence and/or Prestige Value, Education Value, Community Value, Inheritance / Bequest Value. Together the values shape a well-balanced impact assessment: they help to position the organisation, to understand the stakeholder's needs and benefits, and to identify the key drivers for the assessment. Tanner describes these modes as drivers or, more recently as lenses allowing to focus on specific elements of the impact assessment.

According to Tanner, the Value Lenses for Measuring the Impact of Digital Resources are:

VALUE LENS	DESCRIPTION

Utility Value	People value the utility afforded through the use of digital resources now or sometime in the future.
Existence and/or Prestige Value	People derive value and benefit from knowing that a digital resource is cherished by persons living inside and outside their community. This value exists whether the resource is personally used or not.
Education Value	People are aware that digital resources contribute to their own or to other people's sense of culture, education, knowledge and heritage and therefore value them.
Community Value	People benefit from the experience of being part of a community that is afforded by the digital resource.
Inheritance / Bequest Value	People derive benefit from the inheritance passed down to them and satisfaction from the fact that their descendants and other members of the community will in the future be able to enjoy a digital resource if they so choose.

Figure 1: Value Lenses in the BVI Model

Furthermore, to be able to assign a specific value to a purpose, allowing its better evaluation, the assessment is built around four Balancing Perspectives, related to the Scorecard approach: Social and Audience Impacts, Economic Impacts, Innovation Impacts and Internal Process Impacts (Tanner 2012), in the revised version of the BVIM renamed as Strategic Perspectives (Economic, Social, Innovation and Operational impacts).

What is more, Tanner also includes a description of classification of relevant stakeholder groups and suggests that each Value Mode & Perspective has to have a stakeholder group assigned to it. The types of stakeholders groups might be:

- Consumers – those who will use the resource regularly.
- One Stop Consumers – those who will use the resource only once or twice.
- Partners and Collaborators – those relationships required to deliver the digital resource.
- Paymasters – those who hold financial sway over the digital resource in one way or another.
- Producers and Creatives Creators – those who contribute to the content for the digital resource.
- Commentators – those who will have opinions upon the digital resource which will set the context for other stakeholders and possibly change opinions.
- Marginalised – whether part of primary or secondary stakeholders these groups are essential to specify as otherwise equality of opportunity to participate cannot be achieved. This grouping may include the impoverished, religious or racial minorities, women, or indigenous peoples as a few examples.
- Leavers – those no longer in touch with the digital resource who have previously used it.
- Non-users - those who have never used the digital resource.
- Champions – those who actively promote the digital resource and can affect the outcome of the impact assessment (IA).
- Competitors - competing products, persons leading competing activities (Tanner 2012).

The revised approach is based on three pillars. Strategic Perspectives are introduced to allow a multi-perspective view of impact. Value Modes ensure that priorities are matched to perspectives and the focus on understanding the stakeholders is there to make sure that priorities are set appropriately.

The reviewed BVI Model consists of five functional stages 'following a process that stresses the importance of distinguishing between actions, the outputs and the outcomes of these actions, and ultimately the impact which a memory organisation or its digital presence has on people' (Tanner 2020):

Stage 1: Set the context

Stage 2: Design the framework

Stage 3: Implement the framework

Stage 4: Narrate the outcomes and results

Stage 5: Review and respond

Tanner uses the BVI Model also to describe the value and impact of cultural heritage in the attention economy. He states that *in an information-rich world, the wealth of information means a dearth of*

something else – the attention of its recipients to attend to and engage with the information. What we take notice of, and the regarding of something or someone as interesting or important, delineates what we consider worthy of attending to, and thus defines our economics of attention (Tanner 2020). Tanner believes that digital cultural heritage deserves to have its value properly recognised by the stakeholders. In order to make it happen a more evidence-driven assessment of the sector's activities needs to be implemented on a wider scale (going beyond the economic perspective) using an interdisciplinary methodology.

Tanner's BVI Model is both theoretical and practical proposition, that can serve academics eager to understand and study the process of value creation in the cultural sector as well as cultural heritage professionals and policy makers willing to use it for the purpose of impact assessment.

3.3 Europeana Impact Playbook

Building on Tanner's methodology is the *Europeana Impact Playbook* - a centrepiece of the Europeana Impact Framework, a step by step approach created to help identify the impact specific to the cultural heritage sector. Developed by the Europeana Foundation and a wider community of cultural heritage professionals it proposes a methodology of IA based on the *Balanced Value Impact Model* (BVIM) developed by Simon Tanner, Europeana's own impact framework and other industry standard practices of impact assessment. For the purpose of the framework, impact is defined as: 'changes that occur for stakeholders or in society as a result of activities (for which the organization is accountable)' (Verwayen, Fallon, Schellenberg, Kyrou 2017).

Built around four phases (design, assessment, narration, evaluation) the Europeana Impact Playbook proposes a cycle-based approach. With two first phases available and two others in development, the handbook already now offers a set of guidelines and tools focused on understanding the needs of the stakeholders.

The Playbook suggests the use of Strategic Perspective and Value Lenses in the process of designing the assessment and collecting and interpreting data. Strategic Perspectives help understand the areas of future impact from the organisational perspective.

The Strategic Perspectives are:

STRATEGIC PERSPECTIVE	DESCRIPTION
Economic Impact	occurs when performed activities deliver economic benefits to stakeholders or to the organization.
Social Impact	occurs when thanks to the activities performed by the organisation, stakeholders, their communities and wider society experience a positive change in their behaviour, attitude or belief.
Innovation Impact	occurs when the performed activities and actions enable innovations which lead to a positive change, economic benefits or operational efficiency in our stakeholders.
Operational Impact	occurs when the performed activities lead to an improvement or refinement of internal organisational processes.

Figure 2: Strategic Perspectives in the Europeana Impact Playbook

In case of the Value Lenses they resemble a stakeholder's point of view in which 'each lens enables us to zoom in on the perceived value of what you are measuring, from a specific perspective, without being distracted by the bigger picture. The five lenses each give us the ability to gather insights we need to design for and assess impact' (Verwayen, Fallon, Schellenberg, Kyrou 2017). All five lenses embody a strong social dimension.

The Value Lenses are:

VALUE LENSE	DESCRIPTION
Utility Lens	allows to focus on the value or benefit gained by people through engaging with the activities during a specific time period and look for evidence that people developed a new resource, changed their perspective or outlook, or used more of a resource or service.
Existence Lens	allows to focus on the value gained from knowing that activities exist and are cherished, whether they are being used or not and helps to reveal evidence of how important people find the conceptual value and prestige derived from the existence of a resource or service.
Legacy Lens	allows to focus on the value derived from the ability to pass forward or receive activities between generations and communities and shows us that people who exchange resources derive a benefit from inheriting and bequeathing (passing on) these and understand there is a benefit to be gained.
Learning Lens	allows to focus on the value derived by a person from their ability to formally or informally learn from activities and the difference that this makes to a person's sense of culture, education, knowledge, and heritage and to reveal if an increase in opportunity for both formal and informal learning has been enabled, and whether it is beneficial on a personal and communal level.
Community Lens	allows to focus on the value derived from the experience of being part of a community that engages with the activities and to reveal people feeling better connected to their community and the subject.

Figure 3: Value Lenses in Europeana Impact Playbook

Both Strategic Perspectives and Value Lenses are designed as building blocks allowing to shape the process of the impact assessment specific for the cultural heritage sector, including input and observations from all stakeholders involved in the process.

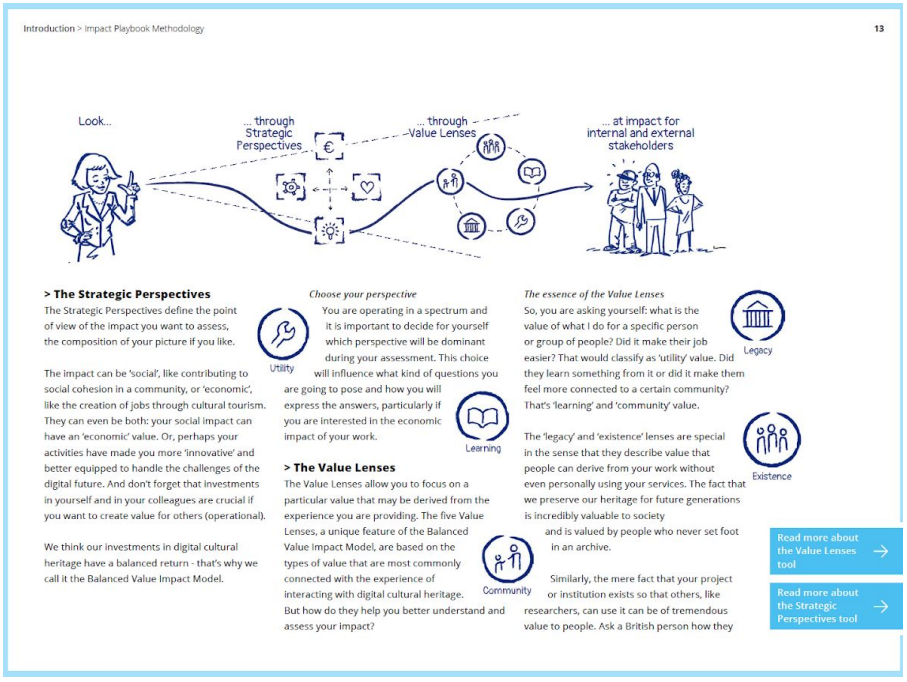


Figure 4: Impact Playbook methodology based on Strategic Perspectives and Value Lenses source: Impact Playbook, CC BY-SA Europeana

Resources like the BVI Model and the Playbook give to their users clear instructions and enable a better understanding of impact. They also encourage to look at impact assessment with an open eye and from a wider, not only economic, perspective. 'As the environment in which we work evolves, the increase of digital resources leads to greater opportunities to make an impact. We need to encourage open sharing about the challenges of developing our understanding and practice of impact. There is more experimentation to be done, looking at what measures we can take

individually and as a sector to demonstrate the changes we contribute to, as well as finding better and more efficient ways to collect data' (Tanner 2020).

3.4 Creative value chains

3.4.1 Value chain

The idea of the value chain has been introduced as an analytical tool by Michael Porter (1985). With this concept, Porter provided a process view of organisations, in which chains of activities build the value of a product or service. His core insight is that firms generate value not just through manufacturing and production. And that what has traditionally been called a "supply chain" is not one where a product simply moves from the producer to the consumer - there is potential to generate added value along the way, and not just minimize costs.

The concept of the value chain has been applied beyond individual organisations to networks of connected business entities. Porter described "value systems", in which each company has downstream and upstream connections, respectively with suppliers and buyers. The value chain model explained how value generated by a value chain can be captured by an organisation that positions itself appropriately. The value chains approach focuses on systems, and how inputs are changed into the outputs purchased by consumers. Porter's value chain model (Porter 1985, quoted in Kuan-Yang Chen et al 2016) consists of primary activities (inbound logistics, operations, outbound logistics, marketing and sales, and services) and support activities the firm arranges to create values (infrastructure, human resource management, technology development, and procurement).

Using this viewpoint, Porter described a chain of activities common to all businesses that, to some extent, can be also translated into the cultural and creative sectors. The concept provides a very strong metaphor for understanding circulations of goods and services in the economy, underlying that a *narrow scope (focus) can create competitive advantage through tailoring the value chain, and*

(...) broader scope can enhance competitive advantage through the exploitation of interrelationships among the value chains that serve different segments, industries or geographic areas (Porter 1985).

At the same time, the approach has been criticised for providing a simplistic, linear understanding of the process of production and value creation, originating from the analysis of industrial manufacturing. For this reason, the sector-specific concept of the “creative value chain” has been developed.

3.4.2 Creative value chain

This concept has been operationalised for the purpose of cultural statistics by UNESCO and Eurostat. The “creative value chain” is a basic analytical tool for understanding cultural production. In 2009, UNESCO developed a similar concept of the culture cycle in its "Framework for Cultural Statistics". The concept describes *the production of culture as a result of a series of interlinked processes or stages that together form the culture cycle, value chain or supply chain* (UNESCO 2009). The conceptual tool has been designed to provide means for a more in-depth analysis of the production and distribution of culture. The culture cycle consists of five stages: creation, production, dissemination, exhibition/reception/ transmission, consumption/participation.

The traditional value chain model is usually conceptualised as a hierarchical, or vertical set of linked entities, along which the product or services moves, and gains value. Thus the importance of the relative position of each entity, which can have an "upstream" or "downstream" position with regard to other companies. The culture cycle, in turn, proposes a cyclical metaphor, in order to *reinforce the idea that the relationships can be complex and occur more as a network* (UNESCO 2009).

Also in 2009, the ESSnet-culture model (European Statistical System Network) was developed in the European Union for the purpose of collecting statistics on the cultural and creative sectors. The model distinguishes three sequenced core functions of the creative value chain: Creation, Production-Publishing and Dissemination-Trade. In addition, three support functions are defined: Preservation, Education, Management-Regulation. The framework does not aim at representing the

whole economic cycle. It is rather focusing more on the value of cultural or creative production as such. As only cultural activities are to be considered in the framework on culture some cross-domain productions may not be included in the evaluation.

The two models have been combined by the authors of the 2017 study by KEA, "Mapping the Creative Value Chains" (De Voldere et al. 2017). The KEA model distinguishes four core functions: Creation, Production/publishing, Dissemination/trade, Exhibition/reception/transmission - leaving out consumption and participation, which are present in the UNESCO model.

Creative value chains are distinct from value chains in other sectors of the economy and society. The analytical model needs therefore to differ from Porter's original model, designed for the strategic analysis of the behaviour of manufacturing companies.

The application of the concept of value chains to the creative industries has been criticised as providing a poor analytical fit (Hearn, Roodhouse and Blakey, 2014) for the following reasons:

- it suggests linear processes of value creation and thus obscures a more complex reality by suggesting that processes are static.
- It ignores the fact that value chain creation can be competitive and not just cooperative.
- the chain metaphor ignores the environment and the effect of factors that are not part of the chain.
- It operates with a simplified notion of value that ignores different types of externalities.

However, the metaphor of the "value chain" remains useful for describing the interrelated character of activities undertaken by different actors that interact with a given cultural product, and the possibility of creating added value at different stages of the chain. At the same time, we need to acknowledge the greater complexity of value-creating interactions around cultural products. Hearn, Roodhouse and Blakey argue that the metaphor of a network and ecological or systemic perspectives are better suited for understanding cultural and creative value creation.

Cultural value creation was always a unique form of production due to the highly symbolic value of the created products. This becomes even more relevant with regard to digital content, due to the

specific characteristics of how broadly understood information and symbolic products can be produced and used. For example, the fact that digital distribution has a near-zero marginal cost enables access to content at an unprecedented scale, as well as the development of actors benefitting from these economies of scale.

It is for this reason that the UNESCO model employs a circular metaphor that stresses the fact that cultural consumption and participation leads to new cycles of creation, and that the roles of cultural creators and consumers are intertwined. Authors of the UNESCO model underline the fact that cultural production has its origins in the social realm, and that both market and non-market activities build the culture cycle. The specificity of value chains in the cultural and creative sectors is an underlying assumption for the ESSnet-culture model as well.

The strong symbolic value carried by cultural products is also underlined in the analysis of Taiwanese cultural and creative sectors published by Horng, Chang and Chen (2017). Determined by the social and cultural identity of the buyers this unique value is what differs cultural products from any other production. In their study Horng, Chang and Chen propose the following functions of the creative value chain: culture, ideation, design, production, branding and channel (Kuan-Yang Chen et al 2016). Their model is an interesting effort to include, within the generic value chain model, unique aspects of cultural production, where *production is the transformation of ideas into cultural goods and services, and it deals people, resources, productive capacities and training available to aid the transformation of ideas into marketable products* (Landry 2000, quoted in Kuan-Yang Chen et al 2016). In this model, strongly rooted in the socio-cultural identity of the stakeholders, production of the cultural product is only the fourth phase of the value chain - preceded by cultural context, ideation and design.

The circular, rather than the linear metaphor of value creation is more suited also because of the specific role that consumers play in the creation of cultural value today. Traditionally, consumers were seen as located beyond the value chain, as those who passively receive the final product that emerges from the value chain. The shifting role of the consumer towards that of a “prosumer” - a

connected, active actor capable of co-creating cultural products has been well documented over the last two decades. Leadbetter (2004) points out that these "pro-ams" are able to professionally produce content on a non-commercial basis. Benkler (2006) describes the social production of symbolic goods as the third mode of production, alongside hierarchical and market-based modes. The interplay between such non-commercial, social production and commercial actors has nowadays become an important aspect of the cultural and creative industries that is not easily grasped by the linear metaphor of the value chain.

3.4.3 Value chain in the digital era

Value chain analysis is a conceptual tool that is well suited for understanding the effects of digitisation (understood both as a process of digitisation as well as the digital circulation of culture) on different stages of the cultural cycle, as they conceptualise the capacity of different entities along the chain and the relationship between different entities. Digitisation is a process that has been affecting cultural production, distribution and consumption. Recently (also due to the global pandemic) digital circulations of cultural content have strengthened and online access to cultural goods has gained more importance.

While digitisation is becoming a dated concept with limited explanatory power, platformisation is a key current phenomenon that can be seen as a stage in the process of digitisation. Platformisation is a process in which internet platforms gain dominance over the contemporary content and information ecosystem - or more broadly, over social life itself. Platforms, formally speaking, are "two-sided markets" that aggregate actors from both sides of the market - typically publishers and users.

Platformisation is defined as *the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life* (Poell, Nieborg and van Dijck 2019). Tellingly, analyses of the transformation of culture are missing from studies of platformisation, which focus on institutional aspects: infrastructure, markets, forms of

governance. Therefore Poell, Nieborg and van Dijck (2019) in parallel, and from a cultural studies perspective, define platformisation as also *the reorganisation of cultural practices and imaginations around platforms*. It is influenced by all the activities performed by both, the creators and end-users of the platform.

Platformisation, if defined in such ways, with a strong establishment in social interactions, is a concept that brings us very close to the insights provided by the Culture 3.0 model (described below).

3.5 The eight-tiers approach in the Culture 3.0 framework

In the context of European policymaking, the concept of the creative value chain is needed to underline the value of cultural production and activities. An understanding of this value is still lacking among European policymakers, a factor that hinders the development of modern cultural policies in Europe (Sacco, Ferilli and Tavano Blessi 2018). According to Merete Sanderhoff from the SMK in Copenhagen the general shift in approach is also needed among the GLAM community. Sanderhoff sees it as a necessary step as *museums all over the world are facing common challenges in the digital age. The rise of digitisation and Internet access forces us to adapt to completely new user behaviours and expectations. This is hard work. There's a lot of uncovered ground, and it requires experimentation and investment to succeed. But it's necessary* (Sanderhoff 2017). At the same time, a more nuanced analytical model is needed to understand the full potential of culture as a factor supporting growth, innovation and in particular economic development.

According to Sacco et al. (2018) there are three different models, called regimes, with different socio-technical characteristics, which show how systems of cultural production, in which the levels of intermediation between the parties (production/consumption) differ, relate to the reference context. While Culture 1.0 regime focuses on a traditional top-down approach based on patronage and appreciation and Culture 2.0 focuses on the power of the creative economy, Culture 3.0 rethinks how cultural institutions need to think, plan and act to generate deeper civic engagement and public

value, turning audiences into active participants and sometimes even co-creators. Importantly, the three structured regimes: Culture 1.0, Culture 2.0 and Culture 3.0 coexist today. Contemporary cultural policy is often still rooted in the concept of patronage and passive audience attendance typical for Culture 1.0. In parallel, the structured model of Culture 2.0 lies at the heart of policy interventions that focus on the economic potential of cultural and creative industries in Europe. This is the model of cultural mass production organised by specialised market entities, and reaching mass audiences. It is characterised by an expansion of the cultural and creative industries and a growing appreciation of their contribution to the economy. Value chain analysis, in its traditional form, is relatively well suited for studying such modes of cultural production.

Finally, the Culture 3.0 model is characterised by "an explosion of the pool of producers" happening to such an extent that distinguishing producers and users of culture becomes difficult. In this regime, producer and user are interchangeable roles and communities of practice become sites of cultural production alongside industrial actors. In this structured model, distribution of content becomes much more complex and takes place in a hybrid ecosystem concerning market and non-market, formal and informal flows and economies. Crucial for this model is the disintermediation of market actors, as different stages of creative value chains can take place in non-market environments. While the concept of the prosumer underlined the economic aspect of user productivity, in Culture 3.0 active cultural participation can take place beyond the market. In Culture 3.0, what was treated as a macro-sector of the economy becomes *a web of layered, pervasive structural relations among all sectors of the economy and society* (Sacco, Ferilli and Tavano Blessi 2018) and culture becomes pervasive. Cultural and creative industries remain an important sector of the economy, but they need to be seen as embedded in a broader socio-cultural system. In such a system, positive spillover effects towards other sectors are as important as economic gains afforded by cultural and creative industries. Particular attention should be paid to behavioural, instead of just economic outcomes.

In his initial exploration of areas on which cultural participation and production have an indirect effect Sacco proposes an 8-tiers approach listing eight dimensions (Sacco, Ferilli and Tavano Blessi 2018):

DIMENSION	INDIRECT EFFECT
Innovation	Thanks to a *direct involvement in, and active experience of the rules of, creative content production enables individuals to learn how innovative meanings and practices can be constructed, and how they can challenge and de-structure previous beliefs, prejudices, and attitudes* (based on Gruenfeld, E. Thinking creatively is thinking critically 2015). There is a strong connection between cultural participation and innovation with the first one having a meaningful impact on the latter (see Sacco's study on 28 EU member states on their cultural practice and innovation).
Welfare	Cultural participation is perceived as one of the key predictors of psychological well-being. *Its impact is comparable to that of income, and significantly stronger than that of variables such as place of residence, age, gender, or occupation*. Wider access to culture, especially for ill and elderly, may serve as an element of prevention strategy in treating illnesses, and thus may help generate savings in the healthcare system.
Sustainability	When translated into the social dimension and social behaviours, competences and skills from cultural practice gained through cultural participation may lead to reflection and awareness raising on long-term, sustainable development and strategies, including issues of environment, social responsibility, etc.

Social cohesion	Cultural participation is creating the *basic trust conditions for dialogue through appreciation of cultural diversity and the overcoming of negative social stereotyping, often linked to ethnicity factors*. This is when culture may have a healing role in bringing back the excluded ones to the community (ex. the healing power of music, understanding ethnic diversity through joint cultural practice, etc.).
New entrepreneurship	Cultural participation and practice has already proven to generate new forms of creative entrepreneurship. However, the impact on the market may be even bigger as *innovative culture-related forms of entrepreneurship might prove important in tackling the new societal challenges of employability and shorter worktimes in the fourth industrial revolution context, as well as the new, unprecedented issues of designing social environments characterized by pervasive man–machine interaction* (based on Makridakis, S. The forthcoming Artificial Intelligence (AI) revolution: Its impact on societies and firms 2017).
Lifelong learning	Cultural participation allows us to acquire cultural capital in education. By creating opportunities to shape opinions, develop new capacities and adapt to new conditions it greatly contributes to the lifelong learning process. It may be also recognised as one of the elements of lifetime learning.
Soft power	Following Nye's definition on soft power (Nye 2004) *it arises from the attractiveness of a country's culture, political ideals, and policies*. Cultural and creative production therefore contribute to the increase of visibility, reputation, and influence of countries and local communities with regard to international political, economic and social relationships.

Local identity	Cultural participation and production orchestrated on a local level may lead to recreating 'culturally-rebuilt local identity' based on a community of shared beliefs, shared history and shared culture.

Figure 5: Eight Tiers classification model

Similar to Tanner's list of Modes of Cultural Value, Sacco's list is not exclusive and it is expected for it to be extended in the future by new dimensions. However, already now, through his 8-tiers model Sacco points out that *culture is not simply a large and important sector of the economy, it is a 'social software' that is badly needed to manage the complexity of contemporary societies and economies in all of its manifold implications* (Sacco 2019). The eight-tiered classification proves that *cultural participation opens up new, unprecedented possibilities of economic and social value creation in so many different spheres that fall outside culture's conventional domain of action and impact* (Sacco, Ferilli and Tavano Blessi 2018). Sacco puts various stakeholder groups and their interests in the core of the approach pointing out to its social value. He also stresses the importance of acknowledging the indirect macroeconomic impact of cultural participation as potentially bigger than the direct one. Measuring that impact should serve as a basis for shaping cultural policy and should lead to a profound rethinking of the sense and scope of the future pan-European, national and local strategies. The Culture 3.0 model forms therefore the basis for exploring effects of culture and cultural participation on different domains of social and economic life.

In the next chapter, we present an overview of European policies concerning digital heritage in the Digital Single Market. Based on this analysis, we suggest that the traditional scope of these policies needs to be extended, if we want to integrate insights from the Culture 3.0 model. New modes of cultural production and cultural participation, taking place online, require taking into account policies traditionally not considered in debates about digital heritage. These policies concern not just

cultural heritage institutions and their collections, but the broader digital environment, in which value chains are developed on the basis of cultural heritage.

In chapter four, we provide a case study analysis of such value chain creation. Based on findings from this analysis and on the conceptual models presented above, we conclude this report with our own framework for value creation using digital cultural heritage.

4 Review of European policies concerning digital heritage in the Digital Single Market

The following review of policies, spanning the last twenty years, is focused on European Union policies, enacted through Communications, Recommendations of the European Commission, Directives adopted by the European Parliament and other documents adopted by the Council of the European Union or other entities. Our aim is to demonstrate how European policymakers understand the value of digital heritage and whether specific measures have been adopted to support reuse and value creation on the basis of digital heritage. We review three categories of policies:

- cultural policies, which define culture as a fundamental pillar of the European project, ensuring its identity and diversity;
- Copyright and intellectual property policies, within which specific regulations affecting the reuse of digital cultural heritage have been developed - fitting mainly within the scope of copyright law framework;
- Public sector information reuse policies, which - after being extended to museums, libraries and archives in 2013 - offer the strongest vision of value creation supported by necessary policy measures to implement it, albeit a vision developed largely for resources other than cultural heritage.

4.1 European cultural policies

In the high-level vision of the European project, culture plays a key role, as the factor that ensures a common European identity. This role is repeatedly defined in key European policy documents and visions.

In the European Union, a range of high level policy documents establishes the broad significance of cultural heritage. The Faro Convention on the value of cultural heritage for society of 2005 emphasises the role of cultural heritage as a central dimension of human rights and related collective practices (Council of Europe 2005). It states that rights related to cultural heritage are inherent to the basic right to participate in cultural life, and that use of heritage contributes to human development and quality of life. Cultural heritage is seen as contributing to the construction of a peaceful and democratic society, and to cultural diversity. The parties of the convention will, among other measures, *foster an economic and social climate which supports participation in cultural heritage activities*. Importantly, Article 10 of the convention establishes the relationship between cultural heritage and economic activity. Parties of the convention agree to *utilise the economic potential of the cultural heritage, but also to take into account the specific character and interests of the cultural heritage when devising economic policies*. These policies should *respect the integrity of the cultural heritage without compromising its inherent values*. The measures related to cultural heritage and the information society are in turn relatively limited, as they focus on preservation and to a limited extent only access. The UNESCO Convention for the Protection and Promotion of the Diversity of Cultural Expressions, adopted in the same year, is an international agreement that also recognizes the dual nature - economic and cultural - of cultural expressions (UNESCO 2005).

The 2011 Recommendation on "The digitisation and online accessibility of cultural material and digital preservation" established, ten years ago, Europe's strategy for digitisation and preservation of cultural heritage (European Commission 2011a). As such, it is - from the perspective of our analysis - a key document that defines a more detailed policy for digital cultural heritage. It defines an *updated set of measures for digitising and bringing cultural heritage online*. Economic opportunities associated with digitising cultural resources are highlighted. The document provides a broad strategy that covers both public domain and in-copyright resources. Inclusion of the latter type of resources is significant, as it spells a broad definition of cultural heritage as including contemporary content. All types of heritage are further described as a sub-category of cultural materials. The document

highlights the importance of *concerted action by the Member States to digitise their cultural heritage*.

The Recommendation does point to broad possibilities for reusing digitised material, which is seen as input for creative industries, which themselves are undergoing digital transformation. With regard to public domain materials, it recommends improving access, in particular by *promoting the widest possible access to digitised public domain material as well as the widest possible reuse of the material for non-commercial and commercial purposes*. Yet means for ensuring reuse are not specified.

In the 2017 Communication on Strengthening European Identity through Education and Culture, culture is seen as a driver for *jobs, social fairness, active citizenship as well as a means to experience European identity in all its diversity* (European Commission 2017). Among current challenges, for which "culture can be part of the solution", the document lists continued digitisation and automation, future of work and new patterns of communication, as well as modernisation of European welfare states, demographic trends, and risks of xenophobia and radicalisation. *Europe's cultural diversity is a strength that fuels creativity and innovation and, at the same time, there is common ground that makes up the distinct feature of the European way of life* (European Commission 2017). Yet while the Communication provides a broad range of educational policy measures, it is relatively weak in terms of cultural policy recommendations. It revisits three existing policy measures - the Creative Europe program, Euronews and European Capitals of Culture program - and confirms their viability. In terms of new measures, the Commission proposed a new "#Digital4Culture" strategy that would "couple culture and digital and using the digital potential to enhance the positive economic and societal effects of culture" (the strategy has not yet been announced). It also promised to strengthen the European Agenda for Culture.

The Communication on "A New European Agenda for Culture" has been published in 2018 (European Commission 2018a). It reaffirms that "the role of culture is more important than ever, at a time of technological transformation on one hand, and societal challenges - such as growing inequality,

populism, radicalisation and populist threats - on the other. The Agenda defines three strategic objectives, related to the social, economic and external (international) dimension. Cultural heritage and digital are both defined as transversal aspects and therefore require policy actions that will cut across the three dimensions and serve all three policy objectives.

The #Digital4Culture strategy is once again mentioned as a key policy tool that connects together copyright, audiovisual and broadcasting policies in the Digital Single Market. The strategy - still in preparation - aims to *support the cultural and creative sectors in overcoming the challenges brought by the digital transformation and globalisation and to help them make better use of the opportunities provided by the digital shift*.

Otherwise, the Commission commits to developing a network of competence centres on safeguarding knowledge of endangered heritage monuments through large-scale digitisation, to creating an online directory of European films, to setup a pan-European network of Digital Creative and Innovation Hubs to support digital transformation in the cultural and creative sectors, to propose next steps for Europeana, to launch pilot mentoring schemes for audiovisual professionals and to stimulate cross-overs and collaboration between art and technology for sustainable innovation on industrial and societal levels. Through these policy tools, the European Commission aims to *address current societal challenges through the transformative power of culture*. These measures are further outlined in the Staff Working Document accompanying the Communication (European Commission 2018b).

The Agenda is supported by a Council Work Plan for Culture for the years 2019-2022 (Council of the European Union 2018). The Work Plan lists digitisation as one of two key horizontal issues: *[Digitisation] creates new and innovative possibilities for art and culture in terms of access, expression, preservation, dissemination and consumption*. Digital technologies are seen as particularly important for audience development and cultural participation. According to the Work Plan, a Commission-led expert group will be created to deal with the topic of "Understanding digital audiences" and to create guidelines for cultural organisations, so that - through user-oriented

services - they can *deepen relationships with their current audiences and reach new ones*. The Work Plan also defines measures that increase participatory governance in cultural heritage - but does not tie them with digital issues.

In 2019, a Staff Working Document on the "European framework for action on cultural heritage" was published (European Commission 2019a). The framework sees digital access and engagement as important means for ensuring that cultural heritage supports an inclusive Europe and contributes to European societies as a whole (Pillar 1). Digital technologies also offer means for achieving access, curation and re-use of cultural heritage. Furthermore, they can enhance experiences with cultural heritage through innovative measures and contribute to preservation and restoration of heritage. Their potential positive effect is therefore all-encompassing.

4.2 European copyright and intellectual property policies

The 2007 EC Communication on Creative Content Online in the Single Market deals with the challenges of regulating access to content in the emerging digital environment, due mainly to increasing broadband adoption (European Commission 2007). The Communication rightly envisions an ongoing, systemic change that requires a new regulatory approach. While the document refers to broadly understood creative content and focuses on content developed by the cultural and creative industries, attention is also paid to cultural heritage in its specificity. The two core policy goals defined in the document are *ensuring that European content achieves its full potential in contributing to European competitiveness*, but also f*ostering the availability and circulation of the great diversity of European content creation and of Europe's cultural and linguistic heritage* (European Commission 2007). The overall aim is to create an internal market that successfully combines economies of scale with the potential of diverse European creative content.

The core policy mechanism defined in the Communication is the *fast and efficient implementation of new services and related business models for the creation and circulation of European content and*

knowledge online. We see that while the goals include a non-market perspective by highlighting the importance of European heritage online, the policy means are strictly market related: development of innovative business models and deployment of content delivery services, especially cross-border ones.

The Communication underlines four main, horizontal challenges which merit action at EU-level. These are largely related to intellectual property issues and potentially addressed by legislative means: availability of creative content; multi-territory licensing for creative content; interoperability and transparency of Digital Rights Management systems; and legal offers and piracy.

The Communication on Copyright in the Knowledge Economy from 2009 (European Commission 2009) addresses the issue of how knowledge can be broadly disseminated in the Single Market and in the online environment in particular (the term Digital Single Market was not yet used in 2009). This policy question was asked in the context of increasing mass digitisation activities conducted by libraries, and growing need of research and teaching institutions to access and use materials. In other words, the Communication aims to establish a regulatory balance between interests of public institutions (including CHIs) and market actors (publishers) and copyright holders (authors). The main point of reference is copyright legislation, specifically the Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society.

The Communication presents two divergent perspectives of stakeholders. Libraries, archives and universities favor the “public interest" and advocate for a more permissive copyright system. Publishers, collecting societies and other right holders argue that the best way to improve the dissemination of knowledge and provide users with increased and effective access to works is through licensing agreements. On the basis of these answers, the Commission announced the following actions: possible creation of a statutory exception for digitisation efforts of libraries and other CHIs, a regulatory solution to the orphan works problem, and exploration of policy means to reduce licensing burden encountered by European universities. The Communication also addressed

the issue of User Created Content (UCC). As a result of the stakeholder consultations, the Commission decided that it is too early to regulate UCC and that in particular there is not a need to create a dedicated limitation to copyright for this purpose.

The Communication concludes that *copyright policy must be geared toward meeting the challenges of the internet-based knowledge economy*, while ensuring *proper protection of Intellectual Property Rights [...] to stimulate innovation in the knowledge-based economy*. The Commission openly states that this requires a careful balancing of different interests.

The Communication on "Content in the Digital Single Market" from 2012 aims to further define digital policies at a time when emergence of new business models, made possible by mainstreaming the internet and digital communication technologies, create at the same time an opportunity and a challenge for the creative industries and other actors. In this context, the Commission sees its role to ensure that copyright regulation stays *fit for purpose in this new digital context* (European Commission 2012). The Commission declares that it will review the existing copyright framework while dealing with several issues that require rapid progress. The Communication addresses following issues: territoriality in the Internal Market; harmonisation, limitations and exceptions to copyright in the digital age; fragmentation of the EU copyright market; and improving the effectiveness and efficiency of enforcement. At the same time, the Commission has initiated the "Licensing Europe" process that seeked to promote innovative licensing and technological solutions.

This approach was confirmed in 2015 in the Digital Single Market Strategy. One of the aims of the strategy is providing better access to digital content through a modern copyright framework. The strategy assumes that *copyright underpins creativity and the cultural industry in Europe* (European Commission 2015). Thus lack of harmonized copyright rules is seen as the main challenge that concerns creative content and culture in the Digital Single Market. *Europe needs a more harmonised copyright regime which provides incentives to create and invest while allowing transmission and consumption of content across borders, building on our rich cultural diversity*. Based on this diagnosis, the Commission has committed to make legislative proposals that will update the

European copyright framework. This has ultimately led to the publication, in 2016, of the Proposal for a Directive of the European Parliament and of the Council on copyright in the Digital Single Market (European Commission 2016a). The effects of this reform and the current shape of copyright policies, as applied to digital cultural heritage, is the topic of Work Package 2 of our project.

The 2016 Communication on Digitising European Industry - Reaping the full benefits of a Digital Single Market is an interesting policy document for our analysis, even if it does not address directly the cultural heritage sector. It provides a policy perspective on the *growing footprint of digital technologies* and the digitisation of products and services (European Commission 2016b). The Commission once again confirms the basic insight, that technological developments reshape conditions for production and business models of all creative industries. The Communication presents a general policy framework that is in line with the conceptual models that we adopt for understanding value creation on the basis of digital cultural heritage. According to it, digital innovation leads to value creation through new products (and even whole new markets, such as wearables or smart home appliances), new processes that increase productivity across the lifecycle of a product or service, and new business models. In terms of policy measures, the document focuses on supporting high-level coordination of initiatives that digitise the industry, across all sectors.

4.3 European public sector information reuse policies

The 2019 Directive on open data and the re-use of public sector information is a key policy document that sets a framework for the reuse of digital cultural heritage (European Commission 2019b). It is in this Directive, and in open data and reuse of public sector information policies that it is part of, that we find a strongest policy vision aligned with the scope and vision of the Indices project. The Directive states that CHIs hold a significant amount of valuable digital resources, in part due to the previous mass digitisation efforts. It goes on to state that *[t]hose cultural heritage collections and related metadata are a potential base for digital content products and services and*

have a huge potential for innovative re-use in sectors such as learning and tourism (European Commission 2019).

This extension of scope of reuse rights for public sector information to include resources held by libraries, museums and archives occurred in 2013, with the revision of the 2003 Directive on the reuse of public sector information (European Commission 2003). This expansion of scope - to cover some cultural heritage institutions - occurred as part of an important shift in European policies, when new tools were introduced to strengthen reuse of public sector information, which has been enabled by digital technologies (among other factors): *Ultimately therefore, the Directive and its revision aim to catalyse a change of culture in the public sector, creating a favourable environment for value-added activities resulting from the re-use of public information resources*.

This general insight has been applied to the Cultural Heritage sector and is also at the heart of our model of cultural value creation. The shift that occurs is from a narrow vision of value creation limited to the institution that holds the given collection or resource, to a broad vision where different entities are encouraged and supported in participating in the value creation cycle. The 2013 proposal for the revision of the Directive states that *digitisation turns these [cultural heritage] resources into a lasting asset for the digital economy, creating many opportunities for innovation, although the full exploitation of digital cultural assets is still embryonic*.

The cultural policy defined in the Directive on the reuse of public sector information therefore goes beyond the scope of the 2011 recommendation on the digitisation and online accessibility of cultural material and digital preservation, which focuses on preservation and access. The Directive provides specific tools that enable reuse of cultural heritage, albeit ones that emerge not from cultural policies, but those that relate to publicly held information (broadly understood). The Directive is even described as complementary to the digitisation policy established by the 2011 recommendation - although in our opinion it goes further in supporting the value creation cycle for cultural heritage.

4.4 Review of European policies concerning digital heritage: conclusions

High level European cultural policies pay attention to the role of European cultural heritage and its potential for the creation of value - both cultural, societal or economic. Cultural resources, and cultural heritage in particular, are seen as a crucial type of resource that can support a broad range of policy goals. These goals are as broad as defined by value creation frameworks that we present later in this document. However, most of European policies do not translate these high-level policy goals into specific measures that either reduce barriers to reuse or provide means to conduct such activities. We see, on the basis of our review of documents, only a few such specific measures.

Firstly, the 2011 recommendation on the digitisation and online accessibility of cultural material and digital preservation provides a detailed framework for supporting digitisation of cultural heritage. Yet it operates with an outdated by now theory of change, which focuses on ensuring preservation and accessibility, with little attention paid to cultural participation and reuse of these resources. In late 2020, the European Commission has organised a public consultation of this document, in view of its evaluation and possible revision. As a next step, the Commission might prepare a new policy measure with a broader scope, hinted by the term "digital transformation of the cultural heritage sector", used in the consultation announcement.

The second important point of reference for us are policies on public sector information (PSI) reuse. Since 2013, the PSI Directive of 2003 has covered cultural heritage institutions: museums, libraries and archives. The theory of change behind the concept of reuse of public sector information provides the strongest conceptual model for policies that enable value creation through the reuse of digital cultural heritage. It is important to note though that these reuse policies are targeted almost exclusively at resources wholly different from cultural content, such as data collected by the public sector. Cultural resources are not seen as priority ones within the scope of these strategies. This is reflected by the fact that specific additional limitations are provided for CHIs that make PSI available for reuse (such as digitisation fees that cannot be applied by other types of public institutions).

We also review intellectual property policies, especially those that concern the review of the copyright framework - also as it applies to the cultural heritage sector. It is within these policies that the connection with the Digital Single Market vision is made. These are also policies that aim to strike a balance between interests and goals of the cultural heritage sector and the vision of broad access and reuse of cultural resources on one hand; and the cultural and creative industries that are in favor of a more controlled environment on the other. Options preferred by commercial stakeholders are tailored for resources that are mainly seen not as heritage but private property. As a result, over the last ten years and through a major review of the European copyright framework some steps have been taken to ensure broader access and reuse of cultural heritage. At the same time, the system is not designed mainly to support either the CHIs and their public mission, or the reuse activities typical of a 3.0 culture. This policy framework assumes that cultural creation is fundamentally linked to the need to generate money and usually pays little attention to other reasons for cultural consumption and creation. Tellingly, the recent reforms, while beneficial for CHIs, focus on providing access and less on supporting reuse. Meaning that barriers to culture 3.0 activities remain.

We note here that the intellectual property framework and its impact on value creation in the cultural heritage sector are the focus of work of Work Package 2 of the Indices project.

The review also shows that in the coming years new policy initiatives, planned by the European Union, might change the policy frameworks for digital cultural heritage. Of note here is the possible review of the 2011 digitisation policy, as well as the new #Digital4Culture strategy.

4.5 Future of European digital heritage policies and the need to extend their scope

European policies that relate to digital cultural heritage are all built on a shared premise, expressed clearly in the 2011 Recommendation on “The digitisation and online accessibility of cultural material and digital preservation” (European Commission 2011a). The basic assumption is that cultural

heritage, when digitised and brought online, can then be accessed and (re)used, resulting in economic, cultural or social value.

Based on this policy vision, specific policies have been designed to both reduce barriers and encourage positive activity at various stages of this process, from preservation, through ensuring access to supporting (re)use. Specific policy measures have been focused on providing economic support for cultural heritage institutions and their digital infrastructures, and on reducing legal obstacles, mainly resulting from the shape of intellectual property regulation. To a lesser extent, policies have also been developed to encourage a varied range of actors to (re)use cultural heritage in digital form.

In all these policies, the institutions that hold the cultural heritage and the varied entities that could potentially (re)use it are seen as the key subjects and beneficiaries of these policies. In the last decade, for example, policies have created new institutions and infrastructures for digital cultural heritage (Europeana), new rights for cultural heritage institutions (Orphan Works Directive, regulation of out-of-commerce works in the CDSM Directive) or new frameworks for (re)use of digital heritage (the Open Data Directive).

We believe that this policy perspective can and should be broadened to include policies that determine the characteristics of the online ecosystem as such. The shape of this ecosystem is just as relevant from the perspective of digital heritage and value creation, as institutional policies and rules that regulate the behavior of individual actors. Ultimately, most of the reuse activities occur within this ecosystem, as (re)use is not limited to specific, limited communication channels. Cultural heritage, when made accessible online, becomes available in a media and communication ecosystem that enables an extremely broad range of forms of (re)use.

According to Jonathan Zittrain, this ecosystem is "generative" (Zittrain, 2008). Zittrain defines this characteristic as a combination of the ability to provide leverage (becoming useful for services built on top of them), adaptability, ease of mastery, accessibility, and the ability to transfer change to others. In other words, generative systems enable creation of added value in the broadest sense:

The more that the five qualities are maximized, the easier it is for a system or platform to welcome contributions from outsiders as well as insiders (Zittrain 2008).

The advantages of the online ecosystem as a generative system are implicitly acknowledged in the European policies that shape (re)use of digital heritage. Yet based on our review of European policies we see that these policies see cultural heritage institutions and their online infrastructure and services as the locus of activity. Simply speaking, policies focus on the institutional repository - the virtual version of the institution itself - as this key locus of activity. As a result, policies are devised to remove obstacles to publishing resources in this repository, create conditions for improved digital heritage infrastructure - through networking of these repositories, or encourage reuse of resources collected in these repositories. What is largely missing from current European policies on digital cultural heritage is a broader perspective that sees the shape of the online ecosystem as a factor that is just as important. That acknowledges the fact that heritage, in digital form, circulates far beyond the original repository. And that the ways, in which it is used and the potential for value creation depends as well on the characteristics of this ecosystem.

This fact can be illustrated by the most recent relevant legislative process, occurring over the last five years, on the new Copyright in the Digital Single Market (CDSM) Directive. In this debate, cultural heritage institutions have been strongly involved in a policy debate that directly concerned them, such as the articles concerning out-of-commerce works. At the same time, this policy document has introduced a new approach to regulating the broader online ecosystem, in particular by introducing rules on content filtering by online platforms. It is a policy debate in which cultural heritage institutions participated to a limited extent, and focused mainly on provisions that apply to them directly.

To give an example, content filtering rules concern in particular so-called User Generated Content, a type of content that is often ambiguous in terms of copyright permissions for its reuse. This type of content is also often created by remixing digitised cultural heritage, which for example forms the basis of many online memes. In our case study research, we present a prime example of such a

project, the Getty Museum Challenge. In this project, the J. Paul Getty Museum encouraged users to recreate at home a famous painting from their collection. These user generated works were then shared online, together with digital copies of the original heritage. Crucially, this sharing did not occur in the first place in some online institutional repository - works were shared on popular social networks, connected into a loose "collection" only through a hashtag used by different users to mark their contributions to the campaign. It is therefore a case of value creation with the use of digital heritage that depends not only on institutional infrastructures, policies and regulation that affect publishing heritage online, but also on the platform ecosystem, with its own infrastructures, policies and regulation.

Platformisation has been identified as one of the key trends transforming the online ecosystem in recent years. It is a process in which internet platforms gain dominance over the contemporary content and information ecosystem - or more broadly, over social life itself. Platformisation is defined as *the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life* (Poell, Nieborg and van Dijck 2019). Tellingly, analyses of the transformation of culture are largely missing from studies of platformisation, which focus on institutional aspects: infrastructure, markets, forms of governance. Yet Poell, Nieborg and van Dijck (2019) define, in parallel platformisation as also *the reorganisation of cultural practices and imaginations around platforms*.

Platformisation, if defined in such ways, is a concept that brings us very close to the insights provided by the Culture 3.0 model. Platforms should be seen as crucial spaces, in which phenomena typical of this model occur, and the interplay between culture, institutional forms related to digital technologies, and the society can be observed. At the same time, the characteristics of platforms can serve to limit value creation on the basis of digital cultural heritage. While digitisation is becoming a dated concept with limited explanatory power, platformisation is a key current phenomenon that can be seen as a stage in the process of digitisation.

This reality needs to be addressed by policies for digital cultural heritage, and by institutional actors engaged in these policies. This extension of a policy perspective is similar to the one proposed by

Pier Luigi Sacco in his article on "Culture 3.0" (Sacco 2011), where he defines the 8-tier impact framework in order to argue for the relevance of cultural heritage for structural funds programming. Sacco identifies *a persisting gap in the conceptualization of the role of culture in an advanced, knowledge based economy*, leading to a belief that *the cultural sectors are at best a minor, low-productivity branch of the economy*. Based on this diagnosis, he offers a framework that connects cultural policies with local and regional development. A similar argument can be made regarding the extension of the scope of policy debates on digital heritage in the Digital Single Market.

Ursula von der Leyen, in her political guidelines for the next European Commission 2019-2024, states that "Europe must lead the transition to a healthy planet and a new digital world" (von der Leyen 2019). The Communication on "Shaping Europe's digital future" from February 2020, specifies the goal as building "a European society powered by digital solutions that are strongly rooted in our common values" (European Commission 2020). This is a very different perspective than the one presented in the "Digital Agenda for Europe" from 2014, where the main goal is defined as *[a]dvancing the European borderless digital economy, creating the world's largest and richest digital single market for content and services, while fully guaranteeing consumer and creator's rights* (European Commission 2014).

In the new policy vision, a strong and competitive economy, and a frictionless single market become means for attaining the broader goal. *An open, democratic and sustainable society* is one of the three key objectives of this new strategy. It is within this goal, of *building a trustworthy environment in which citizens are empowered in how they act and interact* that we see the potential for connecting with digital cultural heritage policies. The value creation chains created through its (re)use, with their varied forms of impact, can play an important role in building this environment. While culture and heritage are not mentioned directly, the Communication refers, in relation to this third objective, to the issue of quality media and content. Work on a "Media and audiovisual Action Plan" is declared, in the context of ensuring media pluralism, cultural diversity and a healthy public

debate. It is within this frame that the cultural heritage sector needs to present its policy agenda for the next decade.

In the last few years, several policy documents have presented ideas that elaborate on this approach. We observe a growing focus on these policy ideas in 2020. "A Vision for the Future Internet" has been recently published by NGI Forward, the policy and strategy arm of the European Commission's flagship Next Generation Internet (NGI) initiative (Bego 2020). The document presents a comprehensive vision of an internet re-built on the pillars of democracy, resilience, sustainability, trust, inclusion. These principles are applied to all layers of the internet, from the physical infrastructure, through protocols, applications and information flows, to the top layer of societal impact. In an approach that favors bottom-up, decentralised activity, a *rich and diverse ecosystem of actors shaping and reflecting on the future of the internet* is envisioned. In this model, the cultural heritage sector has a particularly important role to play with regard to inclusion: ensuring a more democratic, human-centric internet, and one that is accessible to all users - who in turn are empowered to use and shape it in a meaningful way.

Efforts to frame the current policy challenges in terms of a "digital public sphere" offer, in our opinion, some of the strongest conceptual tools for dealing with these issues. This concept is also significant as it offers a clear approach for cultural heritage institutions to support these efforts. Such a framing has been proposed by acatech, the German National Academy of Science and Engineering, in its report "European Public Sphere. Towards Digital Sovereignty for Europe" (acatech 2020). This European Public Sphere is a digital ecosystem that is sovereign, democratically accountable to its citizens and observes European values. It offers fair terms of access and use, strengthens the public debate and safeguards plurality. It also *provides the foundation for democratic debate, cultural diversity and the observance of European values*. The report argues for an important shift, from a focus on a specific offer, product or service to stewardship of the digital ecosystem as such. What is needed is *an open infrastructure that enables further offers and platforms*. The authors even use the example of a "European super media library" as a tangible and visible focus of European policies. In their opinion, even a major, but individual product will not

succeed if we don't transform the current ecosystem. According to the authors, their vision of a European Public Sphere will not be possible without building an ecosystem that is alternative to the current one, based on a basic infrastructure that is the "open, digital equivalent to the road network". This infrastructure should integrate and protect key European values and human rights through technological means.

Another alternative vision for European digital policies, titled “Shared Digital Europe”, has been published in 2019 by the Commons Network and Centrum Cyfrowe (Bloemen, Keller and Tarkowski 2019). It proposed an alternative to the market-focused Digital Single Market Framework, one that moves policymaking *in the direction of a more equitable and democratic digital environment, where basic liberties and rights are protected, where strong public institutions function in the public interest, and where people have a say in how their digital environment functions*. The proposal outlines four policy making principles: enabling self-determination, cultivating the commons, decentralising infrastructure and empowering public institutions. It is a framework built on core European values that have been already highlighted in our report, including: support for strong public institutions that are able to protect the digital space in the public interest; democratic governance that ensures individual and community sovereignty; cultural diversity and space for creativity; and human rights and social justice perspective that ensures the opportunity for all Europeans to enjoy the digital space equally.

Most significant in the “Shared Digital Europe report” is the connection made between a healthy digital sphere, public institutions and public interest. In the European context, strong public actors can ensure a balance in the digital ecosystem that is undermined by the growing dominance of commercial actors: *The lack of strategies for a digital transformation of public institutions means that we have largely surrendered the digital environment to the ever-increasing influence of commercial online platforms that erode our democratic values*.

The "Public Spaces Manifesto" has been published in 2018 by a coalition of Dutch public broadcasters, audiovisual archives and other public and civic organisations, including VPRO, Beeld en

Geluid, National Library of the Netherlands, Waag and Wikimedia. Over the two years, the coalition grew to include similar institutions from other European countries. In the Manifesto, members call for a *reimagining [of] the internet as a public space*. Based on this vision, the key goal of the coalition members is to *design a new platform for social interaction, where users are not viewed as exploitable assets or data sources, but as equal partners that share a common public interest*. This platform should not be understood just in metaphorical terms, but rather as an *alternative software ecosystem that serves the common interest*. It is an ecosystem that is open, transparent, accountable, sovereign and user centric (Public Spaces 2018). This approach has been further elaborated by the Waag foundation through its Public Stack project, which aims to create *open, democratic and sustainable digital public spaces, both locally and in Europe*. The titular "public stack" is a digital technology stack that ensures that these values are respected in the digital ecosystem, by paying attention to such factors as governance considerations, fundamental values, the design process, technologies used, or a civic and citizen-centric perspective.

We therefore propose that the debate on digital cultural policies needs to connect with an ongoing debate about European vision and regulation of the online ecosystem, the internet as such. In this debate, some of the tiers of impact proposed by Sacco (2011) are defined as key goals of this European vision: sustainability, social welfare, social cohesion or sovereignty. And just as a decade ago he argued that "cultural and creative industries need a more solid rooting within the broader economic and social context", today we need to connect cultural policies and digital heritage frameworks with visions for the European internet. This means looking beyond the traditional policy loci, such as the copyright debate. An argument can therefore be made for debates on digital culture and its European regulation to include also the policies with the broadest scope, those dealing with the shape of the internet and the online ecosystem built on its generative infrastructure.

An opposite argument can also be raised - that these broader visions should pay attention to projects, activities and processes that emerge around digital cultural heritage. Because heritage in this form is a generative resource. Processes of value creation on its basis - like the Getty Museum Challenge - are not just innovative cultural projects, but also templates for other, socially beneficial

flows of content and activity in the online ecosystem. And the active, productive user that is characteristic of the Culture 3.0 model embodies the positive characteristics that we expect from users of digital technologies in a broader sense. Therefore, to paraphrase Sacco, we need to develop new, system-wide representation of the structural interdependencies between the online cultural sector and other sectors of the online ecosystem.

5 Case Studies Analysis of value creation with the use of digital cultural heritage

5.1 Introduction

The general aim of this part of the report is to broaden the body of knowledge devoted to the topic of digitalisation of culture – specifically in the European Union. What is important to note straight-away is that we (the authors) view the process of digitalisation broadly: not only as a transformation of what is physical to what is digital (and, thus, can be represented by digits). This is of course necessary and important – it is, however, only a first step towards accessibility and impact which is of much greater significance for our societies. That is why this report is the product of research and analysis which aims – being in line with the inDICEs philosophy and goals – at *empowering the Cultural and Creative Industries and policy-makers to fully understand the social and economic impact of digitization and the innovative reuse of cultural assets*.

We would like to see the future in which there is more alignment between digital transformation and cultural participation - which also has a transformative character through its social and cultural effect. In other words – the digital transformation of our societal practices cannot leave behind our heritage. We, the authors of this analysis, believe that it is important that digitized heritage is used to produce experiences that allow humans to constantly recreate and improve societies centred around democratic values and democratic philosophy.

That is why the case studies analysis fulfils three main goals:

	Goal	Rationale
1	To present and discuss characteristics of the application of digital cultural resources in products, services and/or other initiatives	To promote the understanding of how the digital cultural resources are used, by whom, and for what purpose(s).

2	To analyze and describe the most emblematic of such applications	To inspire re-use by showcasing the specific examples of digital cultural resources' application.
3	To create and present model(s) of value creation and impact-making with the application of digital cultural resources	To deliver a more abstract understanding of necessary building blocks of cultural digital assets application and clarify bottlenecks.

The structure of this part of the report is as follows. Firstly, we present the methodology of our study. Application of this methodology allowed us to build a database consisting of cases in which cultural digital resources are used in products, services and/or other initiatives. Thus, secondly, we present this database along with the definitions of the most important analytical categories we used for its analysis. Subsequently, we present the outcomes of the analysis. And, lastly, we deliver a model of value creation together with a discussion around its merit.

5.2 Methodology

5.2.1 Basic assumptions

Firstly, it is important to remark, that the underlying assumptions for the work presented here are the following:

1. The *digital cultural resources* exist – they are either produced through means of digitization of some heritage or are born digitally.
2. *Digital cultural resources* are assets – assets are usually not ready to be used/consumed by an end-user; they require an extra process of value creation that would turn them into some form of consumable good; few assets prove to bring societal value just because they exist. Some transformation of those assets needs to happen – some sort of value creation chain needs to be put in place.
3. These assets can be applied and used in the process of creation of a specific product, service or initiative that is ready for usage/consumption
4. These products/services/initiatives are distributed and delivered to the end-user – either through the activity of public sector entities, non-governmental organizations, private companies, individuals and/or communities

5. End-users can access and use/consume these products
6. Consumption produces positive effects on society and these effects can be either individual or collective in scope
7. The positive effects are of different sorts – this depends on the intention of the actor responsible for the creation of the specific project; but also on the steps taken on the chain of value creation and dissemination.

5.2.2 Method

To meet the goals of this paper (outlined in the previous – introductory – section) we used case studies of specific instances in which digital cultural resources are applied and used to create and disseminate a specific product, service, and/or initiative.

We identified 82 cases of initiatives realized by specific actors that met the following criteria:

1. The actor is in possession of digital cultural resources, or in possession of rights/licenses to use given resources (its availability may be also established on the basis of open licenses).
2. The actor uses such resources to create and deliver a cultural product to the public, one that builds upon, reuses and adds value to the original resource.
3. The actor interacts with a specific group of people and entities (which can be understood as audiences, communities, users, customers) in order to promote and disseminate what was created or encourage them to use the product.
4. The reuse of the resource and the use of the product has effects that can be assessed as (at least potentially) socially beneficial.

The identification of such cases was done by involving 10 experts (including the authors) in the field of digital culture who used their most up-to-date knowledge and, also, performed Desk Research and community outreach to identify most relevant examples of digital cultural resources' applications. The cases were analyzed in a more profound manner using the expert survey approach where each of the experts was asked to provide answers to a previously crafted questionnaire (see: Appendix 1). The answers were closely analyzed by the authors of this paper in order to increase the

understanding of all possible details at play when one can speak of digital cultural resources' application in product, services and/or initiatives.

The last step in the process of gathering data was the planning, organization and execution of the Focus Group Interviews (FGIs) that were done on-line with the participation of c.a. 40 experts and practitioners from Cultural Heritage Institutions (CHI) field that joined the public Consultation Workshops run by inDICEs project. Detailed instructions for the moderators of the FGIs are presented in Appendix 2 to give the reader a detailed understanding of what type of information was searched for. The main value-added of the FGIs was gathering qualitative data as to the barriers and obstacles the creators of products, services and/or initiatives may face when trying to develop a solution using/re-using digital cultural resources.

It is also important to stress that all data gathered was of a qualitative character. This data was analyzed by the authors of this report and presented in a fairly (as the authors believe) concise and synthetic form.

5.3 Digital Heritage in Products, Services and/or Initiatives

5.3.1 Introduction and Database Structure

As outlined in the introduction, maybe the most valuable effect of the research presented in this report is the database of 82 cases of instances in which digital cultural resources are reused: they become the basis for an initiative, cultural activity, product or service. This in turn generates added cultural, social or economic value.

This database was developed in a snowball manner – we asked experts active in our network to supply us with interesting examples. These experts also used *their* networks to come up with adequate cases. The research carried on for almost two months between July and September 2020 and ended up in exactly 82 cases that we further analyzed. For the obvious reasons it is impossible

(nor maybe desired) to present the whole database in this report, we, however, attach a link to an open research data file for the readers that may be interested in browsing these data on their own.

In this section, we present the outcome of the analysis we performed on the mentioned 82 cases. It is fair to say that the study of those initiatives was both interesting and inspirational as many of them show not-so-ordinary alleys of where re-use of the cultural digital resources "may take us". However, before presenting the outcomes of the analysis we present the structure of the database – to give the reader understanding of what characteristics were possible to observe when trying to make sense of this vast qualitative data.

5.3.2 Actors/Creators

The first characteristic we were looking at was the type of actor primarily responsible for the delivery of a given initiative. After studying all the cases we concluded that it is of analytical value to propose the following typology.

Table 1. Actor typology

No.	Label	Brief description
1	GLAM	When the creator is either a gallery, library, archive or a museum. We group all these institutions under one label as characteristics of all of them are fairly similar.
2	Other public	Whenever we faced a situation in which a specific case has been developed by a public body that is not a GLAM institution we assigned a label "other public". This may be a Ministry of Culture of some country, a university or other local authorities.
3	NGO	NGO refers to a non-governmental organization that is run by some sort of management board and is fundraising money publicly and/or is working within some public grant schemes.
4	Firm/company	This label was used whenever we saw that digital cultural resources are being "picked up" and used in what one may call "business-like" manner. That is to produce a specific product or service to sell it on a given market. What may be important to add is that these initiatives not necessarily have to be created with the primary intent to make

		money. However, they would need market income and "for-profit" approach to sustain themselves.
5	Community	We used this label whenever we saw that a given initiative is being developed and maintained by a specific community. This community may be working as an NGO – for instance by using a legal form of Association in some countries (which is often the case for communities of archivists). But not necessarily so – a given community may have no specific legal framework. What matters is that we clearly see a community of people with similar interests that are involved in both creation and usage of a specific product, service or initiative.
6	Informal group	We also saw some cases when a group of acquaintances developed a specific service or product. Their collaboration is not based on any legal entity nor a specific community of practice.
7	Individual	An individual working alone can also be responsible for re-using digital cultural resources.

The categorization presented above requires some additional explanations:

1. The last three types of actors we presented above (community, informal group, individual) mostly operate within the sphere of what Pierre Luigi Sacco named Culture 3.0, where the differences between users and creators is blurred. Culture 3.0 happens when independent individuals, communities or informal groups make use of digital cultural resources and interact with them for their own purposes. This usually does not require substantial capital investments – publicly accessible digital cultural resources, and groups'/individuals' know-how and competencies suffice.

2. We noted that most cases created by GLAM institutions we have in our database are in fact created by museums. Thus, we provided a supplemental actor characterization – "a museum". And so, we not only took note of whether a creator was a GLAM institution but also, whether it was a museum or a non-museum entity. We believe it to be important to be able to showcase the significant role museums play in the re-use of digital cultural resources.

3. We also provided other supplemental characteristics to the actors' analysis of our database. Namely, we took note when the cross-sectoral collaboration was taking place in the process

of creating a project, initiative, product or service with the application of digital cultural resources. We believe (which is to some extent supported by the data) in the meaningfulness of such collaborations as they lead to significant outcomes.

5.3.3 Primary Purpose

Gathering and analyzing the substantial amount of cases where digital cultural resources are used to create projects, initiatives, activities, products or services allowed us to identify different purposes for which given creations were brought to life in the first place.

Table 2. Primary purpose typology

No.	Purpose	Brief description
1	Access	These initiatives are created mainly to make certain artefacts accessible on the web. They are usually some kind of website that is in fact a digital catalogue of certain digitized works of art. A user can browse this catalogue according to certain categories or using a search engine. The quality picture provided through such catalogues varies vastly – what is important to note, however, is that some of these catalogues offer also 3D images of items like sculptures or other three dimensional objects, audio files or video footage.
2	Money-making	These projects are simply business endeavours. Their creators use digital cultural resources to produce a good that can be traded in open markets one way or another. They may be interested in arts/culture – but their primary purpose (or need) is to “pull-off” a viable business venture that would turn a profit in the long-run. These projects are pre-designed to acquire market income as soon as possible.

3	Education	Educational initiatives aim at providing specific information about specific cultural artefacts. However, they are something more than a simple information note next to an artwork (as one would find in an "access-type-catalogue". Here, one would find a story that links images with facts and interpretations and constitute a "whole". This could be either a simple article devoted to specific artefacts, on-line exhibition or a web-based course on the history of arts. The main purpose here is to educate the user (recipient) on specific historical occurrences. Educational projects are not directly linked to any practice. When we saw direct links of this kind, we categorized the project as "knowledge-sharing".
4	Knowledge-sharing	We found some initiatives (usually brought to life by a community) that primarily aim at providing a platform for sharing knowledge on the accessibility of specific artefacts/objects/documents. One such example would be a web platform run by the Polish Society of Genealogists where individual genealogists share archival content on specific issues being of interest to some of them. The difference between educational initiatives and knowledge-sharing ones would be that the latter is aimed at serving a very specific community of people (e.g. communities of practice) that is in search for specific artefacts and information on them.
5	Community-building	Some initiatives "want to" make use of digital cultural resources for the sole purpose of constituting, sustaining and/or further developing a specific community. This of course happens through information sharing (on a very abstract level), however, the goal is to purely provide a platform for – say – "keeping the community together".
6	Entertainment	Projects that aim at delivering amusement and/or enjoyment to its end-users. These projects can be usually classified as ones that have the lowest barriers of entry to the "world of heritage" for the end-user. Surely they also educate as they make use of heritage – however, their most visible outcome is (as stated above) amusement or enjoyment.
7	Empowerment and political influence	Projects that make use of digital cultural resources to empower certain communities being in a vulnerable or difficult position or to influence political behaviours, policymaking and political decision-making.
8	Rescue	We also found some initiatives that aim at rescuing specific artworks from "oblivion". These were brought to life usually under particular circumstances (like the war in Syria) in which – for instance – monuments are being physically destroyed and to digitize them is (or at least seems that way) the only way to save them.

5.3.4 Other characteristics

We, also, found other differentiating characteristics of the cases present in our database that we believe are worthwhile to apply to the analysis of projects.

Connection and interaction

Firstly, we saw vast differences in the effort different products, services and/or initiatives were making to establish strong connections with the end-user. Thus, we tried to make note of these differences by proposing a category differentiation between creations that are purely access-oriented (they are about just putting the digital cultural resources "out there") and those which are connection- or even engagement-oriented. Comparing different products, services and/or initiatives we saw four groups: (1) projects that are more access-oriented, (2) projects that are "in-between" (they make effort to connect to specific end-user by developing some kind of tools, stories, or simply by design, but this effort is notably less significant than the one observed in the third group), (3) connection-oriented projects where we see strong efforts and specific tools implemented – towards the end of "making a connection", (4) connection and interaction oriented (projects that make substantial effort to connect to the end-user and also make use of various interaction oriented tools to provide an end-user with the opportunity of (inter)acting).

This categorization allowed us to see a variety of tools that are being applied to provoke connection and engagement on the side of the end-users. We believe showcasing these tools can serve as inspiration for other creators. But, also, as evidence, how different creators strife to establish deeper connections with their audiences and, thus, how impact may happen – through what exact instruments.

Link to The Digital Single Market

We also tried to establish which of the projects gathered by us in our database has (or may have) direct linkages to the market. In other words – we were taking note of which projects are brought to

life with the intent of turning profit. We were also interested in which of them are actually seeing any market income – that is inflows of money directly from the end-user who is making decisions on her own discretion.

Culture 3.0

We also analyzed cases in our database to understand whether they constitute a Culture 3.0 example. Culture 3.0 refers to a realm of situations in which a given digital cultural resource is appropriated and used by an individual or an informal group for their own purposes. What is also important, is that this appropriation and re-use may happen without the involvement of vast financial capital – usually, the human capital of a given group or individual should suffice. Researching the concept of Culture 3.0 delivers premises that allow us to understand whether the existence and circulation of digital cultural resources inspire the more direct involvement of heritage in ones' lives – be it in a social, economic, and/or political realms.

5.4 Basic Characteristics

In this part of the report, we present basic characteristics of the whole sample of cases we gathered and analyzed; together with conclusions and interpretations. Before we go into outcomes, it is worthwhile to tackle briefly the question to what extent the view presented by our sample reflects the whole realm of what one may call re-use cases. On the one hand, our sample cannot be seen as representative in a statistical sense. However, such a representative sample probably could not be constructed. A first and most important obstacle to such creation is the lack of knowledge on how many re-use cases are out there – this prevents us from knowing the number of cases that should be analyzed to safeguard statistical representation with substantial degree of probability. We focused on gathering as many cases as possible in a given time (c.a. 2 months) by a group of experts. We believe that our method (snow-ball expert research we explained in previous sections) may result in something we see as the first step to the creation of a fairly representative proxy.

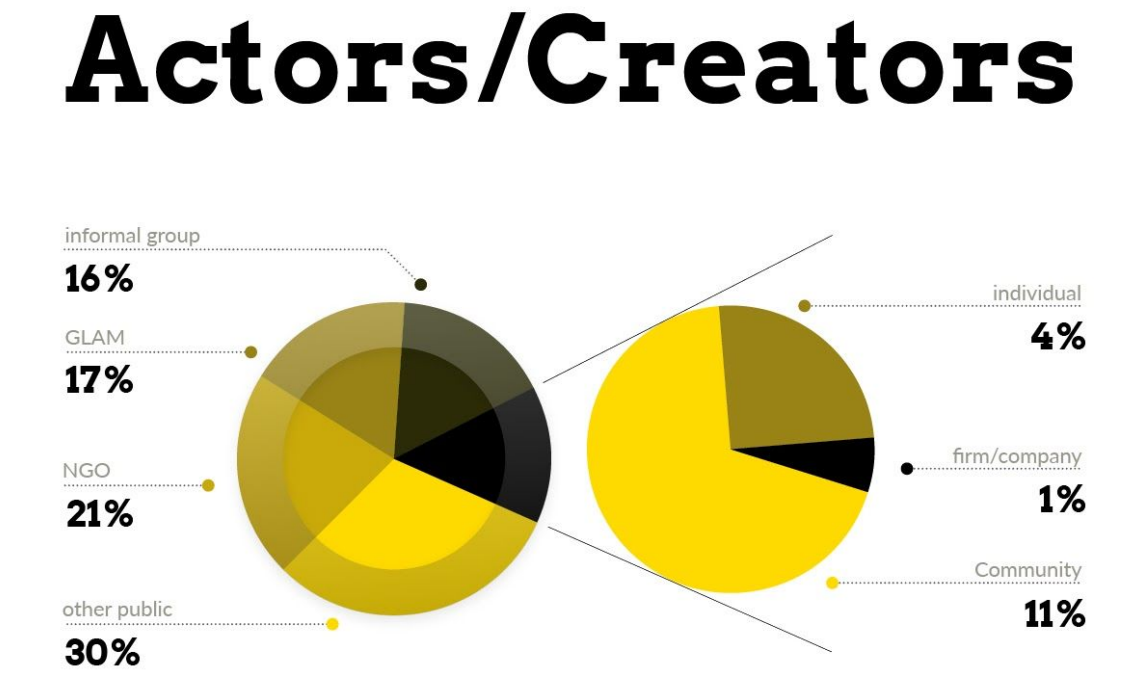
5.4.1 Actorship – Creators

We start with the actor analysis and – based on our sample review – it is fair to hypothesise that the world of re-use is dominated by CHI actors. It may come as no surprise – for the Cultural Heritage actors are first to come into possession of digital cultural resources and, thus, it is those actors who commenced the, say, digitalisation revolution in the field of heritage. However, we believe it is worth remarking, as our sample shows, that after over a decade of digitisation efforts, re-using cultural digital resources is still a mostly CHIs domain. Researching cases we all shared similar opinions that the world of re-use is becoming richer in many ways – more cases, more diversity in application – however, we felt it was much easier to map institutional cases than the ones that are created by - say - private and non-institutional actors. And it was not purely an effect of visibility or advertisement of institutional cases as – at some stage of research – we placed a special focus on finding a good deal of non-institutional representations. Our sample reflects this, say, expert-feeling in a quantitative manner.

As presented above, almost 1/3 of all the cases collected by us have been developed and delivered by CHI actors. 21% of the cases were produced and disseminated by other public institutions (mostly universities and local authorities). On the other hand, private endeavours that end with some concrete product, service, and/or initiative that end-users can interact with, constitute only 16% of cases in our sample. What is interesting, is that (within this 16% fraction) individuals seem to do much “better” – 1 in 10 cases was created by an individual without support of substantial capital – than informal groups and/or communities. Only one case in our database can be attributed to an informal group.

The high percentage of cases where resources are reused by CHI actors - most probably the same ones who own the resource - force us to revisit the typical policy narrative tied to reuse of publicly available resources. Traditionally, such reuse is seen as conducted by external actors and opposed to

Diagram 1. Actors by Category n=82

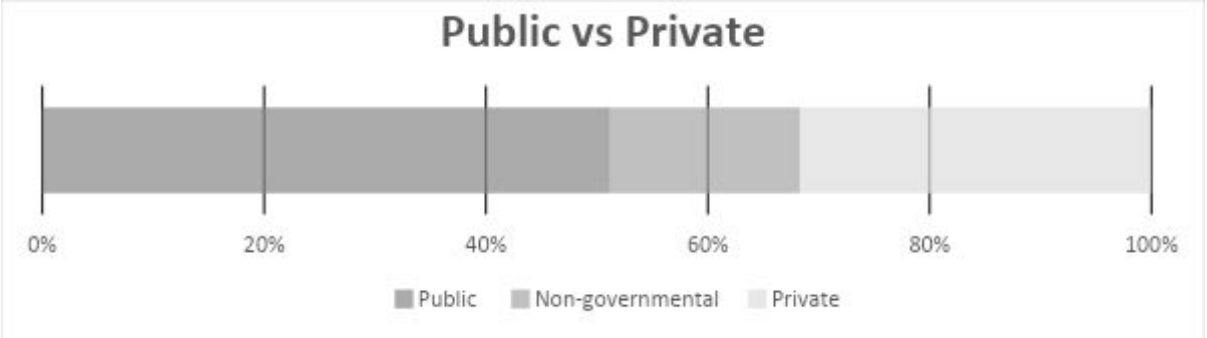


use by the actor that owns the resource. Reuse policies have the goal of enabling such additional reuse. They assume that external actors can generate added value in a situation where the actor that owns (or controls) the resource lacks such capacity. Our research shows that in many cases we are seeing actors that develop new capacities to creatively work with and develop their heritage resources into new initiatives, products and experiences.

Artificial Violets (pl. Sztuczne Fiołki) – an informal group initiative
"Artificial Violets" is a Polish informal group of creators behind the Facebook page under the same name that is using digital cultural heritage to create entertaining content, critically commenting on social issues, politics, contemporary life. The Facebook page has 225 089 followers: https://www.facebook.com/SztuczneFiolki/ The group is also using Patronite to collect funds and it is being supported by 213 patrons donating over 2500 PLN (over 550 EUR) monthly. The group does not disclose the identity of its members and has no official leader. Their communication is limited to the Facebook page where they provide very little information about their mission or purpose, calling themselves "an art-history comic-tragic post-meme magazine". Equally limited information can be found on Patronite: https://patronite.pl/sztucznefiolki Although the group is using a single communication channel, it has become popular also thanks to quotes in the media and their content being shared by public figures. They use Public Domain images from different collections, always providing basic information about the author (mostly name, dates of birth and death and in most cases a very short information about the background of the artists). They are actively shaping the tone of voice and language that the public in Poland is using to comment on political and social issues, criticise structures of power and express their discontent.

The other way of looking at the actorship in the world of re-use is to use traditional sectoral divisions. Mapping the use-cases according to these categories shows that over half of the cases in our sample are created by some sort of public institutions, 17% by non-governmental actors and 26% by private actors.

Diagram 2. Public vs Private Actorship



n=82

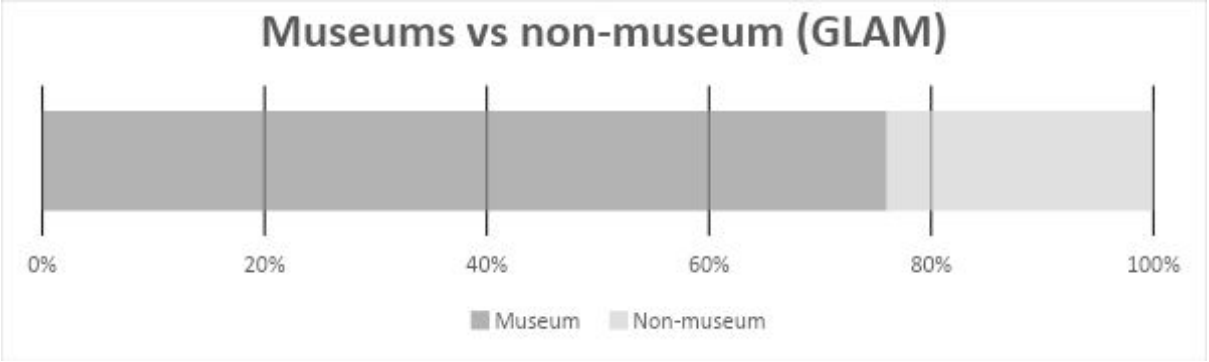
One way of explaining this phenomenon would be to say that public institutions are incentivised to start and run projects in the field of digitization by legal and institutional structures (even many CHIs already start to include re-use and digital presence in their mission statements). Programs, granting schemes, and some political focus is in place to demand this type or work from public actors. Same may apply to at least some non-governmental actors who make use of specific granting schemes – however, private initiatives are definitely less targeted by any such public programs and public finances. It may seem trivial to say – but our data confirms that most value created by re-use applications is rather still the outcome of some form of public investment. Much less action is noted where little public policy instruments are in place.

We also found out – during the process of interviewing individuals involved in re-use – that application of digital cultural resources is a relatively burdensome activity. A couple of challenges are "advanced digital literacy" and "coordination of work" between different people. Already these two require substantial skills and resources (at least time) which may be not easily accessible by private actors. Especially coordination effort - which simply means talking to many people for longer periods of time - may require a lot of manpower which may supersede the possibilities of an individual who is not backed by any substantial capital.

Another critical asset at play here may be – simply – the understanding of heritage and how it links to society at its current state. We already pointed to the fact that CHI actors themselves are responsible for a significant part of the cases (30%). When we looked deeper, it turned out that almost 80% of those actors are museums. Thus it may seem that their expertise in heritage items and experience in linking them to societal needs and practices puts them at the forefront of re-use activities. This expertise may be crucial in developing a vision for either product, service and/or initiative that would make use of digital cultural resources. This insight points to the need for developing similar institutional capacity and culture among other CH institutions, especially those that have traditionally been less focused on users and use of their resources - by focusing instead,

for example, on their archival role, or seeing their target groups as narrow, professional communities.

Diagram 3. Museums vs. Non-museums



n=25

On the other hand - outside of the public realm - almost as many cases in our sample have been developed by firms (16%) as by non-governmental actors (17%). And it is interesting to see the variety of ways in which those private actors make use of cultural digital resources to further their aims. Below we present 3 case-studies as examples of what can happen when digital cultural resources break out of the CHI sector and how the value is being built and disseminated.

Inkulinati is a type of game one calls turn-based strategy (like chess for instance). The game makes use of "medieval animals" inspired by 700 years-old real-life medieval marginalia. In Inkulinati, a player becomes a Master of Living Ink, also known as the titular Inkulinati. S/he becomes a part of a legendary group who battle one another on the pages of medieval manuscripts.

The game is being developed by a small Polish studio called Yaza Games:

"Yaza Games is a 5 person studio from Poland. Met by pure chance, we want to surprise you with our hand-crafted worlds that may contain a bit of absurd humour. One of us wants to do over-complicated strategies, while the rest never read tutorials. We're currently working on our first game called Inkulinati - a turn-based strategy about animal battles inspired by 700-years old medieval marginalia."

The project, although not completed yet, has successfully run a Kickstarter campaign. Up to date (as of 27th October 2020) the project has gathered a group of 2 349 backers who pledged over 73 thousand USD. The initial goal of the creators was 20 thousand USD. The project also attracted the attention of Kickstarter itself and it was granted a "Project We Love" badge which means:

"At any time there are thousands of projects live on Kickstarter, and our team is constantly keeping an eye on new launches for those that really stand out. There are many factors that we take into consideration before featuring a project on the homepage or giving it a Project We Love badge. This includes, but is not limited to, a crisp project image with no logos, badges, or text on top, a clear and detailed description that includes a thorough plan for completing your project (more guidance on that here), captivating images or videos, an excited community, what we think different users will be interested in, and of course, a lot of creativity." (https://help.kickstarter.com/hc/en-us/articles/115005135214-How-does-my-project-become-a-Project-We-Love-or-get-featured-on-the-homepage-).

Inkulinati is a vivid example of how digitized collections lead to market products. In this case, a game was developed for a target group of players who are into turn-based strategies. It has already noted a substantial market success as its pre-order campaign exceeded the expectations of the producers by more than three times. Its business model is quite straightforward – the developed product will be offered to gamers using different "consoles" using the channels adequate to the gaming industry. This is a for-profit venture that, however, makes users interact with medieval images of animals. Hence, our "static" heritage is transformed into a live gaming exhibition.

Link: https://www.yazagames.com/

Vastari.com is a web-based platform that offers networking tools between the museums (along with curators) and private art collectors. It aims at facilitating exhibition collaborations world-wide. The platform was established in 2012 and at the current stage of its development it:

1. Enables more than 450 connections between its users yearly
2. Has more than 9 000 institutions using its tools
3. Has more than 22 000 contacts in the database
4. Who represent more than 700 000 art objects

The logic of its operation is quite straightforward – collectors can create accounts where they present the artworks which are in their possession. Naturally – as the Vastari is an on-line platform – the artworks are presented using their digitized images. On the other hand, curators can browse through the plethora of collections and get easily in touch with the owner of a specific artwork. Subsequently, they close a deal on the rental of a specific item for a specific exhibition.

Vastari is an interesting case where the direct market connection is made. It improves the effectiveness of deals done within the market of museum exhibitions. It was estimated that this market means c.a. 140 000 exhibitions per year with an estimated overall cost of $5.9 billion.

Vastari is one of the very few cases in our sample that has such a strong and clear business model that addresses very specific needs of the customers it serves. And it has a very strong value proposition to end-users who happen to be private collectors – it helps them to make money.

What is even more interesting is that through its operations Vastari gained a unique knowledge of what artwork is more “needed” on the market of loans. And it may use this information to help its users to position themselves better. So Vastari underwent an interesting evolution of its business model – from being a product that provides connection and facilitation of loans to being a service of providing information on how to better monetize ones “collections”.

The economic and market connection and influence here is pretty clear. And on a societal level – one may say that Vastari facilitates and (in fact) boosts the usage of private collections in designing and making of museum exhibitions which are available to “public eye”. The public, then, gets access to what would have otherwise been – in many cases – kept behind closed doors. All this is only possible because of the existence of digitized collections.

Link: https://www.vastari.com/

Smartify is being described as the "world's most downloaded museum app". Smartify's paying customers are mainly museum actors who want to use Smartify's technology for improving visitors' experience. A museum uploads all its digitized content (artwork, audio-guides, texts, videos) to Smartify. Visitors download a simple app which now serves as "mobile guide" for this specific museum. The app also uses augmented reality tech so the visitor can simply scan a specific work of art with her mobile phone and get immediate access to all supplement information – be it texts created by curators, audio commentary, or video content. The visitor – end-user – can download this app for free.

The app has been praised by many institutions and independent commentators (BBC). "In a report produced by Digital Catapult for the Mayor of London, Smartify has been named one of ten London based startup companies to watch in 2020" (https://about.smartify.org/blog/smartify-named-one-of-the-top-ten-startups-to-watch-in-2020).

Smartify seems like a simple solution, however, surely, a plethora of IT skills and creativity was injected in the project. For, to provide a very neat and user-friendly design to a mobile app that makes use of augmented reality technology to organize and make possible to access much supplemental information about specific artworks and/or the whole exhibition is no small task.

Smartify's story and mission statement are also interesting and inspirational:

"Smartify grew out of four friends' enjoyment of visiting museums and encountering art. Discovering and sharing amazing stories behind artworks remains at the heart of our mission as a global technology company. Inside every gilt frame or Perspex box, layer upon layer of meanings exist; the method, the madness, that moment in time. Art is the only universal language, and there are centuries of stories to tell.

Our values reflect those of a business started by a band of creatives, and the straight-forward and inclusive style they promote. The approach we take towards product design demonstrates a bias for simplicity and utility, letting the artwork tell its story. For us at Smartify, a love of museums demands participation in addressing the challenges facing arts organisations and artists. We donate our time, services and a portion of profits to these venues across the world, who work with limited resources to provide memorable, creative learning experiences. Museum and gallery partners also directly contribute to all aspects of Smartify's development - they generate and direct content, they advise on user experience, and they oversee new features." (https://about.smartify.org/about-us/mission-statement)

Smartify is also interesting because of its business model. In the very basic level, it offers institutions three pricing plans: 1,800.00 USD /yr, 3,500.00 USD /yr or 10,000.00 USD /yr. There are differences in services available depending on the price one chooses (one differentiation is about the number of digitized artworks one can upload to Smartify) (https://about.smartify.org/pricing). However, it also offers a list of extra services that can be tailored to a specific institution's needs:

- Additional Support Hours
- Content Authoring
- Translations
- Audio Production
- Ad Hoc Development
- Website integration
- On-site and digital signage
- Campaigns
- Consultancy

In fact, one may say, that Smartify is not only about the mobile application but it, now, positions itself as 360 degrees IT and content production support for museums and other heritage actors. The company has shown well how to use interest for arts, IT skills, and the digitization trend to built a viable company that serves to realize – what we believe to be – an important mission for the world of museums.

5.4.2 Relationships

As stated in the introduction we also made an effort to analyze cases in our sample according to their strive in establishing meaningful relationships with the end-users. To achieve this type of analysis we clustered the cases into four groups:

1. *Access* – to this group we assigned projects that are mere catalogues of digital cultural resources in one form or another. These projects propose some form of categorization of the works but generally make no special effort to facilitate interactions with the catalogue. These projects are – as we understand it – purely about just publishing the works on the internet.

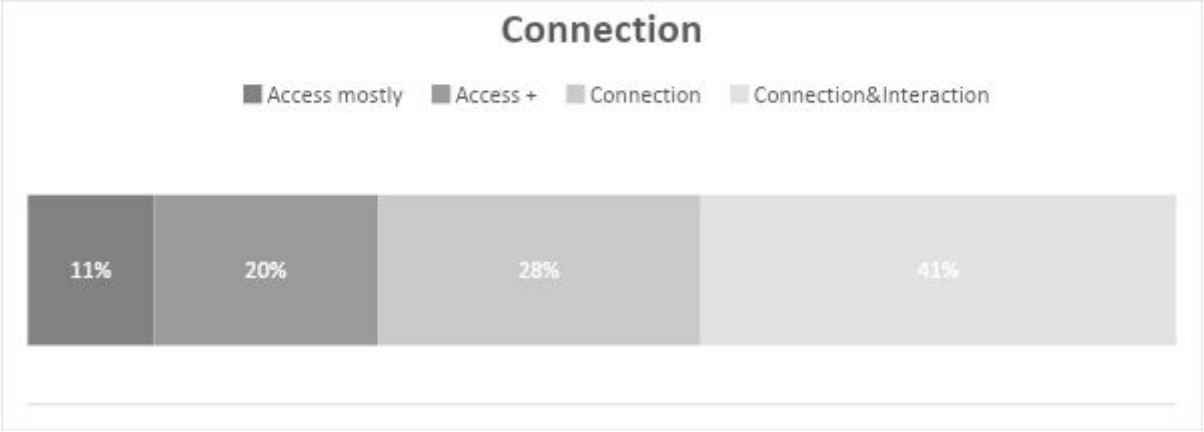
2. *Access+* – these projects still focus on providing access to numerous digital cultural resources. However, these projects also make use of some extra tools to establish a more friendly relationship with the user.

3. *Connection* – projects in this group are either not access oriented at all or make use of numerous tools to facilitate the connection and "consumption" of the given cultural resources by the end-user.

4. *Connection & Interaction* – this pool of projects does not only aim at connecting with the end-user but also makes use of various tools to propose and stimulate interaction. In other words, users of this type of projects would have a fairly easy time accessing, understanding and linking/connecting with the re-used cultural resources. And a user of "connection & interaction" type of projects would be provided with extra opportunities for "doing something" with the cultural digital resources s/he was connected with.

Now, the first outcome of the analysis of our sample of cases shows clearly that there are fewer "access" projects that one may have expected. We believe that this is a positive trend in the world of re-use where much more initiatives than – say – 5 years ago are making a substantial effort to compete for the users' attention by applying different engagement tools. Only 11% of cases in our sample fail to do it. Moreover, 69% of cases either "strategically" strive to make connections or try to stimulate interaction with digital cultural resources.

Diagram 4. Relationship Orientation

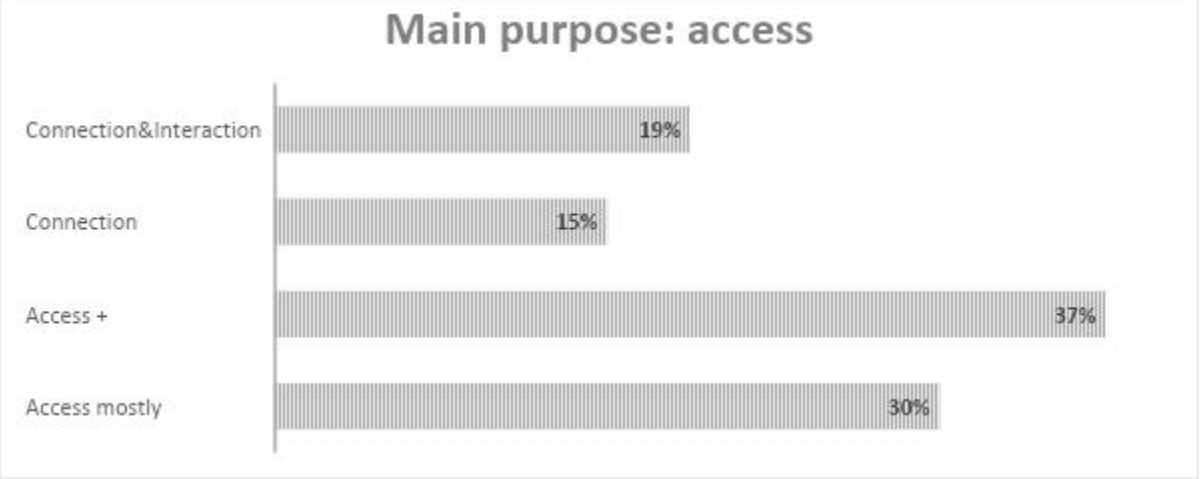


n=82

What is even more optimistic, is that even the projects which have access as their primary purpose make use of connection and interaction tools. Below we present data that classify the projects that have at their core providing the audiences with a vast catalogue of cultural digital resources (we

have 27 such examples in our sample). But even when we analyze only these projects – 70% of them make use of at least some forms of tools targeted and provoking connection and interaction.

Diagram 5. Access vs. Connection & Interaction



n=27

We were particularly interested in connection and interaction aspects of re-use as we believe that this is how the positive impact can be materialized – not by simply publishing the digitized works of art, but by striving at establishing a connection and provoking engagement so the audiences can relate to what is presented to them. Below we present a list of 30 connection & interaction tools that we identified in the cases gathered in our database. We believe that this list serves both informational and inspirational aims.

Table 3. Connection & Interaction Instruments

No.	Connection and/or interaction tool	No.	Connection and/or interaction tool
1	Providing high-quality images without any restrictions to their use as in case of Rijksstudio and some other museums.	16	Producing augmented reality solutions to enhance engagement.

2	Providing e-tools for editing of the images representing works of art. These tools are usually basic, but this is what makes them accessible and easy to connect with; easy to use even by groups with low digital skills.	17	Stressing on, and developing user-friendly interfaces thanks to which users can navigate easily through digital creations that make use of digitized heritage
3	Providing services for printing a given work of art on demand and selling it to the end-user.	18	Curating named collections that make it easier to navigate through the plethora of digitized heritage.
4	Publishing to specialized audiences – as in the case of Witrualne Muzea Małopolski, or Smithsonian who publish some of their 3D scans on Sketchfab which is a tool for 3D graphic designers and artists.	19	Running calls for artists where artists receive monetary rewards for both participation and receiving prizes.
5	Developing and running a Facebook page dedicated to showcasing and promoting re-use of digital cultural resources. Some of those pages (like for instance Sztuczne Fiołki that focuses on showcasing memes) have managed to develop relatively large audiences – over 220 K subscribers.	20	Producing materials for teachers (teaching guides for instance).
6	Producing “funny” memes with the application of digital cultural resources.	21	Organizing trainings and workshops for teachers.
7	Providing unordinary exploration tools of the digitized collections. Like UX friendly hashtag systems as in the case of https://picryl.com/.	22	Providing Application Programming Interfaces.
8	Publishing (so-called) multimedia long-features or multimedia exhibitions as in the case of http://www.warsawrising.eu/ or https://archeologie.culture.fr/lascaux/en.	23	Producing popup exhibitions that are placed in populated and often used public spaces
9	Producing a feature film that tells a story with the application of digital cultural resources and enters major distribution channels (through public cinemas for instance).	24	Creating and posting gifs through social media.

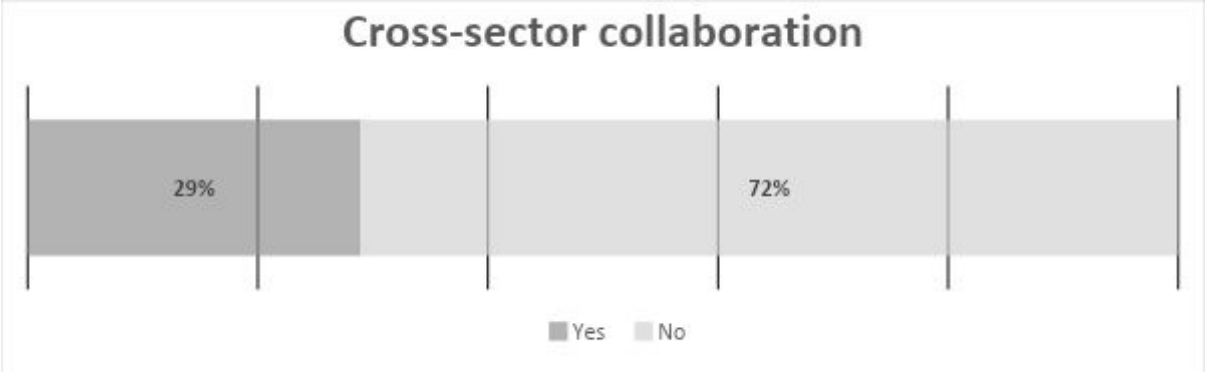
10	Running crowdfunding campaigns on platforms like Kickstarter.com.	25	Organizing hackathons were participants can experiment with the application of specific digitized heritage
11	Creating and selling books.	26	Running contests or challenges – for instance, a contest for the most creative re-use of digitized heritage run by Rijks Museum, or challenges like https://vangoyourself.com/
12	Entering movie competitions.	27	Producing mobile applications.
13	Producing new works of art directly connected to the digitized heritage and selling them – for instance through auctions.	28	Producing multimedia exhibitions that make use of digital tools and digitized heritage.
14	Producing courses and placing them on popular platforms like Udemy.com.	29	Publishing essays for selected audiences.
15	Producing colouring books for children and adults alike.	30	Organizing a pop-up event that attracts attention to digitized heritage.
		31	Creating regular newsletters devoted to the project that focuses on re-use.

The actions presented above are what one may call measures that the creators of specific re-use projects make use of in order to – as we understand it – facilitate the connection with the end-user. In some cases, they are the core of the project. In other – they could be viewed as "marketing" tools in a sense that they aim at inspiring the interest in a specific product, service and/or initiative. Interest that – ideally – is followed by a decision to devote one's resources (mostly time and/or money) to interact with digitized heritage. We present those tools to document the trends, but also inventiveness of the creators who are striving to connect heritage with modern societal practices and norms. Without this connection, digitized cultural resources would make a little societal impact.

5.4.3 Collaboration

Another aspect of the development of products, services and/or initiatives that make use of digital cultural resources we looked at was the aspect of cross-sectoral collaboration. Researching the information on the cases included in our sample we were trying to understand if actors from diverse sectors were involved in any step of value creation. In other words, we were evaluating if an actor identified as the main creator of a given solution, involved at least one other actor from a different sector in the process of re-using digital cultural resources. As it turns out, the cross-sector collaboration is not that common. In general, less than one-third of the cases have been developed with at least a minimal level of intersectoral discussions and/or negotiations.

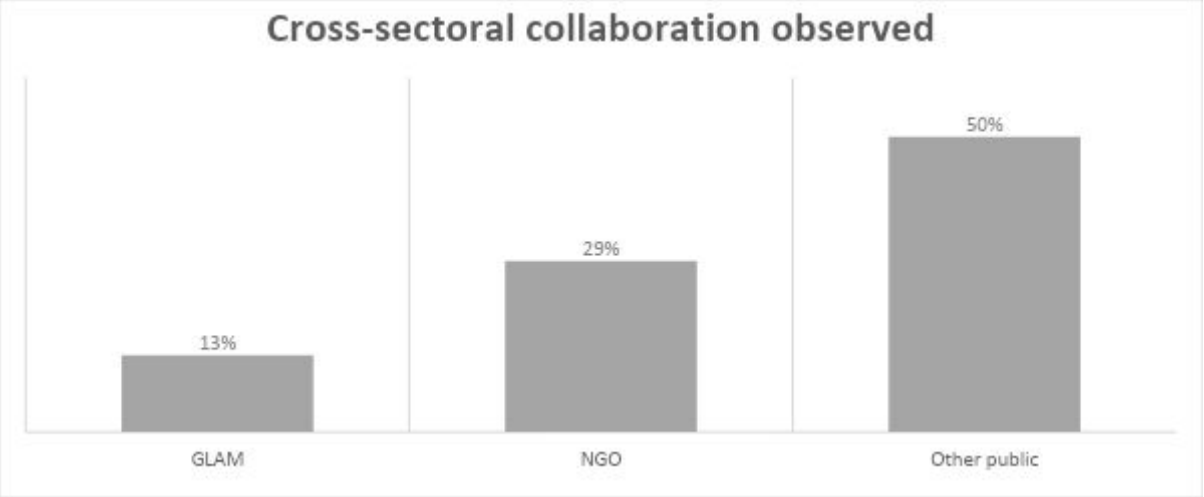
Diagram 6. Cross-sectoral Collaboration



n=82

We also looked at the collaboration aspect concerning the category of actor/creator. And we – surprisingly – found out that CHI actors are not very open to cross-sectoral cooperation in the process of re-using digital cultural resources. The same can be said about the NGO type of actors. While the probability for cooperation (in our sample) grows substantially for other public institutions (such as universities or public authorities).

Diagram 7. Cross-sectoral Collaboration by Actors



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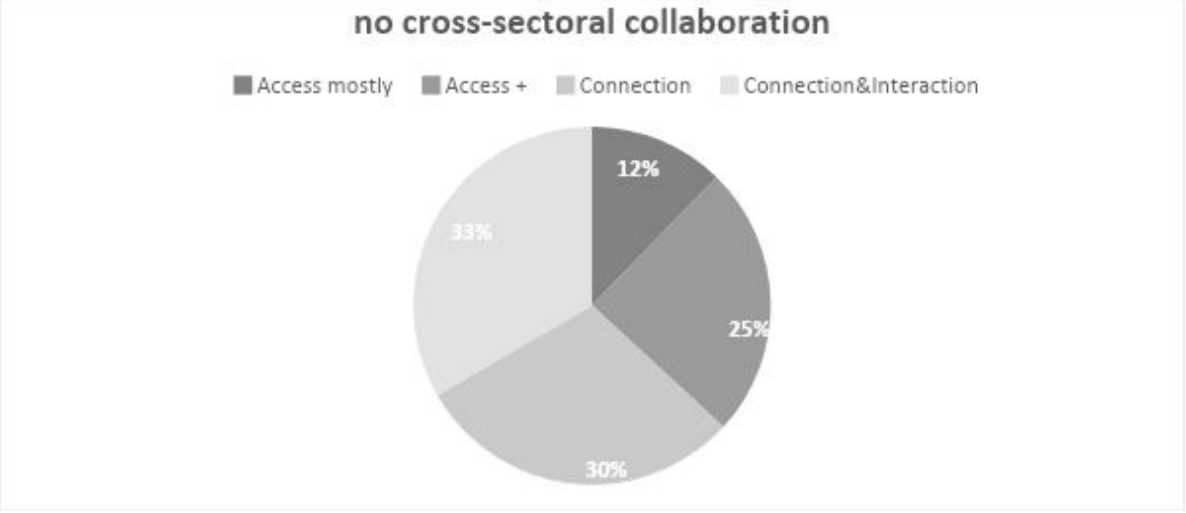
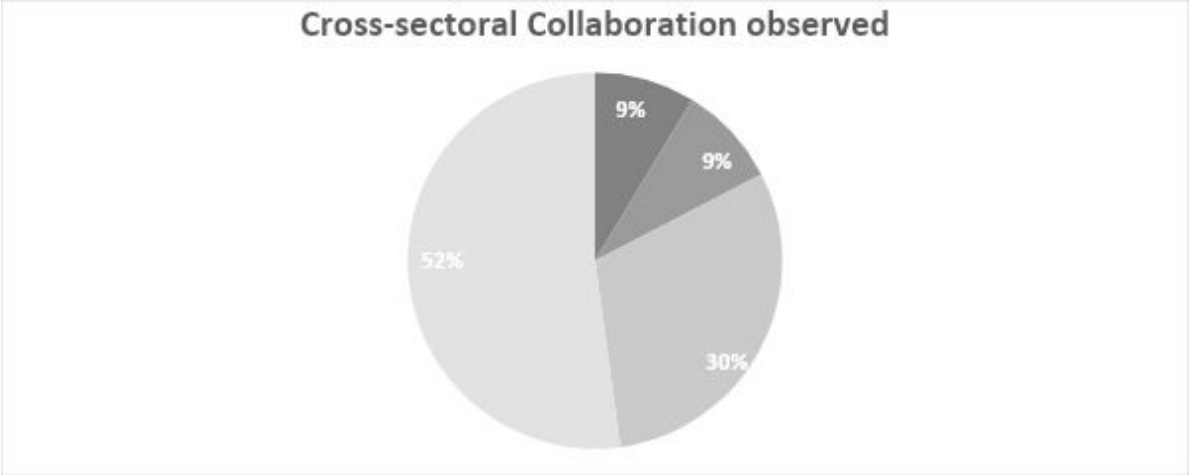
Cross-sectoral collaboration should not be seen – of course – as valuable *per se*. However, as we studied our database, it turned out that when this type of cooperation occurred there was more probability that the creators also preoccupied themselves with applying connection and interaction tools.





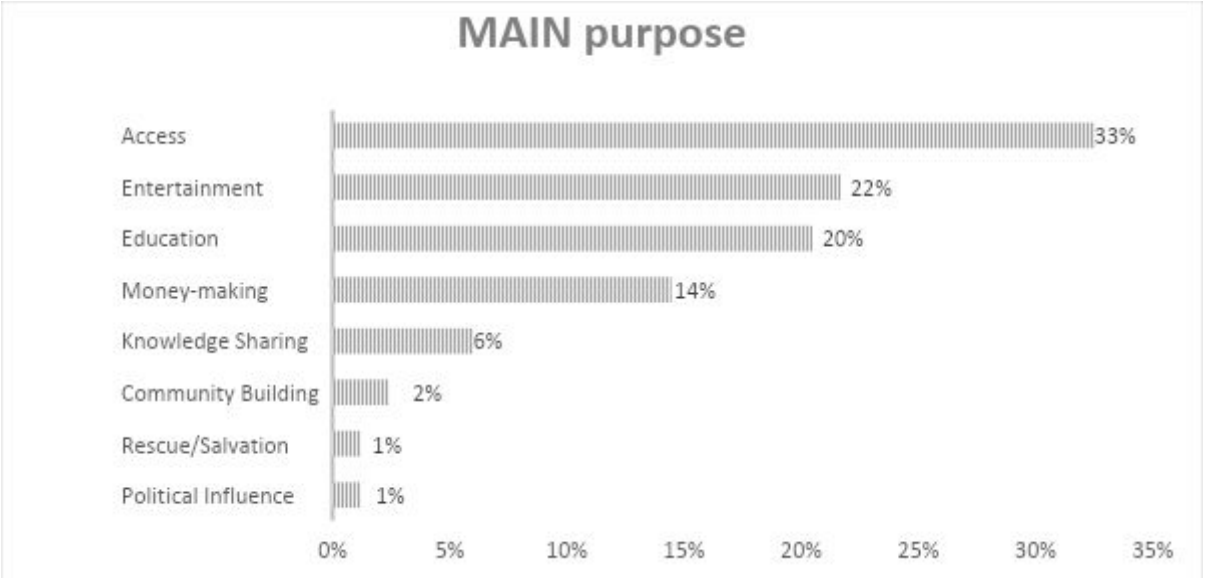
n=82

Consequently, in the group of creators who collaborated with actors from other sectors we observed that the percentage of cases making use of interaction tools increased by 19 percentage points. On the other hand, the percentage of cases "access" dropped by 3 percentage points, while the group "access+" shrank by 16 percentage points. Now, we believe that data present in our sample confirms that when intersectoral discussions happen, there may be more chances for safeguarding the needs and preferences of a potential end-user of a given product. This outcome may add another important building block (or a milestone) of the value creation chain – the necessity for intersectoral discussions and collaborations.

5.4.4 Purpose

We also analyzed our sample as to the primary motivation the creators had (or had to have) for creating a specific product, service and/or initiative. As outlined in the introductory section, we identified eight main types of goals that are in play in the world of re-use: (1) Access, (2) Entertainment, (3) Education, (4) Money-making, (5) Knowledge sharing, (6) Community building, (7) Rescue, and (8) Political influence. In our analysis, we aimed at identifying only one main purpose for a given case. Thus, we assigned only one purpose to each project indicating the primary motive for taking action.

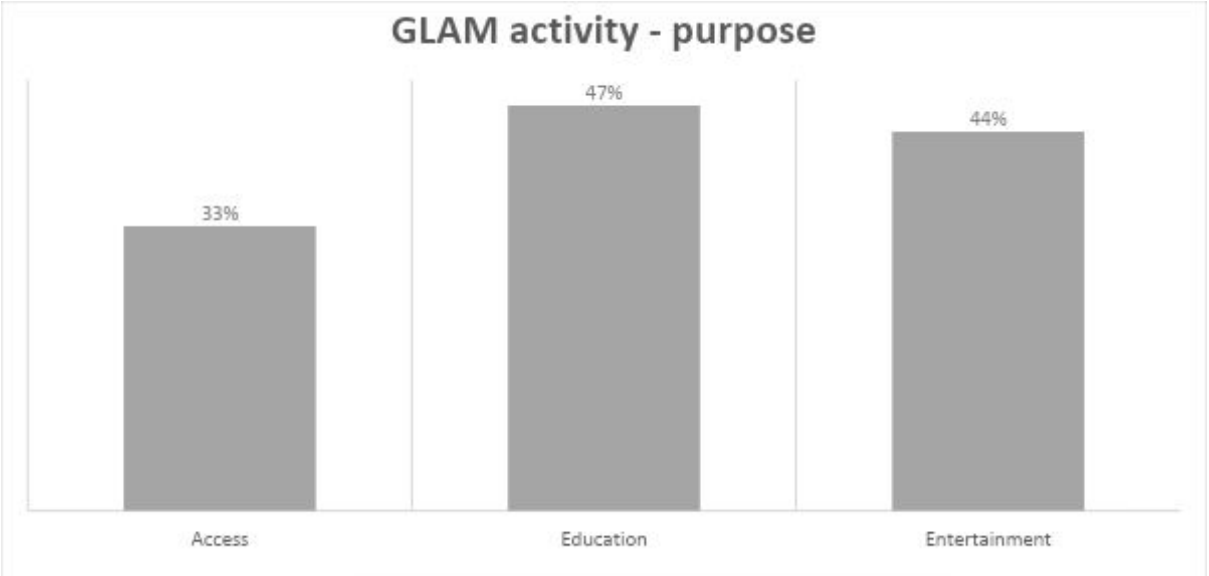
Diagram 8. Main Purpose



n=82

What we see in the data, is that most of the projects focus on providing access to digitised heritage (33%). This may be one of the most significant observations in our study – the most resources (as shown in our sample) are still focused on making access possible. And while it is undeniable that these efforts are necessary (and also - which should be stressed - very challenging), they should – in our opinion – be supplemented with much more activities that link availability with the actual usage aimed at fulfilling the ambitions of anyone who may find it desirable. That is why we welcome the finding that the second most present primary purpose in our sample is entertainment (22%); almost equalled by education (20%). And it is optimistic to see that CHI actors (which are mostly responsible for re-use projects) are equally active in all three fields trying to breach the gap between access and more targeted social impact. CHI actors have initiated 33% of all primarily access projects, 47% of all education projects and 44% of entertainment projects.

Diagram 9. Percentage of projects in a given category initiated by CHI actors.

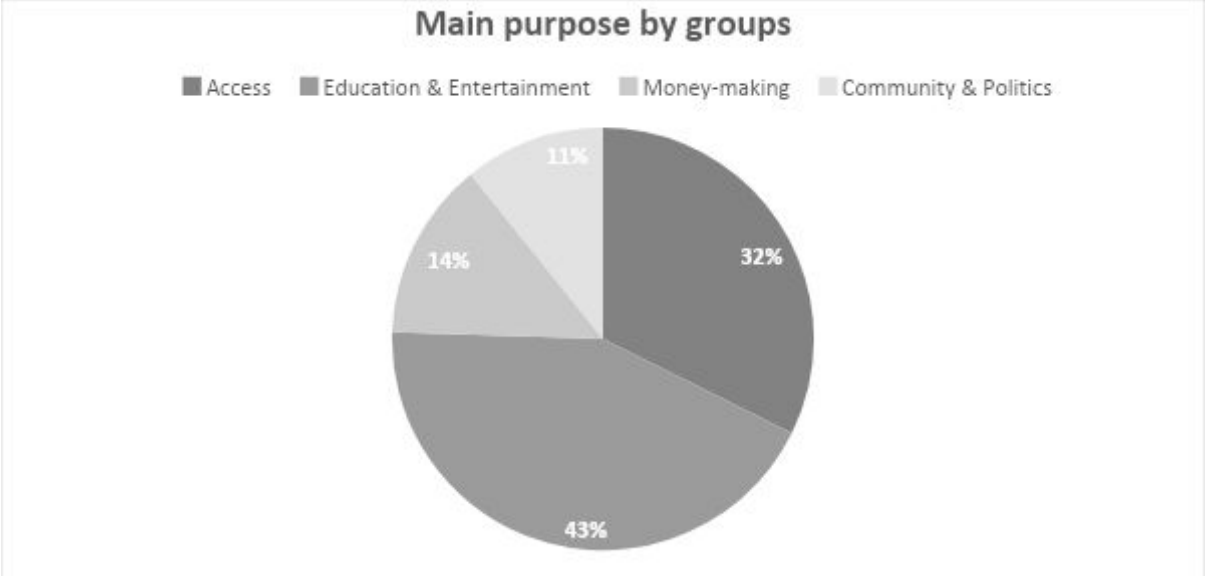


n=27, n=17, n=18

On the other hand, CHI actors are virtually non-present in other types of activities – those that aim at re-using digital cultural resources for the sake of community-building, targeted knowledge sharing, political influence and money-making. There seems to be no easy explanation for this phenomenon. However, the conclusion seems straightforward – if one wants to see more impact in areas such as economy, community building, more direct political and/or social change, one should inspire or incentivise other actors to take part in re-use ventures in a more decisive way. Our data shows that these impacts may happen only outside of the world of – say – institutional culture. It also shows that the current production of such initiatives (one may put under the common brand of "Community & Politics") in which influence is targeted directly towards economic, community or political impacts with the application of digital cultural resources is very limited. One may, also, risk the conclusion that we rather observe suboptimal effectiveness of promotion of the idea that digital cultural resources may be re-applied to directly influence community-building, targeted knowledge sharing, political decision-making and/or rescue of specific heritage being in danger of extinction.

Below we show a diagram in which we aggregated main purpose items into four categories - to show vast differences in scale between Access, Education & Entertainment (altogether 75% of cases) and other more social and/or economic goals of re-use initiatives.

Diagram 10. The main Purpose, Re-grouped



n=82

As shown above “Community & Politics” projects are not too common in the realm of “re-use”. We identified very few such cases in our research process. Below we present their brief descriptions to showcase this-still-novel way or reapplication of digital cultural resources.

Palestine Open Maps is a project and a "platform for map-based exploration and immersive storytelling to:

- Open-source and make searchable, for the first time, a uniquely detailed set of historic maps from the period of the British Mandate of Palestine;
- Curate layered visual stories that bring to life absent and hidden geographies, in collaboration with data journalists, academic researchers, and civil society groups."

The platform allows users to navigate and search the historic map sheets, and to view basic data about present and erased localities.

"The idea for this platform was inspired by a large collection of 1940s survey maps from the British Mandate of Palestine recently digitized by the Israeli national library. These maps—all now in the public domain—cover the territory at scales of up to 1:20,000, offering a vivid snapshot of a human and natural geography almost unrecognizable on the ground today, with an unparalleled level of physical detail, including population centres, roads, topographic features and property boundaries.

Although the maps were already in the public domain, their usefulness was limited since they comprise hundreds of separate sheets with no easy means to search, navigate or otherwise comprehend. By combining these sheets into seamless layers that can be navigated online, and combining them with other available data sources, such as the 1945 Village Statistics, historic photography, oral histories and present-day digital maps and data, this platform seeks to offer an invaluable resource for mapping the transformation in the human geography of historic Palestine over the past 70+ years."

https://palopenmaps.org/about

The project was created by Majd Al-shihabi, the inaugural Bassel Khartabil Free Culture Fellow, who is a Palestinian-Syrian systems design engineer focusing on the role of technology in urban systems and policy design.

The aim of the project is to reclaim the narrative of the history of the region. As Majd Al-shihabi describes: "My grandmother is still alive and she was born in Palestine. She was one of the people that was ethnically cleansed during the *Nakba* and she hasn't been back since. (...) Because she was only 11 years old she doesn't have that grasp on geography. But when I got the maps I looked them up. Last summer I was visiting my family — they live in Kitchener/Waterloo, close to Toronto. My grandma was there and I was asking her, *Teta*, can you describe your house to me again? So she started describing and she was like, oh, it's on top of the hill called *El Khirba*. And I looked at the map and there it was: *El Khirba*. It was labelled on that map. Then she was like, if you look from our house qibli (in the direction of Mecca, south) you would see *Esh Shajara*, the other village, and sure enough it's on the map. If you go there right now wouldn't see it but on the map, it's right

there. It's directly south. She would describe all of those landmarks and those features and, sure enough, they're on their map."

There is also an important decolonial aspect to the project: "Those maps were made by colonizers. During the British Mandate, they went in and decided that now the land of Palestine is theirs and they are going to map it. They made highly detailed maps and now, as the victims of that colonization, we Palestinians can read those maps with a purpose that's completely different from the purpose that they were intended for by the colonizers. We're reading those maps in a way that is not in alignment with their original purpose. This is common among people of the South when they're reading their archives, especially in colonial archives. That's one of the really powerful things that we're enabling through this project: You can understand your own history and you can have a different understanding of your own history by taking a critical look at the archives."

See: https://creativecommons.org/2019/01/15/majd-al-shihabi/

Link: https://palopenmaps.org

#NEWPALMYRA is an effort to reconstruct the ancient city of Palmyra as an immersive virtual environment, based on archaeological and other clues. The project was started by Bassel Khartabil, an activist a Palestinian Syrian open-source software developer., who had been taking pictures of Palmyra since 2005.

"In 2012, Khartabil was arrested, and the original project and open source files were lost. Barry Threw took over as director of the project, renamed #NEWPALMYRA, and a community of developers, modellers, and archaeologists began collaborating to model, restore, and later recreate from scratch those historical structures captured on film and camera.
In 2015, ISIL captured Palmyra and began destroying some of its famous historical sites. In late 2015, the Institute for Digital Archaeology began contributing to the New Palmyra Project, sending archaeologists with cheap 3D cameras to capture any further structures that ISIL might decide to destroy."

See: https://en.wikipedia.org/wiki/NEWPALMYRA

Currently, #NEWPALMYRA is a resource that enables creating reconstructions of the historical heritage of Palmyra thanks to 3D models. So far, a 12-ton lifesize replica of part of the Arch of Triumph has been created, carved into stone and installed in London's Trafalgar Square in 2016. What is more, some artefacts were reconstructed and displayed at the 2016 Venice Architecture Biennale. During 2017 Creative Commons Summit a 10-foot model of part of the Tetrapylon, printed in a single piece, was presented.

"The Tetrapylon was one of the most famous structures in the ancient Syrian city of Palmyra, marking the intersection of two roads. It was destroyed by ISIS earlier this year when the Islamic militant group retook control of the city."

While prior digital archaeology projects have focused on preservation — taking snapshots of structures, statues and buildings as they exist today — #NEWPALMYRA's contributors are more interested in reimagining the city as something new. Their models of different historic structures from Palmyra are made available for anyone to download, remix and use.

"We're looking forward more than backward," says Threw, "taking this place that's a symbolic battleground for control over the Syrian cultural identity and its people, and sort of freeing it, digitally."

See:
https://www.cbc.ca/news/technology/3d-printed-tetrapylon-palmyra-syria-creative-commons-1.4090368

Link: https://newpalmyra.org/

5.4.5 Money-making and Links to Markets

Money-making as the main purpose is of special interest to us, as here one may find direct linkages to markets. We found that in our sample 14% of cases can be evaluated as focused mostly on money-making. It should come as no surprise that the actors behind such projects are mostly firms/companies and individuals.

Diagram 11. Money-making by Actors

We claim that the general percentage we observe here (14% of total cases) is suboptimal and we stand firmly by a theory that there is more money-making potential in the application of digital cultural resources. And the examples we identified (and present below) clearly show very diverse and inspiring approaches to building business models around re-use. We definitely see much more space for mimicking the business examples of re-use; across different countries for instance.

"**Loving Vincent** is a 2017 experimental animated biographical drama film about the life of the painter Vincent van Gogh, and, in particular, about the circumstances of his death. It is the first fully painted animated feature film. The film, written and directed by Dorota Kobiela and Hugh Welchman, is a Polish-UK co-production, funded by the Polish Film Institute, and partially through a Kickstarter campaign.

Each of the film's 65,000 frames is an oil painting on canvas, created using the same techniques as Van Gogh by a team of 125 artists drawn from around the globe. The film premiered at the 2017 Annecy International Animated Film Festival. It won Best Animated Feature Film Award at the 30th European Film Awards in Berlin and was nominated for Best Animated Feature at the 90th Academy Awards." (Wikipedia)

The movie "Loving Vincent" is a truly unique venture that made use of digitized Van Gogh's work – the digitized work of art allowed the painters involved in the production work directly with the style of the great master and transform into paintings that were further used to produce the animated feature. The impact of this work became obvious in the artistic sense – as it was recognized by many film festivals. Also, the mere process of production showed how many individual painters can be involved in a single cinematic production. The work of Van Gogh was brought to even wider and (supposedly) younger audiences allowing for bigger societal impact.

This project also has many to offer when analyzing its economic impacts and direct market connections:
1. Funds for the movie creation were raised in a hybrid way. One of the donors was a public institution called the Polish Film Institute. However, the creators, reached out directly to market starting a Kickstarter campaign that allowed them to raise over 53 thousand pounds. The project was also awarded a "Project We Love" Kickstarter Badge.
2. It was shown on various movie festivals. Then, it was distributed through standard cinematic channels and was showed in the cinemas. According to IMDB.com, its production budget was on the level of 5 million Euro, while it grossed 42,187,665 USD (https://www.imdb.com/title/tt3262342/).
3. It currently (as of 27th October 2020) is licensed by Netflix and viewers can see it on-line.

Aiming at more connection with "consumers" and also with markets the creators used very creatives forms and channels of user/market interaction:
1. A touring exhibition with the paintings used to produce the feature was created and showed in most continents.
2. The paintings were later auctioned which allowed for supplemental income channels
3. The book and DVD that dealt with the creation of the movie were produced and now are being sold through the project's website
4. Some of the paintings were digitized and are now being sold as high-quality prints

As one can see, “Loving Vincent” is not only a movie but a whole artistic and business project that makes use of various market mechanism and instruments to influence the target groups; influencing the artistic (cinematic) world at the same time.
Link: http://lovingvincent.com/

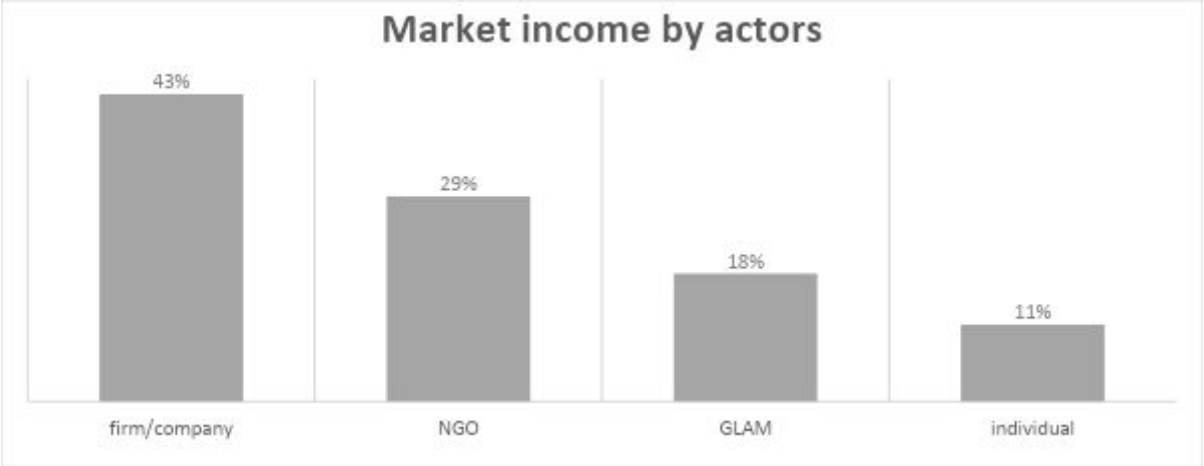
However, not all money-making ventures we observe in our database experience cash-flows. On the other hand, we see many instances where direct financial income happens regardless of the primary purpose. And, it has to be said, that being connected directly to markets is not only about the intent of the actor/creator of an initiative. It is, also, about observing the cash-flows and establishing whether there is a financial relationship between a provider and the end-user. Analyzing our sample from this perspective we found out that more than one-third of the cases have this kind of market linkage; more than one-third have established financial income from the target groups.

Diagram 12. Market Income

n=82

And we observe that within this group not only firms and individuals play a role – but both CHI actors and NGOs reach out to the end-user with the intent to establish financial links through the application of cultural digital resources in various ways.

Diagram 13. Market Income by Actors



n=28

Closer analysis of these cases allowed us to elaborate on the list of seven mechanisms that are being applied here to raise market income. This list gives substantial insights into business models applied in the world of re-use.

Table 4. Market Income Instruments

No.	Income "tool"	Description of examples
1	Pre-sales	In the case of Inkulinati (a turn-based strategy developed with the application of the medieval marginalia), the creators developed a Kickstarter campaign that allowed them to start raising funds for the creation of the game. Some graphic materials were provided to present the game and the pledges/donations ranged from 3 to 500 USD. Up to date (23.10.2010) the creators managed to raise more than 73000 USD.

2	Freemium-premium	Dailyart is a mobile app which sends their users a picture with a work of art supplemented with brief description each day. A very simple concept that turned out to be cherished by users. The application has been downloaded by over 1 million users on PlayStore and has an average review of 4.8 there and 4.9 on AppStore. The application is free for download and its main functionalities are also free. However one may buy premium version with a one-time payment of 6 USD to get extra features. Dailyart uses a one-time payment mechanism that gives a user access to the premium version of the app for life. Another mechanism that we observe is a subscription paid monthly or yearly and the user gets access to the premium version of the service only for the specific time duration. This approach is applied for instance in http://picryl.com which is a web search-engine for works of art placed in a public domain. The search engine is available for everyone for free however only the paid subscription gives one access to high-resolution images and to improved AI search-engine.
3	Advertisement	Dailyartmagazine.com is an offspring of Dailyart app. It publishes pictures of curated works of art together with proprietary comments on them. And it makes use of google advertisement systems to raise funds – it simply shows ads on its website.
4	Commodity sales of by-products	Loving Vincent is an animated movie on Vincent Van Gogh in which his work is being re-used to produce “moving pictures”. The movie was nominated for Oscar in 2018 and received many other awards. The creators also developed a book called “Loving Vincent: The Journey” which “is a high-quality hard-cover book exploring the 10-year odyssey to make Loving Vincent, the world’s first fully painted feature film, which brought the paintings of Vincent van Gogh to animated life to tell Van Gogh’s troubled story.” The book is being sold through the website. Also, a documentary on how the film was produced was made and is also available on DVD through the e-shop that can be accessed on the website http://lovingvincent.com/.
5	Membership	Palestine Open Maps project is run by an organization that promotes and accepts paid memberships. Members have some special rights – for instance, is a city that has more than 20 members it can count on special events organized just for the members living in this specific area. Members pay a monthly or yearly fee and remain members only for the specific time period.

6	Paid access	Vastari.com is a web-based double-sided platform that offers networking tools between the museums (along with curators) and private art collectors. It aims at facilitating exhibition collaborations world-wide. The logic of its operation is quite straightforward – collectors can create accounts where they present the artworks (by uploading their digitized versions) which are in their possession. On the other hand, curators can browse through the plethora of digitized collections and get easily in touch with the owner of a specific artwork. Subsequently, they close a deal on the rental of a specific item for a specific exhibition. Vastari is a paid service with a minimum price of 1000 pounds / year. Another example of paid access would be the case where the Warsaw Uprising Museum developed a movie based on its archival footage. The movie was run and promoted in all major cinemas across Poland. Naturally – one had to buy a paid ticket to see the movie.
7.	Donations	Wikipedia is run by Wikimedia Foundation and accepts periodic or one-time donations. One can use major credit cards or pay-pal account to make a donation. IT simply supports the work of Wikipedia and no special rights, privileges or products are given to the donor.

8.	Paid “tailored” service	The Pop-Up Museum offers cultural institutions and content holders the opportunity to showcase their digitized collections and to engage new and existing audiences with effective virtual exhibitions. The company is Dutch and aids museums and other cultural institutions in setting up their own pop-up exhibitions by applying their proprietary software. Each project uses the same technology but it needs to be tweaked for the specific context – media, space, size, kind of art presented. The company works for a price that is set depending on the brief. Also, the company DROPSTUFF MEDIA “creates experiences that share the same characteristics: combining new ways of storytelling with artistic content design and new technologies.” The company can collaborate with the museum and other GLAM actors to produce and exhibit cultural heritage with the application of various media and technologies – for this, they often use digitized heritage. The company, also, most probably works for a price that is set depending on the scope of their service.

The above list presents ways of linking a project to the market we observed in our sample of instances in which digitized heritage is re-used in any way. We are not able to calculate any monetary value of such connections due to the lack of transparent information. However, we observe that the general laws of making business do apply even in the realm of re-use. And the linkages are stronger if:

1. One has identified a specific niche and targeted it well by crafting well-tailored product and also by cherishing practices of this niche (as in case of Inkulinati)

2. One has managed to develop of a massive group of (even non-paying) users (as in case of Wikipedia or DailyArt)

3. One has a solution that helps others in making money (as in the case of Vastari)

4. One has a product that is in link with general societal practices (as in case of a movie developed by Warsaw Rising Museum that was distributed through major Polish cinemas)

6 A value creation framework for digital cultural heritage

The idea of value chains has been discussed in the previous sections of this report (see: *Understanding the Value...*). In this part, we propose a value creation framework developed on the basis of existing approaches to understanding cultural value chains and impact of cultural heritage, combined with insight from specific cases of re-using digital cultural resources that we analysed. Our aim is to understand whether there is anything specific about value creation when one only looks at the re-use of cultural digital resources.

Our model is mainly based on the UNESCO cultural cycle model (also explained in the previous sections). We build on this model to present a more detailed one, adequate for explaining in greater detail social and economic impact of cultural heritage.

What we take from the UNESCO model is the basic assumption that value creation in the field of culture (and, as we believe, in many modern businesses which fall into the category of "knowledge economy") is rarely linear in the way it happens. Instead, value creation happens in networks that are complex and include varied, heterogeneous actors. These networks often span different sectors of the society and include both commercial, public and civic or grassroots entities. Importantly, the activities need not be institutionalized, and they do not need to be governed or overseen by state institutions. The UNESCO model uses the term "domain" to define a broadly understood cultural sector that covers both economic (market-related) and social (non-market related) activities.

This perspective leads us to a value creation model that is much more complex in comparison with traditional models that assume linear creation of added value through the metaphorical "chain" of connected actors and productive processes. Introducing this kind of complexity is of crucial importance to present a theory of how social, as well as economic, value and impact is constructed within the process of re-using digital cultural resources.

We build our model based on the scheme of five basic stages of what the UNESCO model defines as the cultural cycle. Again, the five-stage cycle proposed by UNESCO – which is seen by the organization as a broadly understood production cycle – has the aim of highlighting the complexity and variety of activities that contribute value to broadly understood cultural resources. These five stages include:

*1. **Creation** – the origination and authoring of ideas and content;*

*2. **Production** – the making of cultural works, whether as one-off productions (e.g. crafts, paintings, sculptures) or as mass reproducible cultural forms (e.g. books, movies, TV programmes), as well as the manufacture of goods required for the production of cultural works;*

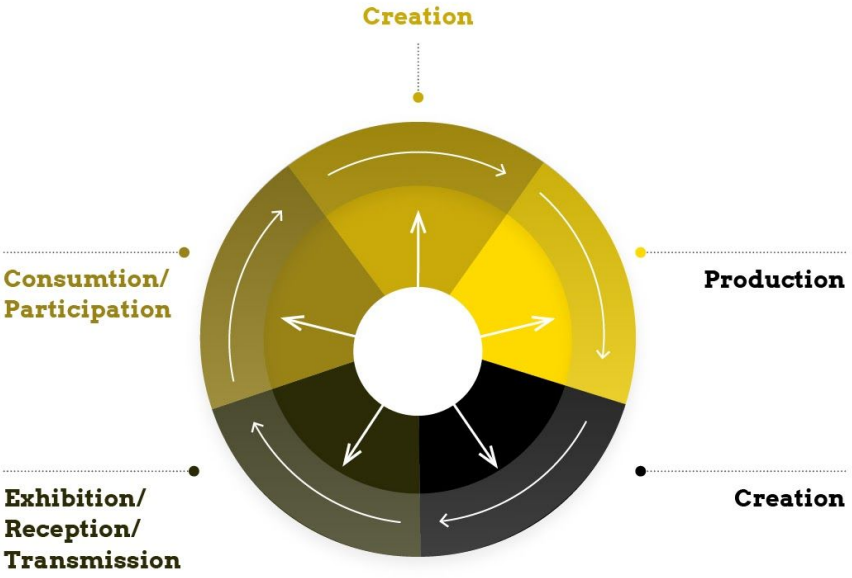
*3. **Dissemination** – the distribution of cultural products to consumer and exhibitors;*

*4. **Exhibition** – provisions of live and/or unmediated experiences to audiences through granting or selling restricted access to consume/participate in often time-based cultural activities (e.g. play, concerts, museum and gallery exhibitions, festivals);*

*5. **Consumption** – the activities of audiences and participants in consuming cultural products and taking part in cultural activities and experiences.*

These activities are all important – according to the authors of this model – in the process of what they call "cultural production". However, the model is not hierarchical and should be understood rather as a network. Within this network, all kinds of connections and directions may happen when producing cultural goods. There is also an assumption that the process can be cyclical, returning to previous stages over the cultural cycle. Yet in practical terms, reuse of digital cultural heritage usually follows a path from creation to consumption.

Cyclical nature of the production process, as described in this model, also means that actors can have roles at different stages of the cycle. Most importantly, users are not limited to the role of consumers and can be engaged in earlier phases, especially if the process is cyclical and assumes several cyclical rounds of reuse.



Source: UNESCO (2009)

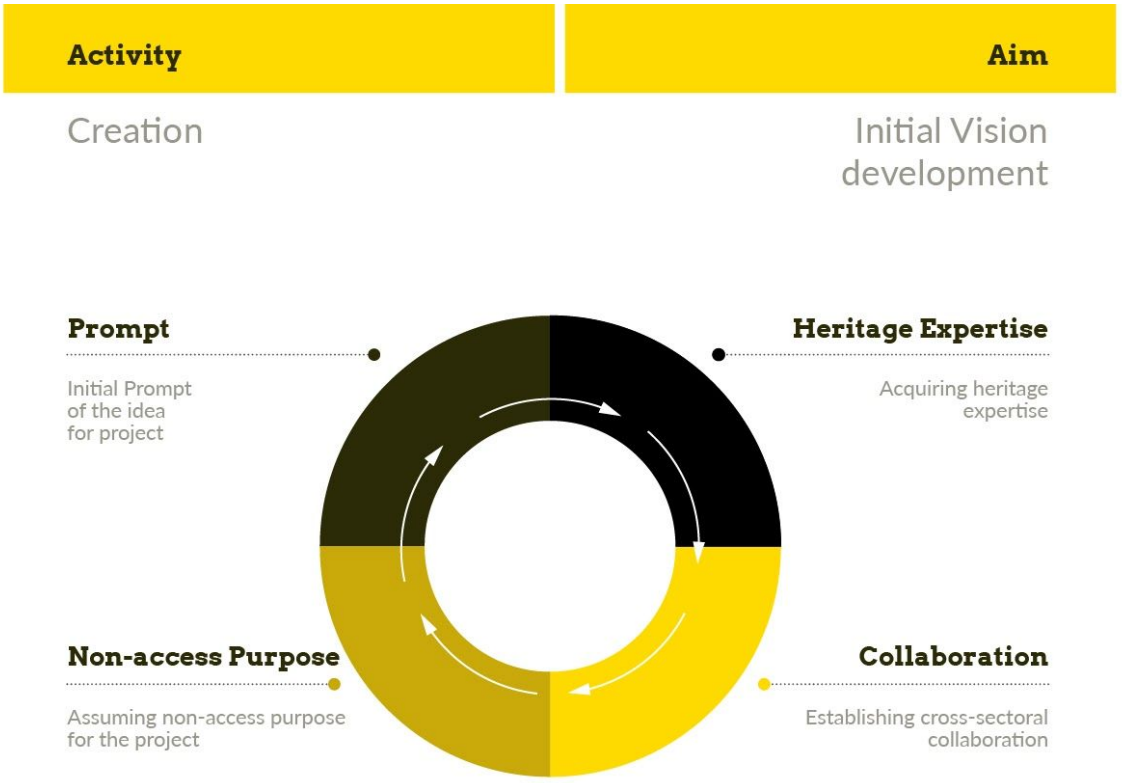
We find that this viewpoint helps understand the cases we identified and analyzed. Furthermore, we observed a cyclical - instead of linear - processes within the first, initial phase of project Creation. In this phase, we identify - based on our case studies analysis - several steps that are significant and play a key role in the process of idea origination (as it is a process and not one-time moment). Specific milestones have to be achieved to arrive at the moment in which one has a sufficient, broadly understood vision for a project and its societal impact. These milestones can happen - as the authors of the UNESCO model envisioned - in a cyclical fashion (see visual representation below). The four key types of milestone are:

1. **Having an initial prompt** - it is more of a generic prerequisite as one starts working on a project when one has at least some initial intuition about what this project may look like.

2. **Acquiring heritage expertise** – it is about knowing the resource, its potential value, its importance, but also both historical and up-to-date ways of interaction with the resource(s) at hand.

3. **Establishing cross-sectoral collaborations** – it is about involving actors that come from different sectors pretty early in the process. We found that by achieving this milestone the interest of an end-user is safeguarded already in the vision creation process and the usage of connection and interaction mechanisms is more likely. This "safeguarding" comes from intersectoral discussions about its needs, preferences, practices, norm, challenges, etc.

4. **Assuming non-access purpose** – we found out that only a little above 20% of access oriented projects make use of some sort of market linkages. We believe that if non-access orientation is already injected at the vision development phase of the project it substantially increases the chances that the direct market impact will occur.



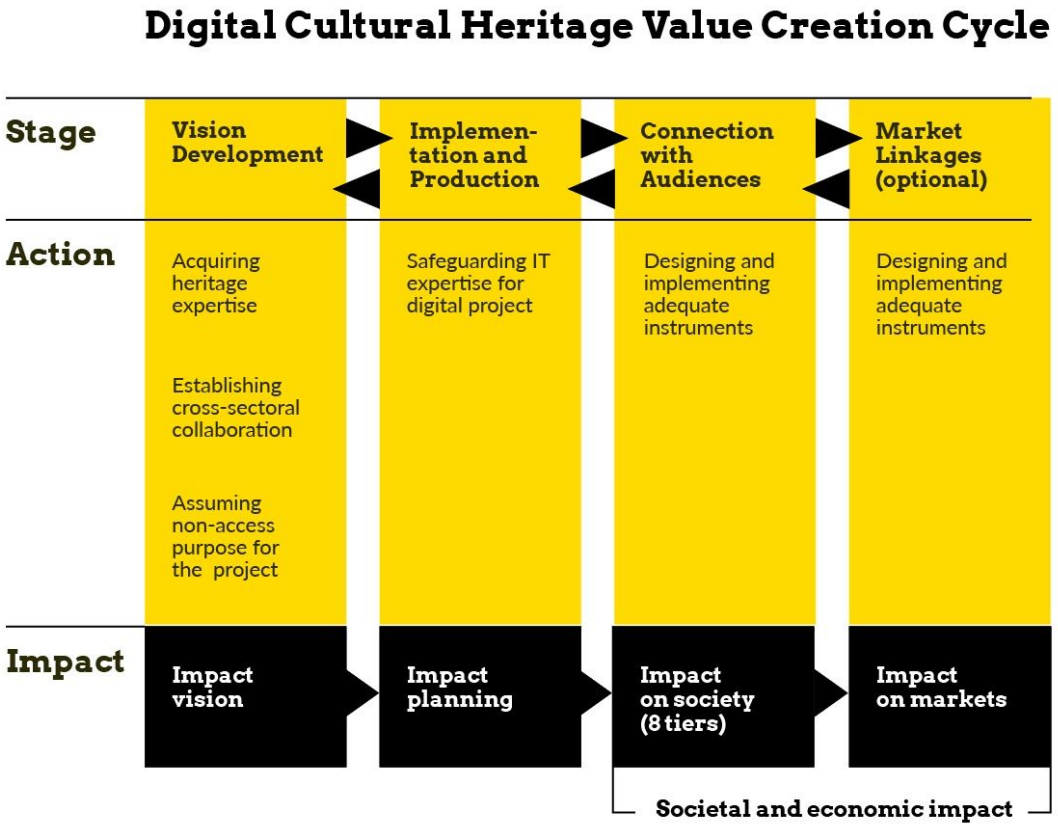
Concerning the next, "production" phase of the cycle, we found out during our discussions with actors involved in re-use projects that IT expertise is a uniquely important capacity. In fact, IT engineers were named "gatekeepers" to the digital world. So, whenever digital production is

involved, safeguarding IT expertise is a required element of a successful, and thus valuable and impactful, project. Also, there surely will be some reciprocity between the creation and production activity (as presented in the UNESCO model).

In turn, much can be said (based on our study) about the dissemination, exhibition and consumption activities proposed by UNESCO in the value chain model. What we found out is that once the "product" (understood generically) is being made, the focus is directed into two general aims – one is about establishing a connection with the audiences and another is establishing linkages with markets. What is done within these two "areas" of value creation determines whether the project will achieve positive outcomes. At this phase, crucial activities concern developing and implementing correct instruments, which we described in the previous sections of this report.

The chain or cycle of value creation in the field of re-use of digital cultural resources can be brought down into four building blocks: Vision Development, Production, Connection with Audiences, Market Linkages. The names for those blocks are, also, instructional, and present what we believe to be important milestones (or elements of the checklist if one wills) of delivering the impact with digital cultural resources. Also, reciprocity is observed at all times throughout the model. This means the activities carried out within building blocks identified here may (and most probably will) influence each other.

We propose a framework, in which broadly understood impact emerges on the basis of two broad types of activities, conducted in the Creation stage of the cultural cycle: connecting with audiences and market linkages. We want to underline the fact that impact – in other words, the added value created through value chains or cycles – is not just economic in character. In the studies that we analysed, it is social and not economic impact that is prevalent and that can be identified in each of the cases that we studied. This applies to the initial stages of vision development and implementation, in which many projects do not define any market-related goals or economic impact. Also in later stages of the cycle, connection with audiences occurs in many cases, but the market linkage is an optional element of the value creation process, taking place only in some instances.



On the other hand, economic impact generated through cultural value chains and cycles is easy to conceptualise and measure, as it concerns mainly financial gains and easy to measure factors such as income. It is a broadly understood social impact that, according to our analysis, is much more varied and complex.

While measuring impact was not the aim of our case study analysis, we employ cultural impact models in order to specify the kinds of social, non-economic value created on the basis of digital cultural heritage. These impact models provide valuable tools that help design projects that aim to employ digital cultural heritage for social impact, but also can be used to analyse such cases and to build policies that focus on specific types of social impact.

To showcase how it may work we present (as an example) an eight-tier model proposed by Sacco (2011, developed further in Sacco, Tavano Blessi and Ferilli, 2018). The authors argue that in the

Culture 3.0 model, cultural participation is the key driver for value creation. They propose, in order to provide an initial typology of the impact of such cultural participation, to analyse it in terms of eight different tiers that define eight varied areas of "indirect developmental effects of culture". The tiers can be understood as specific areas or modes of such indirect effects, but also can be seen as conceptual lenses, similar to those defined in the Europeana impact framework (also discussed in the previous sections of this report). Furthermore, for each tier, there are dedicated policies that according to Sacco should take into consideration cultural projects as important policy tools.

We extend this conceptual model to include impact not just of cultural participation, but the whole cycle of value creation, independent of the varied forms that it can take and of the intensity of cultural participation in a given case. We also acknowledge that societal impact can occur in market-based projects, where economic incentives and economic value creation are key aspects of the value creation process. This is a point highlighted by Sacco, Tavano Blessi and Ferilli – who write that "there is a strong complementarity between the direct economic channel and the indirect ones, in that they concur to increase individual participation and access to cultural opportunities and stimulate further culturally-related capability building". We agree that social and economic impact should be treated as complementary. Even when we focus on non-economic factors to ensure impact – as Sacco does – we should note that the two types of impact "concur to increase individual participation and access to cultural opportunities and stimulate further culturally-related capability building" (Sacco, Tavano Blessi and Ferilli 2018).

Below we provide a table with the eight tiers of impact proposed in the Culture 3.0 model, followed by examples of such impact, taken from our case studies. We want to stress that in our model the eight tiers should be seen as general directions of impact that can be both defined at the level of vision definition and implementation and then can occur in the later phases of the cycle. This is not to say that other types of impact cannot be determined – for each case, we are assuming that impact occurs across multiple tiers.

Eight tiers of indirect effects of culture as applied to digital cultural heritage

Tier of cultural effects	Specific activities and effects related to digital cultural heritage
Innovation. Effects on attitudes towards and on the capacity for creating innovative meanings and practices.	Digital social innovation projects with the use of digital cultural heritage. *Example: ArtLensAI*
Welfare. Effects on life expectation and psychological well-being.	Use of digital heritage resources in "remote-first" cultural activities during the pandemic. *Example: Getty Museum Challenge.*
Sustainability. Effects on awareness of environmental issues.	Projects that decrease the environmental impact of cultural participation through online, remote access to the collection. *Example: MetMuseum - Art at Home.*
Social cohesion. Effects on crime prevention, conflict resolution, the wellbeing of at-risk groups.	Best practices for cohesion and good conduct of online communities developed through cultural projects. *Example: Palestine Open Maps.*
New entrepreneurship models. Effects on innovative and creative forms of leadership and entrepreneurship, often culture-related.	Crowdfunding and new models for sustaining cultural projects and products. *Example: Sketchfab platform.*
Lifelong learning. Effects on capacities allowing adaptation to, selection and shaping of environmental context.	Reuse of digital cultural heritage in educational apps and resources. *Example: DailyArt app.*
Soft power. Effects on visibility, reputation and influence of countries and regions.	Reuse of cultural heritage resources as part of broader institutional identity, with spillover effects for regions and countries. *Example: Rijksstudio at the Rijksmuseum*.
Local identity. Effects on social and cultural foundations of places and on their development.	Building online networks and communities around CHI and other entities. *Example: Wikipedia and Wikimedia Commons.*

In the eight-tier of cultural effects model, Pier Luigi Sacco focuses his attention to ways in which cultural participation projects have effects on societal issues that are traditionally seen as lying

beyond the cultural sphere, especially social cohesion, welfare or environmental awareness. The examples that he provides are often connected to “offline” activities, such as that of the correlation between cultural participation and waste segregation (Sacco 2009). Sacco, therefore, makes an important argument that cultural projects should be seen as significant also from the perspective of social policies, especially at the local level. For example, social cohesion and welfare strategies should employ activities that stimulate cultural participation.

We believe that this model of impact should be adjusted to account for the specificity of activities that are more often online or have a stronger technological, digital component. We are thinking about activities that are mediated by digital technologies, for example social networks. These have spillover effects into the offline reality, and therefore have - broadly speaking - same effects as those expected by Sacco’s impact model. For the purpose of the inDICEs project, we aim to explore policy recommendations that focus on the online, digital dimension of social life, which falls within the scope of European policy frame of the Digital Single Market.

4 References

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Appendix 1. Expert Surveys for Cases Identification and Analysis

For Culture 2.0 Cases Identification and Analysis

With the use of this survey, we want to collect cases of value chains generated by (re)use of digital cultural heritage in any form in the Cultural and Creative Sectors - the so called Culture 2.0 regime. We are focusing here on cases related to new products or services that make use of such resources in any way - the product may rely purely on such resources or mix them with other digital - or non-digital - content.

We are assuming that the survey will be filled by someone involved in the creation of a given product or survey, or knowledgeable about the given project.

If any information is lacking, please feel free to skip the question. But try to choose the cases for which you can access information relatively easily.

Any additional information can be shared at the end of the survey.

We appreciate your help and time taken to fill this survey.

1. Name of the product or service

2. Link to the product or service webpage

3. Short description of the product or service

Please describe briefly the product or service in several sentences. Please describe the aim of the product or service, digital cultural heritage that is being (re)used.

4. Reuse of digital cultural heritage

Please describe what digital heritage resources were used for the creation of this product or service. Please give as much details as possible and provide a link to the original version of the resources, if available.

5. How were access and (re)use rights obtained

Please describe whether the resources are openly accessible or the necessary rights were obtained in another way. Were there any obstacles in acquiring the rights?

6. Role of the Cultural Heritage Institution

Was the institution that holds the digital heritage resource(s)s involved in their (re)use through the product or service? What was its role?

7. Description of the product or service

Describe the product or service briefly in your own words and provide a link to its website (what is it, who is it for, how it is being used). Also, please, describe how digital cultural heritage resources are being (re)used in this product or service.

8. Who created the product or service?

Please provide the name and brief description of the producer: the entity or individual that created the product or service.

9. What type of entity created the product or service?

company

public institution

non-profit organisation

individual(s)

other

10. Funding source for the product or service

Please briefly describe the funding source for the product or service. Was it funded from public or private sources? What was the funding model? What is the source of revenue?

11. Target groups of the product or service

Please list and briefly describe the target group(s). For whom is the service or product creating value? Have their motivations for using the product or service been identified? If yes, please describe them.

12. Product Creation

Please describe key steps in the process of product creation or service and its dissemination/marketing - how it was created and made available for usage/consumption by others?

13. Barriers and obstacles

Please describe key barriers and obstacles encountered by the project, especially those related to the (re)use of digital cultural heritage. How were these barriers overcome?

14. How many people are using the product or service?

<100

100-1000

1000-10 000

10 000-100 000

100 000 - 1 000 000

>1 000 000

15. Expected impact

What type of impact were the creators of the product or service expecting. What - do you stipulate - were the aims of the product?

16. Achieved impact

In our project, we are using an 8-tier approach to measuring impact developed by the FKB foundation. Please rate the impact of the product or service in each of the eight areas of impact (on scale 1-5 where 1 means "no impact at all" and 5 means "a lot of impact". Also - please justify in your own words each answer you give.

Innovation - has the existence and usage of the product or service promoted new developments (other products, services, phenomena or processes)?

Welfare - has the existence and usage of the product or service boosted the subjective perception of wellbeing?

Sustainability - has the existence and usage of the product or service added to the general sustainability of the economies and societies?

Social Cohesion - has the existence and usage of the product or service promoted social cohesion?

New entrepreneurship - has the existence and usage of the product or service promoted new businesses or new business models?

Soft power - has the existence and usage of the product or service increased soft power of the creator's nation state?

Local identity - has the existence and usage of the product or service boosted the local level attachment in any of the stakeholders?

Lifelong learning - has the existence and usage of the product or service boosted the possibilities for lifelong learning?

17. Sources

Please provide any relevant sources of information relating to the product or service, its production and its impact.

18. Additional Info

Is there any other relevant information concerning the product or service that you would like to provide? That you think may be valuable but was not covered in the answers you gave above.

For Culture 3.0 Cases Identification and Analysis

With the use of this survey, we want to collect cases of value chains generated by (re)use of digital cultural heritage in bottom-up initiatives and communities of practice - the so called Culture 3.0 regime. We are focusing here on cases of value chains generated by the reuse of resources by informal initiatives or communities of creators. By the term “(re)use” we understand a broad range

of creative activities using digital cultural heritage, including reclaiming, reappropriation or reinterpretation.

We are assuming that the survey will be filled by someone involved in the given initiative or community, or knowledgeable about the given project.

If any information is lacking, please feel free to skip the question. But try to choose the cases for which you can access information relatively easily.

Any additional information can be shared at the end of the survey.

We appreciate your help and time taken to fill this survey.

1. Name of the initiative or community

2. Link to the initiative or community webpage

Provide the link

3. Short description of the initiative or community

Please describe briefly the initiative or community, in several sentences. Please describe the purpose of the initiative or community, and the digital cultural heritage that is being (re)used.

4. Reuse of digital cultural heritage

Please describe what digital heritage resources were used by this initiative or community. Please give as much detail as possible and provide a link to the original version of the resources, if available.

5. How were access and (re)use rights obtained

Please describe whether the resources are openly accessible or the necessary rights were obtained in another way.

6. Role of the Cultural Heritage Institution

Was the institution that holds the digital heritage resource(s) involved in this initiative or supported this community? What was its role?

7. Resource application

Please describe how digital cultural heritage resources are being (re)used in this initiative or community.

8. Funding source and other resources

Please describe the funding source for the initiative or community, if such funding existed. Was it funded from public or private sources? What was the funding model? Have any other important resources been made available for this initiative or community?

9. Target groups/reach of the initiative or community

Please list and briefly describe the target group(s) or the reach of the initiative or community. Does this initiative reach people beyond the group of (re)users? Have their motivations for benefitting from the given initiative or community been identified? If yes, please describe them.

10. Creation

Please describe key steps in the process of creation of this initiative and its dissemination - how it was created and made available for usage by others?

11. Barriers and Obstacles

Please describe key barriers and obstacles encountered by the initiative or community, especially those related to the (re)use of digital cultural heritage. How were these barriers overcome?

12. How many people are benefitting from the initiative or activities of the community?

<100

100-1000

1000-10 000

10 000-100 000

100 000 - 1 000 000

> 1 000 000

13. Expected impact

What type of impact were the creators of the initiative or community expecting, what were the aims of the project?

14. Achieved impact

In our project, we are using an 8-tier approach to measuring impact developed by the FKB foundation. Please rate the impact of the product or service in each of the eight areas of impact (on scale 1-5 where 1 means “no impact at all” and 5 means “a lot of impact”. Also - please justify in your own words each answer you give.

Innovation - has the existence and usage of the product or service promoted new developments (other products, services, phenomena or processes)?

Welfare - has the existence and usage of the product or service boosted the subjective perception of wellbeing?

Sustainability - has the existence and usage of the product or service added to the general sustainability of the economies and societies?

Social Cohesion - has the existence and usage of the product or service promoted social cohesion?

New entrepreneurship - has the existence and usage of the product or service promoted new businesses or new business models?

Soft power - has the existence and usage of the product or service increased soft power of the creator's nation state?

Local identity - has the existence and usage of the product or service boosted the local level attachment in any of the stakeholders?

Lifelong learning - has the existence and usage of the product or service boosted the possibilities for lifelong learning?

15. Sources

Please provide any relevant sources of information relating to the initiative or community, activities and their impact.

16. Additional Info

Is there any other relevant information concerning the product or service that you would like to provide? That you think may be valuable but was not covered in the answers you gave above.

17. Contact Information

We will be grateful for sharing your contact information. This will allow us to stay in touch regarding this case study, for example if we would like to ask for additional information. We will also contact you regarding the results of this survey.

Appendix 2. Instruction for Moderating Focus Group Interviews during inDICEs Consultation Workshops

Workshop plan

The second part of the first inDICEs Consultation Workshop was focused on value and impact of digital cultural heritage, including focus group interviews. The workshop plan and instructions for moderating focus group interviews can be found below.

Plan of the day:

14:00 - 14.10 Welcome Brief presentation of the Agenda

14:10 - 14.30 Keynote speech: Alek Tarkowski (Centrum Cyfrowe) “The role of digital cultural resources in modern societies”

14.30 - 14.45 Presentation of the value chain research - Jan Strycharz (Centrum Cyfrowe), including a presentation of 3-4 cases that illustrate how the topic is understood and what kind of cases we were looking for.

14.45 - 16.15 Focus groups interviews

1. [5 minutes] Introduction to the focus group and its goals - we want to gather the participants’ perspective on re-use: especially their opinions and knowledge about impact, use-cases, barriers and practices and strategies to overcome them.
2. [15 minutes] As an opening question, facilitate the conversation about the impact of re-use. Ask participants to share their opinions about the impact of application of digital cultural resources in products, services and/or other initiatives. You may use the following questions:

1. What do you think the impact of reusing digital cultural resources on society is?
2. Do you see any positive impact? What is it?

3. Is there any positive impact on education? On the economy? In society? On politics? On wellbeing of communities?
4. Do you see any negative impacts? What are they?

   * For this question you may open Zoom's whiteboard and try to take note of the type of impact participants give as examples. So everybody can see.

   * If the discussion doesn't start naturally you may use one use-case to illustrate the impact and ask participants what they think about it.

   * Rather make this discussion brief - it is more of an ice-breaker than a point of interest to us in the research process.

3. [15 minutes] Now, ask the participants to share their knowledge of re-use cases. Just say that any case where digital cultural resources were used is good. Ask participants to explain the case and say what type or resources were used; and also what role did they play in given case development. Remind them that we are collecting cases through our web form. If there are no cases to share, move to the next question.

4. [35 minutes] Ask the participants what type of barriers one may face when trying to develop a product, service, or an initiative where digital cultural resources are used in any way. If the discussion does not flow naturally you may say sth like this "imagine you want to create something with the application of digital cultural resources - what steps would you take and what obstacles would you face?". You may also say that obstacles can be either political, economic, social, technological or legal.

   * The intellectual product of this discussion is the most important to us given our research

   * Try to make list of obstacles/barriers (you may do so using Zoom's whiteboard - please remember to screenshot this before you close it and paste it to a document which you will later send us)

5. [20 minutes] As the last question, ask the participants to share their opinions and knowledge about what to do in order to overcome specific barriers. Primarily we are interested in existing good practices - but if the discussion does not flow you may use the list created during the previous discussion and ask participants how they would overcome a given barrier.

16:15 - Keynote speech by Merete Sanderhoff (Statens Museum for Kunst) on strengthening the positive impact of digital cultural resources (20 minute keynote + 10 minute Q&A)

16.45 - Closing remarks and farewell.

- A quick reminder that we are collecting case studies.
- Invitation to get in touch if someone particularly interested in such case studies and wants to help, promote their case through our report, etc.
- Please get in touch if you want to consult the results.