

Europeana, EDM, and the Europeanisation of Cultural Heritage Institutions

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Abstract

Over the past two decades, the European Commission has mobilised cultural heritage to bolster a European identity. One of the main flagship initiatives promoted to this end has been Europeana, the most extensive digital cultural project financed by the EU. At the core of the project stands europeana.eu, a digital cultural portal aggregating metadata provided by national and local heritage institutions.

Central in our analysis is the Europeana Data Model (EDM). Using standardised thesauri and vocabularies, EDM offers the possibility to create a semantic contextualisation for objects, allowing semantic operations on the metadata and their enrichment with Linked Open Data on the web. Due to its overarching nature, EDM cannot deliver the granularity that cultural heritage institutions need when documenting their resources. Nonetheless, heritage institutions accept to sacrifice accuracy to have their information represented in a Europe-wide collection.

We study how this digital heritage infrastructure was designed to enact a sense of Europeaness amongst national and local institutions. Policy documents, ethnographic research and a systematic survey amongst the European heritage institutions enabled us to trace how a standardised European metadata structure plays a role in governing local and national heritage institutions. The EDM might enable heritage stakeholders to benefit from Europeana's online exposure while enacting a European mindset. Ultimately, this study of the metadata model enriches the debate on the EU's cultural heritage politics, which has not fully explored the role of the digital. At the same time, it also taps into debates about infrastructure and digital governmentality.

Keywords: digital cultural policy, European cultural policy, digital cultural heritage, Europeana, Europeana Data Model (EDM), metadata, Digital Infrastructure

Introduction

Over the past two decades, the European Commission has actively invested in digitising the cultural sector, especially promoting cultural heritage's online accessibility. To this end, consistent financial support was allocated to projects designed to foster the cooperation between member states, supporting them in digitising their cultural resources and sharing them on the web or through new technological infrastructures. The political interest in the cultural sector's digital transformation became especially evident in 2005 when the Commission launched its 2010 strategy on digital libraries. The flagship of this strategy was Europeana, Europe's most extensive digital infrastructure centralising European cultural heritage. Over time Europeana has become one of Europe's largest and most costly initiatives in the field of culture, with a budget of about 62 million euros.¹ José Manuel Barroso (2005), president of the Commission, welcomed the digitisation and the online availability of cultural heritage preserved by European institutions as crucial for creating an economy and a society based on knowledge.

Thylstrup (2018) thoughtfully describes how, as a consequence of the substantial financial and political support to the European cultural sector's digitisation, an ever-growing amount of cultural data has been generated and aggregated in what she defines as the mass digitisation phenomenon. Cultural heritage institutions have produced digital resources with a variety of purposes: libraries, archives, and museums have embraced technology as an efficient tool to document, index, and disseminate their vast collections. Detailed metadata were increasingly used to describe these information resources. Allowing for more consistent retrieval, better management, and easy exchange of data records between software applications and institutions (Haynes 2018), metadata have become an essential requirement of information management for cultural heritage institutions (Baca 2016; Riley 2017).

At the same time, metadata allows cultural information to move out from institutions and serve other purposes on the web. Data provided by an institution are often aggregated with similar resources, joining local, national, or international databases (Presner 2010; Loukissas 2017). Thanks to this abundance of data, the research in the field of digital humanities has flourished, and extensive research infrastructures have been promoted to facilitate the reuse and the interpretation of cultural information in innovative ways, generating new scientific

1 This amount is calculated for the period 2006 - 2020, on the basis of the information available on the European repository CORDIS and on the Europeana Business Plans issued annually by the Europeana Foundation (available on pro.europeana.eu). It includes only the direct funds invested by the Commission for the development and the maintenance of the service, thus the projects financed to increase the collection are excluded from this amount.

knowledge (Gitelman 2013; Bunnik et al. 2016). However, not only academia has benefitted from the possibilities offered by these data. The European creative industry has also profited from the increasing amount of resources available on the web, reusing cultural information to produce books, games, touristic resources, or educational material (Howkins 2001; Schlesinger 2017). By enabling data interoperability, metadata allow the reuse of the cultural information in new settings and for different purposes.

Precisely due to the widespread uses of cultural heritage data, it is crucial to approach them critically, thoughtfully reflecting on their nature and inherent politics (Valtysson 2020). These are the cultural assumptions embedded in their creation, which produce wanted or unexpected consequences on the people using the data. Metadata about cultural heritage are “generated” (Manovich 2001, 224) from the interpretation of the records held by cultural heritage institutions, which are themselves subjected to cultural, social, and political biases (Hall 2001; Cameron and Robinson 2003; 2007; Smith 2006; Harrison 2013). Far from being neutral and objective descriptions (Gitelman 2013), metadata result from an array of conscious and unconscious decisions that underlie both the process of digitisation of cultural heritage and curation of digital objects (Thylstrup 2018). In this sense, they are authoritative and subjective *artefacts*, representing a set of cultural assumptions, and current and selective understandings of the past and the cultural heritage. Furthermore, in order to guarantee the interoperability and exchange of information, metadata rely on the use of certified thesauri and codes, resulting in a standardised and somehow simplified description of cultural heritage (Hodder 1999; Cameron and Robinson 2007). By imposing metadata schemas and selected vocabularies, cultural heritage institutions are de facto controlling the interpretation of objects in their collections (Bowker and Star 2000; Olson 2002).

Furthermore, the terminology and the structure of metadata determine how an object is retrieved from the database. In other words, metadata affect the context in which the digital item is on display. This context may or may not be relevant for the object, which has a history of its own and has been acquired by the institution as a result of specific selection criteria (Bennett et al. 2017). Ultimately, a digitally accessible heritage database should be conceived as a digital exhibition where the past is culturally assembled into heritage and objects are imbued with new meanings, generating unexpected connections (Fig. 1). Considering metadata as cultural products allows us to investigate their more profound impact on the society, so that we may understand how they determine the current interpretation of culture and heritage, contributing to the construction of narratives about identities and the past.

Metadata are at the core of the Europeana initiative. The digital portal *europaena.eu* (Europeana 2020), currently the largest aggregator of cultural heritage data in Europe, counts over 60 million digital objects,² provided by over

2 This data refers to the situation in September 2020.

4000 cultural heritage institutions, including libraries, archives, museums, and audio-visual collections.³ As a metadata aggregator, Europeana developed the Europeana Data Model (EDM) as an infrastructure to deal with the variety of data provided by its partner institutions. However, Europeana's tasks are not limited to the aggregation of digital cultural heritage but include the support and promotion of the digital transformation of the European cultural heritage sector. To this end, Europeana has developed best practices and standards for cultural heritage institutions. To succeed in this task, Europeana has benefitted from extensive political and economic support, both of the European Commission and the member states. Therefore, this paper will consider Europeana not only as a digital service but as the result of a combination of political, cultural, economic, and technological forces.

This study argues that when cultural heritage institutions join Europeana, they actively contribute to the creation of *European heritage* by mapping their metadata into EDM and accepting to adhere to a procedure designed to bring them together despite their national, domain, or thematic differences. In this sense, EDM is more than a metadata model, representing an infrastructure for constructing the European identity of national and local cultural heritage institutions. In order to understand how Europeana has been conceived as a political and cultural product, the article first explores the evolution of European cultural and digital policy, focusing on how digital heritage tools have been used to meet the cultural goals set by the European Commission. The second section provides an overview of the Europeana project's role in the European policy. The rest of the article is dedicated to EDM and its specific impact on cultural heritage institutions. This analysis is based on policy documents and white papers,⁴ interviews carried out at the Europeana Foundation headquarter in Den Haag,⁵ and the data gathered through a survey distributed among cultural heritage institutions in Europe.⁶

3 A list of the data provider institutions is available at <https://classic.europeana.eu/portal/en/explore/sources.html> (Accessed on 20/08/2020).

4 These documents are issued both by the European Commission and the Europeana Foundation.

5 Interviews were carried out between May and August 2019 to ten employees of the Europeana Foundation (working in the R&D, Data Publishing, Aggregation Service, Collection Engagement and Management) in the frame of an institutional ethnography. Their answers informed the author's understanding of the internal procedures and the work of the Europeana initiative presented in this paper.

6 The survey, elaborated by the author, has been distributed to cultural heritage institutions in Europe with the support of Europeana Aggregators and domain associations, and through direct emails. The study primarily addresses those, within the institutions, with direct responsibility on digitization, to evaluate the impact of Europeana activity on the development of their internal digital policy. The information discussed in this article relies on the answers of 79 institutions from 16 European member states, collected between May and December 2020.

Fig. 1: Print by M. Rapine in the different digital contexts of the Wellcome Collection and Europeana.

The screenshot shows the Wellcome Collection website interface. At the top, there is a navigation menu with links: Visit us, What's on, Stories, Collections, and What we do. Below the navigation is a search bar containing the term 'wig'. A 'Filter by' dropdown menu is set to 'Dates'. Underneath, there are tabs for 'All', 'Books', 'Pictures', and 'Audio/Visual', with 'All' selected. The search results section displays '139 results' and 'Page 1 of 6'. Four search results are visible, each with a thumbnail image and a descriptive caption:

- Result 1:** A wig seller selling his wares in Middle Row, Holborn. Etching.
- Result 2:** Wig-making equipment. Engraving by R. Bénard after J.R. Lucotte, 1762. Lucotte, Jacques-Raymond, approximately 1733-1804. Date [1762]
- Result 3:** A man tying a woman's absurdly high wig on to a scaffolding; another woman wearing a tall heart-shaped wig looks on. Coloured etching attributed to M. Rapine. Rapine, Maximilien, 1840-1905.
- Result 4:** A wig-seller dressing a wig on a stand in his shop; the stands all bear the heads of whig politicians. Wood engraving by W.C.W after R. Seymour. Seymour, Robert, 1798-1836.

The screenshot shows the Europeana Collections website interface. At the top, there is a navigation menu with links: Collections, Explore, Exhibitions, and Blog. Below the navigation is a search bar containing the term 'wig'. A 'REFINE YOUR SEARCH' sidebar is visible on the left, with filters for 'COLLECTIONS' (All Items, 1914-1918, Archaeology, Art, Fashion) and 'MEDIA' (Image (2,263), Text (686), Sound (38), Video (28), 3D (1)). The search results section displays '1 - 96 of 3,016 results' and 'Per page: 96'. The results are shown in a grid view. Several search results are visible, each with a thumbnail image and a descriptive caption:

- Result 1:** Wigger Liahagen som hestegje...
- Result 2:** Ivory powder bottle used by a ... Science Museum, London
- Result 3:** A man building a wig on to the ... Maximilien Rapine
- Result 4:** Wigs årstfest. Lindgren, Paul
- Result 5:** Fourteen illustrations showing ...

The European policies on culture and the digital

The introduction of culture to reinforce collective European belonging represented a turning point in the European Commission's political agenda. During the 1970s, the Commissioners realised that establishing a common economic and legislative framework for all the member states was not enough to create a union out of the heterogeneous European people (Haas 2004). Therefore, the Solemn Declaration on European Union promulgated in 1983 explicitly invited each member state to "promote a European awareness" (Council 1983, art. 3.3) and undertake joint action in various cultural areas.

Since the Solemn Declaration promulgation, the construction of collective European identity and memory has become an integral part of the Commission's cultural agenda (De Witte 1987; Shore 2000; Sassatelli 2006; Calligaro 2013). In 1992, article 128 of the Maastricht Treaty added culture to the list of areas under the sphere of European competence.⁷ While offering a legal framework to the European actions in the cultural field, the Treaty opened the doors to the creation of funding schemes to finance cultural initiatives. By contributing "to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore" (EC Council and Commission 1992, 128), the Treaty stressed the respect for national and local diversity, while emphasising the existence of a common cultural background. In this sense, then, article 128 embodied the cultural value of Europe's motto *Unity in Diversity*.

In line with this motto, the European concept of culture acknowledges and respects the variety of national and local expressions while accentuating the existence of a common background. This common trait is defined by the acceptance of a set of founding values promoted as European: the respect for human dignity and human rights, freedom, democracy, equality and the rule of law. Shore (2000) reveals how the Commission perceived European culture as more than a mosaic of each national cultural backgrounds: national diversity is celebrated with regard to how its specificity fits into the overall European design. In this sense, any local or national manifestation of culture represents a declination of a more comprehensive European history and identity. This process of cultural *Europeanisation* is a strategy of self-representation and a device of power wielded by the European institutions (Borneman and Fowler 1997). In the effort of creating a European cultural identity, Europe becomes itself a symbol (Swedberg 1994), in which the ambiguity among local, national, and European levels reinforces the possibility for citizens to identify with it (Sassatelli 2002).

7 Article 128 of the Maastricht Treaty was firstly amended in Article 151 of the Treaty of Amsterdam (1997), then in Article 167 of the Treaty on the Functioning of the European Union (2009).

However, Calligaro and Vlassis (2017) underline that culture is ambiguously addressed in the official documentation, noting that the Commission has dealt with it in the most disparate context, including policy about commerce, industry, communication, and development. These documents show that the European Commission values culture as a powerful economic driver for the continent (Litzo-Monnet 2012; Schlesinger 2017) and it is a field where institutional, political, and economic interests determine the composition of policy (Litzo-Monnet 2007). As Lähdesmäki (2012) notes, when financing cultural initiatives the European Commission is also pursuing its economic agenda since the cultural sector's support generates a direct spinoff in adjacent areas such as tourism, education, and the creative industries, and ultimately on the European economy as a whole. From a neoliberal perspective, culture is transformed into an exploitable resource (Yúdice 2003) and the cultural policy promoted by the Commission can be compared with the other economy-oriented policies designed to boost European competitiveness on the global market (Tretter 2011).

The economic and identitarian policies encoded in the European Commission's cultural actions have been addressed exhaustively in the academic literature. However, the digital policies of the EU have received less attention, although they are similar in scope and influence. As a matter of fact, from the early 1990s, the Commission identified the information society among the priorities for guiding the economic growth, boosting competitiveness, and increasing employment (EC 1994a). Besides the clear economic ambitions, digital policies were as well imbued with cultural goals. Reflecting on the social, societal, and cultural issues connected with the implementation of the information society (Kofler 1998), the 1994 Action Plan Europe's Way to the Information Society pointed out that "[it] provides the opportunity to facilitate the dissemination of European cultural values and the valorisation of a common heritage" (EC 1994b, 14). Therefore, the digital transformation was considered not only a driver of economic growth but also a central element in the development of a European culture.

From 2000 onwards, the European Commission has promoted two long-term development plans regulating all the European policy aspects, where the cultural and digital politics hold a central position. The Lisbon Strategy aimed at making Europe, by 2010, "the most competitive and dynamic knowledge-based economy in the world" (Council 2000, 1). At the heart of the plan were the development and use of the internet and internet-related technologies, and the improvement of European citizens' digital skills (Liikanen 2001). In this framework, the European Commission actively promoted cultural heritage digitisation, encouraging the member states to support digitisation initiatives (CDM 2001). In order to generate usable data for the information society, mass digitisation of cultural heritage became an imperative for member states and public heritage institutions, raising several political, legal and cultural issues (Thylstrup 2018).

With the launch of the Europe 2020 Strategy, the Lisbon Strategy's successor, 2010 represented a crucial year for the future development of European policy.

The new plan aimed at bolstering a “smart, sustainable and inclusive growth” (EC 2010a). One of the strategy’s flagship initiatives was the Digital Agenda for Europe, which aimed at maximising the social and economic potential of ICT for the Digital Single Market. In particular, the development of widely accepted standards to reach the interoperability of IT products and services was the digital plan’s central aim. In order to foster European identity by digital cooperation, standardisation was deemed essential. The plan presented digital heritage as one of the critical elements to address societal challenges in the digital era (EC 2010b). In the new Workplan for Culture, designed to align the cultural strategy of the Commission with the goals set by the Europe 2020 strategy (EU Council 2010), the standardisation of digital cultural and heritage data represented the optimal way to enforce their diffusion and their reusability on the web.

Europeana as a digital cultural policy instrument

The Europeana project exemplifies how the European cultural agenda is operationalised through instruments both from the digital and cultural policy frameworks. Ultimately, Europeana showcases that, when studying European cultural politics, both digital and cultural policy frameworks need to be studied in concert. Europeana is a cultural initiative financed by the European Commission with the support of the member states. Its activity is operated by the Europeana Foundation, who holds a service contract with the Commission. When, in 2005, the six heads of state called upon the Commission for the creation of a European digital library “to preserve and share Europe’s cultural and linguistic identities and give them a more prominent place on the Internet” (Chirac et al. 2005), President Barroso gave to Viviane Reding and Ján Figel, the commissioners for Information Society and Media, and for Education, Training, Culture and Youth respectively, the task to plan its creation.

In accepting this duty, Reding emphatically declared that the internet was the most powerful medium at disposal to promote “our [European] collective memory” and make European libraries and archives accessible to all under a single unified portal. From his part, Figel underlined the importance of institutional cooperation in ensuring the “preservation and access to our common cultural heritage for the future generations” (EC 2005). Europeana became the flagship initiative of the 2010 strategy, involving cultural heritage institutions from all over Europe. During the celebrations of the launch of the *europeana.eu* prototype in November 2008, Barroso described the portal as a “shop window” and a “digital doorway” to European culture “in all its glorious diversity” (Barroso 2008). Well aware of the portal’s role in constructing a European identity, he stressed that “Europeana has the potential to change the way people see European culture. It will make it easier for our citizens to appreciate their own past, but also to become more aware of their common European identity” (ibid).

As Craith (2012) argues, despite its ubiquitous presence in policy documents, the notion of what constitutes the *common European heritage* is nowhere fully conceptualised, leaving room for multiple and ad-hoc interpretations. Lähdesmäki (2014a; 2014b; 2018) and others describe how Europe actively creates specific historical discourse by promoting those narratives that materialise the founding values of the EU through specific heritage sites and cultural icons (Sassatelli 2002; Patel 2014; Lähdesmäki et al. 2020). On the other hand, European heritage is also constructed through the appropriation of national cultural icons. Cultural heritage “is always both local and European” and “reveals what it has meant to be a European throughout time” (EC 2014, 3–5). Thus objects are reinterpreted in the frame of the European cultural narrative, becoming “an integral part of a common cultural heritage and [...] regarded as common property by the citizens of Europe” (Borchardt 1995, 73).

At the core of Europeana’s action stands the online portal aggregating data about all the European digital heritage produced by the member states and their public heritage institutions. The loose definition of what, for Europeana, constitutes European heritage correlates with Craith’s interpretation of an environment where multiple heritage discourses can operate. Since 2014, however, Europeana has more actively curated its repository producing virtual exhibitions around digital heritage objects embodying key European episodes and themes, such as the First World War, the fall of the Berlin Wall, or migration (Europeana 2014). These curated exhibitions have become prominent in the new website launched in spring 2020, and the financing of new European projects to enlarge Europeana collection increasingly relies on the thematics selected by the Foundation.

Although Europeana is indeed a digital portal enabling the European public to discover their shared European past, it is perhaps more oriented towards national and local heritage institutions. From the early phase of the initiative, and in order to optimise its business, the Foundation has worked towards the creation and implementation of an infrastructure for aggregating cultural data and stimulating the digital transformation of the European cultural sector. This infrastructure implied the design of EDM to document the resources and the creation of a network of people and institutions called to work together in line with the parameters created by Europeana. First, with the creation in 2011 of the Europeana Network Association (Europeana 2010), the Foundation involved representatives and practitioners from the cultural sector in a competence cluster, fostering institutional innovation through the adoption of the standards and best practices developed in collaboration with its members and promoted by Europeana, in line with the Commission’s requirements.

Second, to facilitate the injection of new data into the portal, Europeana promoted the creation of the Aggregators’ Forum (2020), a supranational network of content aggregators working locally, thematically, or by domain to aggregate cultural heritage data. Aggregators work as intermediaries between cultural heritage institutions and Europeana. They are expected to collect data

from content providers, upload them into Europeana, and support institutions in solving their technical issues. At the same time, they promote best-practices and business models to standardise procedures among cultural institutions in the different member states. By positioning itself at the centre of these networks of professionals and institutions, Europeana reasserts its leading role in driving the cultural sector's digital transformation.

The robust political endorsement to Europeana's work granted by the Commission clearly emerges in the 2011 Recommendations on digitisation and online accessibility of cultural material. With that document, the Commission encouraged the standardisation of procedures and technologies for the cultural sector for the sake of the economy of scale, positioning Europeana at the heart of the sector's digital turn (EC 2011). Introducing a recommended target for minimum content contribution to Europeana, the Commission de-facto imposed upon the member states an acceleration in the digitisation investments. In this framework, Europeana is not a simple instrument in the hands of the European Commission to enforce its policy on digital cultural heritage, but a central actor in determining those policies' direction.

EDM: building European heritage by Europeanising cultural institutions

The conceptual model of EDM

The main operative obstacle posed by the creation of a digital repository aggregating the collections from many different European cultural heritage institutions has been the harmonisation of digital heritage objects. As a matter of fact, libraries, archives, museums, and audio-visual collections have very different standards to document their collections, which often are incompatible with each other. These differences are determined by the heterogeneous nature of the heritage preserved in each institution, the various authority vocabularies used to document resources (i.e. thesauri or controlled vocabularies that are discipline or domain-dependent), and the reference models for the metadata sets in use, such as LIDO for museums (McKenna, Rohde-Enslin, and Stein 2011), EAD for archives (Pitti 1999) and METS for digital libraries (McDonough 2006). To accommodate such a multitude of descriptions within the same digital collection, Europeana's developers had first of all to provide an architecture capable of bringing such a variety of data in relation with each other.

The first fundamental decision with a significative resonance on the Europeana service's architecture regarded the nature of the collected objects. From the early days, Europeana was not designed as a repository of digital heritage, but as an aggregator of *surrogates* of the digital resources owned by cultural heritage institutions (Purday 2009). Three mandatory components constitute these elements: a

set of metadata describing the object, a thumbnail (a low-resolution image of the item for its preview on Europeana), and a URL linking the surrogate to the full resolution digital object preserved on the server of the owner institution (Gradmann, Dekkers, and Meghini 2009). This choice resulted in several advantages both for Europeana and the partner institutions. Europeana managed to overcome the issues posed by the diversity of digital resources' file formats, leaving the owner institutions responsible for the digital conservation and accessibility. On the other hand, partner institutions also benefitted from the surrogate model, keeping the control over their digital collections, especially concerning the copyright, and profiting from the increased internet traffic towards their website generated by Europeana. Thanks to the adoption of the surrogate model, Europeana could achieve a leading role in the governance of cultural heritage information on the web with a minimal investment in the management of digital resources.

The second constitutional decision that shaped Europeana's functionalities established how to accommodate the "information perspectives" of the different cultural domains within the same digital library (Aloia, Concordia, and Meghini 2011, 128). EDM thus was conceived as a standard for interoperability. Introduced in 2010, it was the follower of the Europeana Semantic Elements (ESE) used since the launch of the Europeana initiative (Doerr et al. 2010). Based on Dublin Core, ESE was conceived to extract from any digital resource the "lowest common denominator" (Isaac and Clayphan 2013, 2), meaning the minimum amount of information that each domain had in common when describing a resource. In its developers' intentions, the introduction of EDM had to overturn the limitation of such a model, accommodating the complexity of each domain's documentation requirements. In designing EDM, representative of libraries, archives, museums, and audio-visual collections worked in groups to identify their specific requirements for the novel metadata scheme. As a result, EDM is not based on any community standards in use, but "adopts an open, cross-domain Semantic Web-based framework" (ibid: 5) allowing each data provider to use its preferred metadata standard and vocabulary of reference. EDM thus represents a compromise between the needs of the different heritage domains. On the other hand, being such a generic layer, it can accommodate data from all the institutions, making sure that every domain can reuse each other's data (Charles and Olensky 2014). Thanks to its open model, then, EDM was designed to accommodate the variety of cultural heritage documentation in a univocal model, figuratively embodying the European motto *Unity in Diversity*.

On a conceptual level, EDM provides the structure to describe information about the who, what, when, and where of the heritage resource (Isaac and Clayphan 2013), and is defined by a set of specific design principles (Peroni, Tomasi, and Vitali 2013). First, it makes a clear distinction between the heritage item, either physical or born-digital, and its digital representation. They are represented respectively by the classes (edm:ProvidedCHO) and (edm:WebResource). In this way, EDM maintains the information about the object separated from

those describing the digital item. They are brought together in the same entry by the class (ore:Aggregation). Second, EDM makes a distinction between the object and the metadata records describing the object. Thanks to this distinction, EDM allows the description of the information about the digital object's lifecycle. Third, EDM allows multiple records about the same object. This option allows more than one institution to provide different, potentially contrasting, information about the object. Fourth, EDM allows describing an object as composed by other items, facilitating the characterisation of compound heritage, such as each building in a monumental complex or each of the poems of which an anthology is comprised. Fifth, EDM makes data describing the resource with different levels of abstraction compatible with each other. In this way, it is up to the data provider to decide the degree of detail when describing the object. This characteristic makes EDM a ductile model capable of putting generic information from an institution in relation to the more detailed ones provided by another partner.

Lastly, EDM supports the use of contextual resources, which are a set of classes to describe contextual entities such as people, organisations, events, locations, time periods, and concepts (Isaac and Clayphan 2013), like controlled vocabularies and thesauri. These descriptions facilitate the automatic semantic enrichment of the data and support the research among multilingual resources (Gradmann 2010; Stiller, Isaac, and Petras 2014). The semantic enrichment of metadata consists of adding extra topical metadata so that machine can understand it and build connections with other resources (Clarke and Harley 2014). Whenever a contextual entity is detected, it is linked with all the related existing data already available in the Europeana database. By virtue of these compositional principles, from a data scientist perspective, EDM is an adaptable standard that can be extended to provide a higher degree of information specialisation when requested either by the data provider or specific projects (Isaac and Clayphan 2013).

In order to have an object included in Europeana, institutions must provide at least the metadata necessary to create a link between the *surrogate* and the digital resource on their websites. This information is described by the metadata fields (edm:object), which is a hyperlink to the object that is used to automatically generate a preview of the resource; (edm:isShownAt), which is a hyperlink to the website where the digital object is stored; and (edm:isShownBy), which is a direct hyperlink to the resource. In addition, Europeana asks institutions to provide information about the digital resource's copyright status using the field (edm:rights). The degree of completeness of the provided information determines the *tier* of the resource. Europeana has introduced a four-tier system to classify the quality of its contents, showing to data providers what are the benefits for them and the users when data are complete and accurate (Europeana 2015). Promoting the improvement of metadata quality using the catching motto "the more you give, the more you get" (ibid), Europeana sensitises heritage institutions of the importance of good-quality data to benefit from the data economy's advantages.

Cultural heritage institutions and EDM

In order to smooth the process of contributing new datasets, Europeana devised an operative supply chain working at the national, domain, or thematic levels, which is based on a network of data aggregators. They are cultural heritage institutions acting as intermediaries, with the duty to support data providers in mapping their data to EDM, gather the metadata, and verify the quality before injecting them into Europeana. These institutions have been identified by national governments, in the capacity of national aggregators, or have resulted from specific projects funded by the European Commission to increase the volume of Europeana collection (Purday 2009), such as Carare for archaeological heritage, OpenUp! for natural heritage, or Europeana Sound for audio heritage ('Aggregators Forum' 2020). Therefore, Europeana is positioned at the centre of a Europe-wide network of cultural institutions, which are strongly encouraged to digitise their collections and make them available on the portal. In constructing this operative infrastructure, Europeana is imposing its technical and operative requirements on institutional procedures.

Through the content aggregators, cultural heritage institutions are Europeana's data providers. They send to Europeana the datasets that have to be processed and validated before being published on the portal. Datasets are packages of information (IASA 2009) that can be about a particular topic, originate from a specific source or project, or aggregated by a certain custodian (Europeana 2016). Since the provided datasets have to comply with EDM requirements, cultural heritage institutions must define a mapping between their original data model and EDM (Charles and Olensky 2014). The process of mapping metadata consists of describing how to link the information provided by the institution with the corresponding element in the EDM scheme, defining the structural and semantic relationship between two metadata schemes (Haslhofer and Klas 2010). Ultimately, the responsibility for the data that are published on Europeana belongs to the cultural heritage institutions.

In order to assess the impact of Europeana's activities on cultural heritage institutions, a questionnaire was distributed online. Some of the questions targeted the experience with EDM, also investigating whether institutions have adopted it as their internal metadata model. Among the 79 respondents, only 19 declared to be data partners of Europeana, collaborating in the capacity of data providers or aggregators.⁸ Among them, three declared to have adopted EDM for internal purposes, one to use an enriched metadata model based on EDM but customised to meet the institution's necessities, and one to plan to switch to EDM when improving the quality of its internal database. The remaining institutions expressed a series of concerns about the quality of the data available on Europeana.

8 These data refer to the answers collected up to December 2020.

Fig. 2: “Carl Larsson” query in Europeana. The results mix the work of two homonymous artists. There is no distinction between the two entities in the database.

The screenshot shows the Europeana search results for the query "Carl Larsson". The page header includes the Europeana logo and navigation links for "COLLECTIONS", "TEACHERS", "ABOUT US", and "LOGIN". Below the search bar, there are filters for "Type of media", "Can I use this?", "Providing country", and "More filters". The search results are displayed in a grid of 20 items, each with a thumbnail image, a title, and the artist's name. The items are:

- Kvarn at the Shore (Carl Larsson, Malmö Konstmuseum)
- Stationen och Sjömanskyrkan i Gävle (Larsson, Carl, Järnåldersmuseet)
- Lisana räcker Margon ett skrin. Illustration till "Sagan om Rosen", väggen 1899, sång IV (Carl Larsson, Nationalmuseum, Sweden)
- Studier av barn (Carl Larsson, Nationalmuseum, Sweden)
- Porträt latejé (Larsson, Carl, Sundsvalls museum)
- Gävle centralstation och Sjömanskyrkan (Larsson, Carl, Järnåldersmuseet)
- Modellstudier för skulpturen. Nutida konst (Carl Larsson, Nationalmuseum, Sweden)
- Porträtt i ateljé (Larsson, Carl, Sundsvalls museum)
- AB Gävle vägnverkstad AGV. Spritbås (Larsson, Carl, Järnåldersmuseet)
- Studier till Gustav Ills Kostym (Carl Larsson, Nationalmuseum, Sweden)
- AB Gävle vägnverkstad AGV sett från kontoret (Larsson, Carl, Järnåldersmuseet)
- Grosshandlare John R. W. Rettig (Larsson, Carl, Järnåldersmuseet)
- Modellstudie för centralgestalten. Renässans (Carl Larsson, Nationalmuseum, Sweden)
- Disriktsschef Erik Ossian von (Disriktsschef Erik Ossian von)
- Lovisa Ulrika-fresken. Dräktstudie för Lovisa Ulrika (Carl Larsson, Nationalmuseum, Sweden)

The most shared concern surfaced among the respondents regards the wrong information generated through automatic data enrichment. During the process of validation, datasets are enriched with pertinent data already available in the collection (EuropeanaTech 2015). In EDM, the data provided by the institutions are kept separate from those generated by the process of enrichment, preserving the authority control of the institution on the information. Despite this conceptual differentiation in the model's architecture, the two categories of data appear without any distinction on the user interface, that is the *europaena.eu* portal, making it impossible for a user to distinguish which data is automatically generated. This is especially problematic in the case of erroneous enrichment that may occur when

two entities have the same name (such as homonymous authors or locations), which the algorithm is unable to distinguish. Despite recognising the benefits of placing their objects in relation with those in the collections of other institutions in cross-domain collections, cultural heritage institutions express concerns and annoyance over the misleadingly enriched data that, for Europeana's users, appears to be their responsibility.

Fig. 3: Ambiguity in the attribution of works to Egbert van Heemskerck I, II or III. Despite the different names attributed to the authors in the "Creator" field, the hyperlinks generate the same research results.

Interior with doctor, assistant, old woman and girl. Oil painting by Egbert van Heemskerck I or II.

Oil painting: A surgical operation

Lettering: Inscribed along the lower margin of the canvas "Fr. Alex. surgen.", in a manner similar to the names inscribed on shop signs. This picture is however painted on canvas, unlike suspended shop signs which are usually painted on wood. Possibly used for display in the bow window of a shop? Fr. Alexis, surgeon.

A surgical operation. Oil painting attributed to Egbert van Heemskerck III.

Despite the attribution of the agent 161135, this resource is not disambiguated when researching for Egbert van Heemskerck on Europeana.

Europeana struggles especially in the case of homonymous authors when there is no possibility of automating the process of data enrichment with one specific entity. This is the case, for example, with Carl Larsson and Egbert van Heemskerck. First, the name Carl Larsson belongs both to a Swedish painter (Stockholm 1853 - Falun 1919) who is famous for his family scenes (Carl 2018), and a Swedish photographer (Stockholm 1866 – Uppsala parish 1947) active in the city of Gävle (SPA

1911). When browsing Europeana, the results mix the works of the two authors, without any possibility of disambiguation (Fig. 2). This suggests that there is only one generic entity about Carl Larson, to which the works of both artists are connected. Even more confusing is the research of works from Egbert van Heemskerck, a name which belongs to three different artists. In Europeana, there is no differentiation in the attribution of works to Egbert van Heemskerck I and II, father and son (Bredius 1925), or III, the nephew (Einberg and Egerton 1988, 237). Despite the owner institutions know who the author of their artworks is, the database does not provide any automatic differentiation in the authors' entities, failing to provide disambiguation for the users. An entity called "agent:161135" identifies Egbert van Heemskerck II. However, it is not systematically associated with all his works in the database, failing to be a useful element to disambiguate the collection (Fig. 3).

A second concern shared by many cultural heritage institutions regards the copyright of the metadata. Metadata provided to Europeana are CCo licensed, this means that they can be reused by anyone, without any restriction (CC 2020). Europeana has promoted this requirement in line with the Open Culture campaign undertaken in 2011 with the support of Neelie Kroes, the European Commissioner for the Digital Agenda. If the European Commission already solicited cultural heritage institutions to preserve the public domain copyright status of their objects once digitised (EC 2008, 7), open culture was praised as a stimulus for boosting the European creative industry (Kroes 2012). This approach turned out to be problematic for many institutions, which consider part of their documentation the result of intellectual work, either by curation or research activity. Consequently, they publish their metadata using the CC-by licence, which requires the user to make a reference to the source.

In the survey, these institutions declared that, when sharing their data with Europeana, they had to decide what information to provide in CCo and what to retain in their database, resulting in a minimal dataset available in EDM. Due to different approaches to the nature of cultural heritage information, as indisputably public domain or as the result of intellectual work, a consistent amount of data ultimately is not provided to Europeana, generating a disparity between the information available on the portal and that available on the website of the providing institutions.

This issue becomes evident when exploring the natural science collection on Europeana. The OpenUp! Project, which ran between 2011 and 2014 laying the foundation for the OpenUp! Natural History Aggregator, enriched Europeana's collection with natural heritage items ('OpenUp!' 2020). Among the project participants, the Royal Belgian Institute of Natural Science provided over 4000 images of insects from its entomology collection using the CC-by copyright license. This status, which also pertains to the digital collection available on its website, has significant consequences on the data available on Europeana. Exploring the *Diloboderus abderus* entry (Fig. 4), it is evident how the only information about the

heritage item, an insect, in this case, is the title, which provides the scientific name of the species, and the (edm:hasType) property, which specifies the classification of the item as a *preserved specimen*.

Fig. 4 – *Diloboderus abderus* page on Europeana. When forcing institutions to adopt a different copyright status, the risk is a scarcity of information provided to Europeana.

The screenshot displays the Europeana record for *Diloboderus abderus*. At the top, the species name is shown in a grey box and next to it. Below the name is a photograph of the insect. Underneath the photo, there is a Creative Commons license (CC BY SA) and a 'Col.' field with the value 'RBINS -muse-um'. Below the license, there are buttons for 'SHARE' and 'DOWNLOAD', and a 'CAN I USE IT?' section with a 'Yes' button and icons for attribution, non-commercial, and share-alike. The 'Royal Belgian Institute of Natural Sciences' is listed as the provider. The 'Classifications' section shows 'Type: Preserved Specimen'. The 'Extended Information' section is expanded, showing 'Provenance' details: Identifier: RBINS - OpenUp - 3182, Institution: Royal Belgian Institute of Natural Sciences, Provider: OpenUp!, Providing Country: Belgium, First Published In Europeana: 2014-03-03, and Last Updated In Europeana: 2014-03-03. The 'References And Relations' section shows 'Dataset: 11625_Ag_EU_OpenUp!_RBINS' and 'Relations: http://www.biodiversitylibrary.org/name/Diloboderus_abderus'.

The remaining information provided by the metadata is about the owner of the resource and the circumstances around the creation of the entry in the context of the OpenUp! Project. While the *Relations* field is used to provide a hyperlink towards the bibliography over the species (available on the Biodiversity Library), there is no information about the *Diloboderus* as an insect, such as the characteristics of the species, nor as an *heritagised* item, such as the moment it entered the collection or the place where it was captured. This scarcity contrasts with the

detailed information provided in the Royal Belgian Institute of Natural Science database. There, each object also reports the name of the conservator responsible for the collection, recognising the status of the database as intellectual work. The discrepancy in the copyright license of these digital collections, thus, not only determines a discrepancy between the information owned by the institution and those available online but ultimately deprive the Europeana users of many essential data, making the resources unattractive to be reused in another context.

Another matter that generates some discontent among cultural heritage institutions is the generic nature of EDM. As previously described, EDM was conceived as “an integration medium for collecting, connecting and enriching the descriptions provided by Europeana content providers” (Europeana 2017). While making it possible to accommodate data from cultural heritage institutions in different domains, this overarching function reduces the granularity of the information provided. As a matter of fact, many institutions, and also some aggregators among them, lament that EDM is too generic to accommodate the complexity of their internal documentation. Therefore, cultural heritage institutions are providing data to Europeana that result in simplification when compared to the wealth of information in their databases.

Nevertheless, a consistent number of institutions have decided to share their data with Europeana, recognising the benefits of this European initiative. They accept to sacrifice part of the accuracy of their information and the total control over their online circulation for benefitting of better online exposure and an increment in the number of visits to their websites along with the reuse of their resources in external cultural projects (such as in user-generated pages on Wikipedia or in didactical material for schools). They acknowledge the value of having their objects connected with those of the other institutions and enriched by complementary heritage in a Europe-wide collection. By entering the Europeana catalogue, digital heritage ceased to express only a particular national or local identity but instead becomes part of European shared memory. Therefore, it can be said that Europeana actively engineers the creation of a European cultural heritage.

Governing through metadata: the politics of EDM

With the creation of EDM, Europeana not only introduced the new standard for documenting European cultural resources on the web but also established a new set of procedures around the documentation policy of European cultural heritage institutions. To benefit from the advantages of sharing their collection on Europeana, institutions now have to think through their metadata models to identify and map the correspondences with EDM. This also means that they have to reconsider the legal status of their data and decide which information they are willing to release in a complete open access. Then, they have to collaborate with their aggregators of reference to prepare the dataset for Europeana. Finally, they

have to check the validation process results, assisting Europeana's team in case of mistakes. This iterative process, repeated at any new data ingestion, forces institutions to compromise with their internal policy to adhere to a Europe-wide collection requirements. When mapping their metadata in EDM, cultural heritage institutions are actively producing a European heritage collection.

In order to understand the politics enforced by mapping digital cultural heritage in EDM, it is useful to reflect on the three main cultural assumptions that it encodes. First, Europeana receives data exclusively from cultural heritage institutions, entrusted as the most accurate sources of cultural heritage information. Aiming at building a "comprehensive, trustworthy and authoritative source" (Europeana 2010, 12) of cultural heritage data, Europeana intends to become the primary "trusted source of Europe's collective memory" (ibid: 4). Europeana's approach openly contrasts with other digital cultural initiatives, such as Wikidata (2020), which relies on the collaboration between cultural heritage institutions and the wiki community to check and integrate data. Heritage institutions eagerly share their data and digital resources with the wiki initiatives to have them widely circulating on the web. Anyhow, a survey conducted in 2019 by the Swedish National Heritage Board revealed that they are reluctant to integrate the crowd-contributed information back in their database, also due to a lack of trust in those who operated the changes (Zeinstra 2019). In this sense, the Europeana approach seems to better respond to cultural heritage institutions' demand for retaining control over their cultural information. Consequently, the adjective "authoritative", used by Europeana to describe the quality of its data, also applies to the nature of its collection, in that it expresses a traditional, top-down, and authority-led relation with the past, exemplifying what Smith (2006) defines as *authorised heritage discourse*.

Second, Europeana supports and encourages the use of internationally recognised vocabularies and thesauri to facilitate information standardisation. This approach, which is essential for the optimal diffusion of interoperable and reusable data on the web (Wilkinson et al. 2016) is far from being neutral or culturally unbiassed. While promising a more open and accessible cultural heritage, the digitalisation of heritage collections raised the question which heritage is made open and accessible. Cultural heritage institutions are well aware of the biases hidden in the documentation of their collections (Hall 2001; Cameron and Robinson 2003; 2007) and have worked consistently towards a more inclusive (Simon 2010), decolonised (Senier 2014; Petrešin-Bachelez 2015), and diverse representation in their archives (Smith 2006; Harrison 2013; Wallace et al. 2020). Institutional digital collections and databases have been scrutinised, and efforts have been made to turn them more representative and inclusive (Geismar 2018; White 2018; Foka 2019; Risam 2019), also thanks to the adoption of new, user-generated, and specialised vocabularies (Cairns 2013). These words and descriptors are often not included in controlled vocabularies and standardised thesauri (Bergenmar and Golub 2020), making their use not recommended on aggrega-

tors such as Europeana. Therefore, by promoting the use of standardised concepts and vocabularies, Europeana risks jeopardising institutional efforts of enforcing diversity and inclusion in their archives, involuntarily becoming the perpetrator of an authoritative and exclusive vision of cultural heritage.

Third, Europeana establishes a clear definition of digital cultural heritage. EDM makes a conceptual distinction between the physical object (edm:ProvidedCHO), its digital reproduction (edm:WebResource), and the metadata provided for each of these elements. In this sense, EDM remarks the contrast between the digital and the real, and the set of specific information belonging to each of these realms. On the other hand, the structure of the model brings together the data on the physical object and the digital reproduction in the same entry (ore:Aggregation), establishing a tight relationship between the two realms. In doing so, EDM allows for the conceptual representation of digital heritage as an assemblage of physical and digital properties. According to Cameron and Mengler (2015), such an entanglement is motivated by the shared components, relations, and effects between the physical and the digital objects, which are immersed in a network of connections with people, cultural meanings, and technical qualities (Forte 2003). Within this perspective, the contextual meanings attributed to an object in the digital world become an inextricable part of its cultural value. As a consequence, considering digital heritage as an assemblage allows transferring the value of Europeanness from the digital surrogate in the Europeana collection, to the item preserved by the cultural institution.

Conclusion

This article analysed the implication of the metadata scheme EDM on the construction of the European concepts of culture and heritage. With the introduction of EDM, a European model to represent cultural heritage information on the web, Europeana has established a new international standard that profoundly impacts the internal procedure of European cultural heritage institutions. When sharing their collection on the *europeana.eu* portal, institutions accept to adhere to a set of practice that forces them to adapt their internal policy to the European requirements. At the same time, they are actively producing a collection of *European heritage* which appropriate on a European level all the resources held by the member states as national heritage.

EDM is one of the instruments used by Europeana to govern the digital transformation of the cultural sector. Europeana has proactively engineered the Europeanisation of the sector by establishing an infrastructure of procedures and standards for heritage institutions. The portal promotes a European engagement with cultural heritage by operating on three levels: first, by aggregating local and national heritage into a European repository, *europeana.eu*, that makes visible commonalities and connections among the objects; second, by promoting the

unlocking of heritage that was hidden behind the institutional walls of libraries, archives, and museums; and lastly, by creating EDM, a model that provides a uniform structure to describe the resources. Clearly, in a European perspective, Europeana has to be approached similarly to how national archives have been widely described in academic literature, as important nodes in assembling the nation and promoting nationalist framings of the past.

Europeana is a product of political determination, manifested by the member states and endorsed by the European Commission with conspicuous financial support. As a digital infrastructure, it is an instrument of the European cultural policy, showing that the European cultural agenda's objectives play a crucial role in understanding the ethics and politics embedded in the digital development of the sector. In this sense, the *europeana.eu* portal embodies a European design for culture, becoming a showcase of European know-how and a manifesto of the shared European history and identity.

Due to the creation of democratically approved procedures and in line with the European Commission's main guidelines, Europeana has become an intermediary body that leads the digital transformation of European cultural institutions. The digital turn had transformed their practices and methodologies and forced them to adhere to common standards and procedures. By enforcing the cooperation in a Europe-wide network and financing projects to align with the required parameters, Europe created a digital cultural policy that is shaping the digital identity of cultural institutions. In this way, Europeana is "transforming the world with culture"⁹ thanks to its impact on the institutional network it has created.

The analysis of EDM presented in this article reveals how crucial it is to approach digital infrastructures critically. A thoughtful evaluation of their social significance from a political and ethical perspective is especially relevant for the field of heritage studies that still focuses on brick-and-mortar heritage institutions. This work, which relies on policy documents and the results collected by directly addressing cultural heritage institutions, may well be enriched when more institutions and other professionals will offer their perspective on Europeana. Understanding how and what politics are intrinsically imbued in the EDM metadata model is only the first step towards a comprehensive analysis of the dynamics of representation or exclusion that this model enforces towards cultural expressions in Europe.

9 Until the launch of the 2020-2025 strategy in Spring 2020, this sentence was part of Europeana's mission.

Acknowledgements

We would like to thank the interviewed at Europeana and the respondents to the survey, for the information provided. A special thanks to Jaap Verheul and Lorena De Vita for reading the first draft of this paper; to the reviewers and the editors of this journal for their precious feedbacks and support; and to the CHEurope group, for the valuable comments on a preliminary version of this work presented at the CHEurope final seminar. This work was supported by the European Union's Horizon 2020 Research and Innovation programme under the Marie Skłodowska-Curie Grant Agreement Nr-722416 (CHEurope).

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