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Reshaping the figure of the Courtesan in a digital archive: a feminist case study on Veronica Franco

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Index

Introduction **3**

Chapter 1

Defining a digital project: archives, libraries and collections in the digital age **9**
1.1 What is a digital archive? 9
1.1.2 Who are the participants? 13
1.1.3. Why we need different projects 15
1.2 Reusability, Accessibility and Interoperability 18
1.3 The ingredients for a feminist, intersectional and cross-disciplinary approach 22
1.4 A new ecosystem of culture: relationships and public engagement 26

Chapter 2

Exploring Knowledge Organization: data modeling and semantic enrichment **31**
2.1 Data modelling in brief 33
2.2 Making meaning from data: standards, vocabularies and ontologies 41

Chapter 3

The subject of the study: courtesans in 16th-century Venice **52**
3.1 Prostitution laws, Courtesans and the Plague (1575) 57
3.2 Veronica Franco 64
3.2.1 Witchcraft in Venice: Veronica Franco's *processo* (1580) 67

Chapter 4

The case study: workflow and methodologies **73**
4.1 Modelling the domain of Knowledge 76
4.1.1 The selected materials 76
4.1.2 Tools used for the archival documents and letters 77
eScriptorium and SegmOnto 77
International Image Interoperability Framework (IIIF) 80
eXist-db 82
4.2 The Knowledge base 82
4.2.1 Semantic enrichment and mark-up with XML-TEI and Wikidata 82
4.2.2 The RDF model 88

Conclusions **90**
Future directions and limitations

Archival sources **91**

Bibliography **92**

Introduction

This dissertation arises from a reflection regarding the differences between the archive as a physical place of preservation and conservation, and the digital archive. The latter is a space where a specific domain of knowledge is organised and aims not only at its preservation but also at its accessibility, dissemination and reuse in accordance with the FAIR principles[1]. The process rather than the product is what makes up a digital archive. Digital archives are a means for reaching a larger audience, promoting and valuing resources, and democratizing access to knowledge. Digital archives are not only concerned with the preservation of the information they reveal, but also with the dissemination and production of new knowledge. With digitalisation, the primary source can be now used in a new context of knowledge organization, allowing one person to create an abundance of previously unimaginable sources. A new level of documentality is recorded every time an action on the resource is performed on a digital level.

Another feature of the digital archive is its multi-functionality and storytelling capacity, which opens digitised archival sources and literary works to new audiences and communities outside academia. Therefore, the knowledge organization of the digital and thematic archive can also bring documentary complexes back to the centre of social and political life (Valacchi, 2021: 25).

One of the main objectives of this dissertation is to lay the foundations for the construction of a digital archive of courtesans through a theoretical and conceptual framework. The digital result of this dissertation is thus merely a prototype, that could be considered a starting point, and not a finished and comprehensive project. For this purpose, approaches to the research subject, standards, methodologies, best practices and possible tools to be used in the field of digital humanities are presented. Constant experimentation with the potentialities offered by the web of data in the archival and bibliographic domain is important to propose ideas for further developments of a digital archive, as well as suggest best practices for the realisation of a project with a specific domain of knowledge. In this dissertation, the condition of Venetian courtesans in the 16th century is presented as a case study, and thus as a domain of knowledge to be organised, classified and visualised. In particular, the research focuses on archival documents concerning Veronica Franco

[1] https://www.go-fair.org/fair-principles/

(1546-1591). Through the figure of this *cortigiana onesta* and poetess, this work aims to shed light on the identity of a subordinate class. The choice of the period is not occasional, but is based on the precise need to enclose the research in a specific time span that is the same as the affirmation of the figure of the courtesan.

This dissertation is divided into four areas. The first part presents an interdisciplinary, intersectional and feminist approach to research and to the disclosure of research. The term *interdisciplinary* highlights how different points of view, notions, skills and diverse disciplinary areas are essential elements for an effective and comprehensive realisation of a digital archive and project.

At the heart of a project that aims at guaranteeing the dissemination and reuse of the knowledge produced there is collaboration, relationships between people, institutions and disciplines. This dissertation is based on the awareness of the mutual enrichment that can result from continuous confrontation and dissemination of cultural heritage. The term *intersectional* here is used because the subject of the study, Veronica Franco, mirrors a stratum of Venetian society discriminated against both on account of their gender and social status as courtesans. Sixteenth-century courtesans were affected by restricting laws, social stereotypes, religion and traditions. *Cortigiane oneste* were often attacked by male writers of the time, especially in the satirical literature of Pietro Aretino. The jealousy and envy of men often prevented them from fully enjoying the literary success they deserved. Adopting an intersectional approach allows the researcher to give space to these marginalised voices of the past, reshaping the prevalent historical narrative by going beyond canonical and written texts (Wilkens, 2012; Levi, 2022). Prostitution appeared to be an ignoble subject of study for a long time, at least until it served to nurture a myth. In fact, historiography dealt extensively with the phenomenon in the 16th century, sometimes with moralistic overtones, sometimes speaking of courtesans as objects of the love of politicians and bankers, artists and poets. Indeed, the lives of 16th-century Italian courtesans fit into a broader theme of the female condition during the Renaissance, when women, at least those in the upper classes of society, gradually gained increasing recognition. The festivities in the courts, the development of studies and the arts, and the multiplication of literary circles, all contributed to delineating a framework in which some women could find a dimension outside of marriage. From this perspective, there have been many historiographers who have seen in Renaissance courtesans the first manifestation of feminism and the first manifestation of economically and intellectually independent women (Masson, 1981; Larivaille. 1983). This dissertation also takes a *feminist* approach because it seeks to dismantle a deep and secular historiographical

prejudice by giving space to those women who, even if victims of structural discrimination in Venetian society, were able to defend themselves and fight back, as in the case of Veronica Franco.

The second part of this dissertation focuses on important aspects of digital humanities projects: knowledge organisation, data modelling and semantic enrichment. Even though the term *data modelling* may be new, the intellectual frameworks and activities it encompasses are actually deep-rooted. When doing research and collecting data we are creating models that mirror our choices. These models represent the choices we make when we analyse and share the materials we study. The *data model* is an abstract structure that effectively depicts a universe of discourse, or a component of reality, by identifying significant things and their connections to one another. The digital representation of a specific entity, such as a document, work of art, or event, is called a *modelled instance*. An existing *metamodel*, such as entity relationship modelling for databases or XML for textual data, is typically used to represent a data model. The metamodel specifies the informational features that entities may have, such as hierarchy, inheritance, one-to-one vs. many-to-one relationships, and nesting, as well as the potential meaningful interactions between entities in a particular modelling system. For instance, XML models such as TEI[2] and EAD[3] are metamodels (Flanders & Jannidis, 2019: 4, 315). Interactions and interconnected data on the web can be represented through the Resource Description Framework (RDF), one of the layers of the so-called Semantic Web. The cornerstone of many digital projects is Linked Open Data (LOD)[4] and RDF. In order to make their data freely accessible, machine-understandable, and comparable to other data sets, libraries, archives, and other public knowledge institutions publish their information in this way. For the purpose of defining resources using triples made up of *subject*, *predicate*, and *object*, RDF offers a general, abstract data model. Nevertheless, it lacks the domain-specific terminology required to explain the various classes of resources and the interrelationship patterns that exist. Outer information, which is represented through RDF, must be able to dialogue with the world of the Web, and this function is supported by vocabularies and taxonomies expressed in ontological languages.

[2] https://tei-c.org/
[3] https://www.loc.gov/ead/
[4] Structured data that has been openly released in a way that enables automated web technologies to query, link, and analyse it is known as linked open data.Each individual entity represented must be reachable via a URI, or a distinctive, globally recognized identifier, that can be used to find and link to the resource.

In this second part of the dissertation, different existing ontologies are presented and divided according to the topic domain. Among the ontologies mentioned we find FRBRoo[5], ISBD elements[6], RDA[7], EAC-CPF[8], OAD[9] for bibliographic and archival data; FRAD[10], MADS in RDF[11] for authority data; and FOAF[12] for people. Italian collaborative projects based on LOD are presented, notably SAN LOD.[13] Before beginning to model a digital project, it is necessary to first have a deep understanding of the subject of study, in order to identify which resources and technologies are appropriate. Thus the third part of this dissertation is dedicated to the subject of study, 16th-century Venetian courtesans and Veronica Franco. The original archival documents used for the prototype consist of a *delibera* (resolution) of 1543, in which the Senate and the *Provveditori sopra le Pompe* limit the luxury of courtesans and forbid them to wear silk, pearls and other precious textiles; the first *testamento* (will) of Veronica Franco (1564), written before giving birth to her first child; and the court record of Veronica Franco's *processo* (trial) for witchcraft. Dealing properly with these precious archival sources and their meaning implies exploring, discovering, and becoming aware of the historical facts of the time and the elements that affected *meretrici* and courtesans' lives in 16th-century Venetian society. Important literary and non-literary resources were extremely helpful in the general depiction of *cortigiane oneste*'s lives. Among these, the dissertation draws on the *Leggi e memorie venete sulla prostituzione fino alla caduta della Repubblica* (1870), for an overview on the resolutions imposed to courtesans; *Le leggi di sanità della repubblica di Venezia*[14](1998), for a summary of measures and regulations applied during the plague and to prevent sexual diseases; the *Catalogo de tutte le principal et più honorate cortigiane di Venetia*[15] (1558-1560), as proof of the popularity of courtesan at the time; Veronica Franco's *Terze Rime* (1575) and her *Lettere familiari a diversi* (1580), for an overview on her literary production[16]; the *Malleus Maleficarum* (also known as

[5] Functional Requirements for Bibliographic Records, enacted by IFLA, has been one of the first to be expressed in RDF.
[6] It is the translation of ISBD (International Standard Bibliographic Description) in RDF, https://www.iflastandards.info/isbd/elements.html
[7] Resource Description and Access (RDA), http://www.rda-rsc.org/content/about-rda
[8] Encoded Archival Context (Corporate bodies, Persons, Families) Ontology, http://culturalis.org/eac-cpf
[9] Ontology for Archival Description (OAD) is an initiative of the project *Reload,* https://labs.regesta.com/progettoReload/oad-ontology
[10]Functional Requirements for Authority Data, https://www.ifla.org/wp-content/uploads/2019/05/assets/cataloguing/frad/frad_2013.pdf
[11] MADS/RDF (Metadata Authority Description Schema in RDF), http://www.loc.gov/standards/mads/rdf/
[12] Friend of a Friend (FOAF) has been the first instrument for the creation of metadata regarding people on the semantic web, http://xmlns.com/foaf/0.1/
[13] Sistema Archivistico Nazionale (SAN), http://dati.san.beniculturali.it.
[14] Vol. 2
[15] Full-text available, https://epub.ub.uni-muenchen.de/58160/1/W8H.lit.2779_11.pdf
[16] Another significant text used as the main reference for Veronica Franco's life is Rosenthal, 1992.

The Hammer of Witches), as a source to understand the deeply rooted misogyny of the time and how witchcraft was perceived, as well as *Le Strighe* by Bernoni Domenico, a collection of folk Venetian legends in which witches are depicted.

The final part of the dissertation aims at outlining best practices for the creation of a digital project and presents the workflow of the prototype. The archival resources were collected at the *Archivio di Stato di Venezia* (ASV). As previously mentioned, for the realisation of the prototype it has been decided to use the original *delibera of 1543*, Veronica Franco's first *testamento* (1564) and her *processo* (1580). The retrieval of these archival documents would not have been possible without the information provided by the books and resources previously mentioned and without the archivists of ASV, who helped to navigate the deep sea of archival fonds and sub fonds. The three handwritten archival documents have been transcribed both manually and automatically with eScriptorium. In eScriptorium, the *delibera* has been segmented with SegmOnto[17], a controlled vocabulary used for the description of the layout of pages. Once the transcriptions were ready, the second step was the text encoding of these archival resources through TEI, a standard for the representation and management of humanistic-literary data in a digital environment. A TEI model was developed following different criteria for the appropriate selection of elements and tags to be used. Important data and metadata have been extracted from the XML/TEI encoding, such as places, dates and people, and where possible, they were uniquely identified through Wikidata[18]. Once the text has been marked up by providing forms of dialogue with externally described entities, it is necessary to express the relationships through URIs and RDF. In the case of the three archival documents, an RDF graph was realised to contain information related to the subjects of the archival documents (such as courtesans, Venice, and the 16th-century). This was expressed through the SKOS ontology, a way to present taxonomies, controlled vocabularies and thesaurus. These subjects have been uniquely identified through the Library of Congress Subject Headings (LCSH)[19]. As regards the web implementation process, the tools used are the International Image Interoperability Framework (IIIF)[20] for the management and sharing of metadata regarding images, and eXist-db[21] as open source XML database and web application.

Different approaches, methodologies and steps are thus examined and analysed in this

[17] https://segmonto.github.io/
[18] https://www.wikidata.org/wiki/Wikidata:Main_Page
[19] https://id.loc.gov/authorities/subjects.html
[20] https://iiif.io/
[21] http://exist-db.org/exist/apps/homepage/index.html

dissertation. Of course, the complexities of digital archives and digital projects cannot not be exhaustively summarised in a single dissertation, especially when technologies, standards and best practices are constantly changing and evolving. The hope is, however, to provide a general overview on these processes and practices, and to subtract a category of marginalised women from the oblivion to which history has condemned them, highlighting their strength and determination against a society that wanted them to stay in the shadows.

Chapter 1

Defining a digital project: archives, libraries and collections in the digital age

1.1 What is a digital archive?

For several years now, digital transformation (DT) has been driving the change of communities from analog to digitised, to digital, investing in every area of relations between citizens and the territories of their reference (Barbuti, 2022: 19). Before outlining the aspects of digital archives, it is crucial to understand the differences between *digitised* items and *born-digital* items, and between *digitisation* and *digitalisation*. Documents, photos, audio files, video files, and other materials that start out in digital format are referred to as born-digital items. Other examples of born-digital materials are Tweets and posts on social media platforms, emails, grey literature content, digital photography, digital art, virtual exhibitions and virtual museums. The process of transforming tangible artefacts into digital formats is known as *digitisation*. Digital copies of the original item are created as a result of the process. The following are some purposes for digitising objects:

1. preserving delicate objects and cultural artefacts;
2. increasing accessibility to cultural artefacts;
3. the digitalization of tangible artefacts for computational analysis (Nyhan, Terras & Warwick, 2012).

Besides, archivists distinguish between *digital archiving*, which is the preservation of born-digital information, and *digital preservation*, which is the digitisation of print materials. Together with the multifaceted concept of digital humanities (see Kirschenbaum, 2010), also called in French-speaking scholarship *humanités numériques* (Berra, 2012) and *humanités digitales* (Deuff, 2016; Clivaz, 2019) what did not escape from the attention of humanists is the distinction between the aforementioned *digitisation* and *digitalisation*. *Digitalisation* is defined as "the adoption or increase in use of digital or computer technology by an organisation, industry, country, etc." in the Oxford English Dictionary[22]. A similar definition of *digitalisation* can be found in the Wikipedia entry for *digital transformation,* and it

[22] https://www.oed.com/

summarises that *digitalisation* is the technologically-induced transformation inside industries, companies, markets, and branches, as opposed to digitisation, which is the "organisational process" or "business" process. Brennen and Kreiss provide a generic definition of *digitisation* and *digitalisation* in their overview article: *digitisation* is the physical process of transforming analog information streams into digital bits, while *digitalisation* is the reorganisation of numerous social areas around digital communication and media infrastructures (2016: 1). Brennen and Kreiss also state that "analog and digital media, [...] all forms of mediation necessarily interpret the reality" and that "digitisation is a process that has both symbolic and material dimensions" (2016: 2-3). From this cauldron of definitions, what is essential to understand is that while *digitisation* refers to the process of transforming an analogue object into a digital one, digitalisation regards a more complex and faceted process, that is creating information systems and knowledge systems about a specific topic or domain.

For the realisation of this case study, the encounter between digital and analogue was essential. Much of the research was undertaken at the *Archivio di Stato di Venezia*[23], established in 1815 under the name *Archivio generale veneto*. The inventories, auxiliary materials and bibliographies in the lecture hall, as well as some digitisations that could be accessed through their computers, made it possible to identify which archival material was needed to reconstruct the figure of Veronica Franco and the social history of the courtesan. Other important platforms such as *Internet Archive*[24] and *Biblioteca Italiana*[25], on the other hand, were useful to provide an overview of Veronica Franco's literary production. Since the archive and archival resources are at the centre of this digital project, it seems appropriate to make an effort to define it.

The word "archive" is derived from the Greek word *archeia*, meaning "public records". A collection of documents assembled by one person or organisation and chosen for long-term preservation as proof of their activity is known as an archive. It does not matter how these documents are presented; they could be mediaeval parchment documents, maps, images, or even digital files. In order to sustain its instructive content and provide comprehensible and valuable information throughout time, archives must maintain the context in which their records have been created as well as the network of relationships between them. The hierarchical arrangement of the preserved papers in the archive allows to protect the relationships and context between them. Indeed, an archive is split into fonds,

[23] https://www.archiviodistatovenezia.it/it/
[24] https://archive.org/
[25] http://www.bibliotecaitaliana.it/

sub-fonds, series, sub-series, and so on. At each level, we can find documents that belong to a certain division of the archive or documents that describe the nature of the level of the archive that is being evaluated (e.g. a fonds, a sub-fonds, etc.). The complete informative strength of the archive records may be kept thanks to the combination of all these documents, relationships, and context information. Archival descriptions, which must take into account the peculiarities of the archive, are used to analyse, organise, and record the archival sources (Agosti et al., 2013: 7-8). The concept that one day we will be able to "possess" these sources completely is unrealistic, which is why we talk of archives in terms of kilometres of shelves. For instance, the *Archivio di Stato di Venezia* has a collection that spans over 80 kilometres of shelving and includes more than 800 fonds. The archive is outrageous and enormous, yet it has a strong seductive power. It ruthlessly presents a mysterious universe where also criminals, the poor, and the corrupt participate in a chaotic and vibrant society. Archives bear little resemblance to writings, printed materials, correspondence, newspapers, or autobiographies. The printed text is intentionally made to be delivered to the public; it is organised to be read and understood by numerous people; it seeks to announce and provoke a thought, to change a state of affairs through the exposition of a story or a reflection. It is ordered and structured according to more or less easily decipherable systems and, in whatever way, exists to convince and to transform the order of knowledge. It has nothing to do with the archive, a rough trace of lives that did not ask to be disclosed at all and that were obliged to do so because one day they bumped up against the reality of the authorities. Reading the archival materials immediately evokes a sense of reality. In it, everything focuses on a few moments in the lives of ordinary people. The archive does not write pages of history, but describes it in everyday words. From the archive comes the naive, yet profound feeling of reaching the essentiality of people (Farge, 1991: 9).

It is important to stress that the word "archive" is, however, employed differently depending on the context, making it difficult to come up with a definitive meaning. An archive can be defined as:

• A group of things that serve as a record of an individual's or organisation's activity.

• A building where historical records are preserved; these buildings are sometimes known as "archive centres," "record offices," or "repositories."

• The process of adding records to a repository.

Although the definition of "archive" has always been open for debate, it seems that current discussions about it centre on the interaction between archival activity, evolving digital technologies, changing scholarly practices and requirements. Marlene Manoff notes that “as libraries, museums, and archives increasingly make their materials available online in formats that include sound, images, and multimedia, as well as text, it no longer makes sense to distinguish them on the basis of the objects they collect” (2004: 10). Libraries, museums and archives are not the same things, but it seems that the lines between archival, library, and scholarly work are blurring and following the changing nature of the "impression" of the archive, as Jaques Derrida has called it (Clement et al., 2013). According to Derrida, the archive is "only a notion, an impression with a word and for which, together with Freud, we do not have a concept” (1998, 29). Nevertheless, this "notion" is, in Derrida's words “the possibility and the very future of the concept, to be the very concept of the future” (29). As a result, if we think about the future of the archive, we cannot ignore how emerging digital practices in scholarly publication, scholarly editing in libraries and archives are shaping and changing the roles of the archivist, the librarian, and the humanist in the digital age. Derrida also notes that ‘the technical structure of the archiving archive also determines the structure of the archivable content even in its very coming into existence and in its relationship to the future. The archivization produces as much as it records the event” (1998: 17). Like editors of scholarly editions, archivists influence how we interact with the archive, with our history, our past and future. One of the most fundamental advantages of digitization is that archives can now exist outside of specific geographical regions. Researchers can now explore the numerous fonds that archives have digitised from anywhere in the world. The advantages of digitised archives, however, go beyond the online gallery and picture viewer that are so important to academic researchers.

As the term “archive” has so many different shades, the concept of “digital archive” is even more intricate and heterogeneous. *Digital archive* is more about the process, than the actual result. Digital archives undergo a process of knowledge democratisation, and they represent a tool to reach a wider public, to promote and valorise resources and cultural materials. Contrary to analogue archives, digital archives are not only focused on the preservation of the material they expose, but rather they aim at producing further knowledge. This case study in particular, aims at providing methodologies for the generation of a digital archive that will give space to a new knowledge domain focused on a marginalised social class within a time framework that is the one of the 16th century. Archives and cultural institutions are positively brimming with stories, and we can give voice to these narrations

through digital storytelling, special online collections, and interactive activities that involve different types of materials. Even if there is no specific definition of digital archive, what is clear is that they make it easier for users to find and discover cultural content regarding a specific domain of knowledge.

1.1.2 Who are the participants?

The enhancement of digital cultural heritage is now at the forefront in museums, archives, libraries and other institutions. The network of digitally preserved archives and collections in the arts and humanities is quickly growing. Nearly every arts and heritage organisation has digital assets, which are increasingly shared online via the organisation's websites and group projects like Wikidata. Many memory institutions view the digitization of their archives and collections as a way to promote interaction with their collections, activities, and research as well as a way to draw in new audiences and protect data. Data, from which we produce new knowledge and information, is now at the centre of these digital outputs. Van Saaze, Rasterhoff and Archey (2020: 3-4) stress that we might reflect on how future societal visions influence current research and innovation, as well as how they influence how we evaluate the various socio-technical imaginaries at work in the field of digital heritage. Connections between data, new practices and technologies are now fundamental in digital heritage. An example is Linked data, a collection of design standards for distributing machine-readable interrelated data. Linked Open Data (LOD), which is linked data that is freely open and re-publishable, is currently of particular interest to heritage institutions. It may be because LOD fits in well with ideals of open access, inclusivity, and participation, provoking a sense of morality and democratisation (Poblet, Casanovas & Rodríguez, 2019). As a means of organising and disseminating their collections, archives, and research, heritage and cultural organisations are gradually adopting linked open data to promote interoperability. This will enable limitless aggregation of content from many geographical places (Jones, 2016), and will offer the development of a web of open cultural data that was previously siloed information. As already mentioned, in the digital sphere, the creation and fruition of cultural heritage and resources can be undertaken by different categories of our society. Both the scholar and the citizen can become active participants of the produced knowledge. Scanagatta (2021: 303-30) reflects on the relationship between the scholar and the digital archive and poses the following questions: How does the relationship between historian and archive change when the archive is digital? Which digital born resources will be useful to the historian of the future and how can he or she use them? Following the advance of

technological processes, the historian builds a deeper and more complex relationship with the web, becoming an inhabitant of the infosphere. In this transformation, the historian must first understand what already exists and is already changing the work of research and dissemination of historical content. When digital archives use Linked open data and RDF (see Chapter 2) , they are generating digital ontologies where the simulacrum of the material source shows itself to the researcher within a network of hypertextual links of a semantic nature. Digitalisation allows for a new use of the primary source, from which the singular individual produces a mass of sources previously unthinkable. Every action performed on a digital level brings as a consequence a recording and a new level of documentality. If within a physical historical archive the sources are stored while maintaining a physical and logical correlation between them, with the dematerialisation of primary sources and the construction of digital archives the sources are stored in a purely logical and no longer physical organisation; the archival organisation is coordinated through the use of metadata and defining metadata standards becomes essential to ensure that the digitised sources that will be ordered within these management systems maintain specific constraints between them, which are indispensable for a scholar's use of the digital archive.

Nonetheless, the ordinary citizen might also be a user and participant in this complex ecosystem of knowledge production and dissemination. The digital archive or digital project represents the possibility of opening archival sources to new audiences that can appreciate its multi-functionality and storytelling capacity from different perspectives. Involving communities also means going beyond a certain type of perception of the archive, in an attempt to bring documentary complexes and their current manifestation back to the centre of political and social reality (Valacchi, 2021: 25). It is true that some documents and manuscripts are not born to be showcased and touched by everybody. Some of them are born for individual use, for study or work, for institutional and administrative reasons, and in any case imply a specific and well-circumscribed interactive dimension: displaying them puts them at risk. Creating multimedia navigation, virtual spaces, interactive interfaces allow visitors, scholars, readers and citizens to observe these documents, and consequently deepen their knowledge, find new content and insights. What we obtain from the potential of digital archives is, on one side, a wider audience and fruition, and on the other side, the protection and preservation of rare and fragile material. Physical preservation objectives include reducing physical contact with delicate artefacts, decreasing the possibility of inadvertent damage occurring during physical handling, and minimising their exposure to light, humidity, and germs.

1.1.3. Why we need different projects

Given the diversity of documents and digital objects often found in many projects, the term that is increasingly used in the digital infosphere is *digital collection*, as in the case of the famous cultural aggregator Europeana[26]. The diversity and heterogeneity of sources does not have to be something that intimidates the digital scholar or cultural preservation institute, since through the practices of digitalisation and the creation of ad-hoc collections, collaborative projects can emerge and allow free, permanent public access. Once a digital collection has been created and made available to researchers, there are many advantages and things that can be done: metrics can be evaluated; through new software manuscripts can be transcribed, text mining and text analysis can be performed. In this way, the results can be incorporated in other digital humanities projects where archival and library collections find a new shape.

We can now see that the term 'collection' is embedded in the definition of digital project and that one does not necessarily exclude the other. In order to clear our ideas on digital collections, Horava (2010: 150) suggests to "consider what a collection does rather than what a collection is" and Lagoze and Fielding (1998) underline that "a collection is logically defined as a set of criteria for selecting resources from the broader information space." What is this "broader information space"? Collections gather various audiovisual, printed, and multimedia materials, which may include sources from different geographic areas and institutions. A digital collection, as well as a digital project, can be interdisciplinary and cross-institutional. A collection can be built on the basis of a topic, a historical period, a specific geographic area, but also on the basis of the type of objects being digitised. A digital collection embodies a virtual space in which multiple cultural institutions, archives and libraries cooperate with the aim of disseminating knowledge to a wider audience, empowering people, and benefiting society. It is important to highlight that digital projects and digital archives can be the result of the work of cultural institutions (libraries, museums, archive), but also of scholars and universities. Scholars and universities in particular, in their projects, aim at giving a shape to data research and to organise knowledge inside a very specific domain, while cultural institutions usually act as preservation entities. Examples of projects carried out but cultural institutions are the aforementioned Europeana, a cultural aggregator of heritage materials and resources coming from thousands of European galleries,

[26] https://www.europeana.eu/en

libraries, archives, and museums. Other digital initiatives such as Internet Archive[27] and Gallica[28] suggest that distinguishing between digital library, digital collections and digital projects is often unnecessary, especially in a digital context that keeps evolving and changing shape. New technologies, the need for accessibility, and the willingness to guarantee a democratisation of knowledge led to the communication and collaboration between different types of cultural institutions, as well as to the involvement of different professional figures. The merging of these institutions and their outputs in the realisation of digital collections and digital projects has led to a multifaceted and heterogeneous knowledge production that is often hard to cage within a single definition.

In the Italian context, two major digital cultural heritage projects are Internet Culturale[29], an initiative that built an integrated access portal to the digital resources of Italian libraries and renowned Italian cultural institutions, and CulturaItalia[30], the national cultural portal that serves as the national content aggregator for Europeana. Another one is DigiVatLib[31], a digital library service that provides free access to the Vatican Library's digitised collections: archival artefacts, manuscripts, incunabula, inventories as well as graphic materials, coins and medals, rare printed materials. DigiVatLib uses the International Image Interoperability Framework (IIIF[32]) technology, a best practice for making digital materials easily accessible and reusable. This technology for images sharing and reuse is also implemented in the Estese Digital Library[33], which offers to the public the digitised treasures of the Biblioteca Estensa Universitaria. The music fonds, the Muratori archive, the Borso D'Este Bible, together with the great maps (Cantino, Castiglioni, Catalana maps), the cartographic fonds, ancient and rare books.

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[27] The Internet Archive, a nonprofit with the declared goal of "universal access to all knowledge," was established in 1996. In light of this, the organisation makes digitised content available to the general public for free. This content includes websites, books, audio recordings, including live concerts, videos, photographs, and software.The most visited area of the Internet Archive website is the Wayback Machine. It provides a digital archive of the web's user-facing content. Over 562 billion online pages have been digitally copied, https://archive.org/

[28]The Bibliothèque nationale de France's digital library Gallica offers access to nearly thousands manuscripts, printed books, and photographs that may be browsed or searched online, some of which can be downloaded,https://gallica.bnf.fr/accueil/en/content/accueil-en

[29] InternetCulturale contains the Biblioteca Digitale Italiana, an aggregator of digital repositories scattered throughout Italy belonging to libraries of various origins and specialisations: Ministry of Culture (MiC), Ministry of Education, University and Research (MIUR), local authorities, foundations and Italian cultural institutes. InternetCulturale also contains the Emeroteca Digitale Italiana, containing newspapers and serial publications, https://www.internetculturale.it/

[30] http://www.culturaitalia.it/

[31] https://digi.vatlib.it/

[32] https://iiif.io/

[33] https://edl.cultura.gov.it/home/index.aspx

In the panorama of scholarly research and universities, we can mention Biblioteca Italiana[34], a digital library of texts representative of the Italian cultural and literary tradition from the Middle Ages to the 20th century, and promoted since 1996 by the Centro Interuniversitario Biblioteca italiana Telematica (CIBIT). The architecture of Biblioteca Italiana is based on the OAIS[35] (Open Archival Information System) logical model and provides a system for the management and online dissemination of digital documents. The metadata management system is based on the METS[36] framework, supplemented by a series of auxiliary sub-schemes. As its text encoding, Biblioteca Italiana has adopted the Text Encoding Initiative (TEI)[37], the standard most widely used in digital scholarly projects, as we will see later. Of particular note are also several digital initiatives, digital archives and projects implemented by universities and other cultural institutions. As we can notice, these projects have different shades. Digital projects often generate from a cross-disciplinary background, and for this reason they are representative of the changing nature of Digital Humanities, making them difficult to classify inside a specific definition. Some other scholarly projects are promoted by the *Associazione per l'Informatica Umanistica e la Cultura Digitale* (AIUCD)[38]*,* an association that promotes and disseminates methodological and theoretical reflection, scientific collaboration and the development of shared practices, resources and tools in the field of humanistic computing and the use of digital applications in all areas of the humanities. Among these projects, we find digital scholarly editions, digital archives and platforms in which different formats (videos, recordings, transcriptions, pictures, data visualisations, annotated texts, exhibitions, collections, network graphs, maps etc.) are stored. To name a few: Alcide Digitale[39], Catalogo Biflow[40], Catalogue of Digital Editions (EAD)[41] and the Estese Digital Library[42]. Another relevant project in the digital humanities is the Knowledge site of Vespasiano da Bisticci's *Letters*[43], a collection of handwritten letters that Vespasiano da Bisticci (1421-1498), an Italian humanist and librarian, received and sent between the years of 1444 and 1497. The content of the letters mostly regards the trading of codexes and manuscripts. In Vespasiano da Bisticci's *Letters*, particular attention is put in the

[34] http://www.bibliotecaitaliana.it/
[35] https://www2.archivists.org/groups/standards-committee/open-archival-information-system-oais
[36] https://www.loc.gov/standards/mets/
[37] https://tei-c.org/
[38] http://www.aiucd.it/
[39] https://alcidedigitale.fbk.eu/
[40] https://catalogobiflow.vedph.it/
[41] https://dig-ed-cat.acdh.oeaw.ac.at/
[42] https://edl.beniculturali.it/home/cover
[43] http://projects.dharc.unibo.it/vespasiano/

organisation and a representation of knowledge, which is made explicit in data models and relationships between data. To define this project, the term “knowledge site” is used; this gives us the idea of what a scholarly digital project, edition or archive is. It regards the representation of our research outputs and data in the age of digital transformation, where every cultural output is constantly subject to change, and contributes in the creation of knowledge within a specific framework. Knowledge and its representation have no limits in the digital sphere and thus what is produced is a “knowledge site” where mark-up texts, ontologies, metadata, text analysis and data visualisation can be discovered and reused.
The aim of the prototype for this dissertation (and its possible future developments) is generating new knowledge within a specific domain, giving voice to the marginalised group of courtesans of 16th-century Venice. The project will not be a mere exhibition of records, or a platform in which documents will be preserved, but a renewed knowledge base established on the research carried out, the materials collected, and data.

1.2 Reusability, Accessibility and Interoperability

According to the EU Council Conclusions of 2014, cultural heritage has a major role in the growth of individuals and the creation of social capital. In the aforementioned document, the key elements to keep in mind are the following: citizens' participation in public life; the quality of existence and well-being of individuals and their communities; intercultural dialogue; social inclusion; and the development of knowledge and creativity. These objectives can be achieved by ensuring greater and more consistent access to cultural heritage; accessibility is therefore not only a right of citizens but also a responsibility of all cultural institutions. In order to make cultural heritage a resource that is always accessible to individuals, groups, and communities that are representative of the entire society, there are two useful methods: 1) increasing the amount of digital resources that are available online and organising them so they can be easily consulted, shared, and accessed; and 2) improving the quality of access, modes of use, and reuse on the one hand, and removing physical, cultural, cognitive, and psych sensory barriers on the other.

In the cultural context, the concept of *accessibility* was already present in art. 27 of the Universal Declaration of Human Rights[44], where it is stated that “everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in

[44] https://www.ohchr.org/en/universal-declaration-of-human-rights

scientific advancement and its benefits." This concept already mentions culture, art, and science as essential resources of the entire community. In order to ensure equal access to culture, various barriers must be removed, including those that are physical, social, intellectual, sensory, cultural, economic, and technological. The term accessibility, in fact, is deeply linked to the recognition of the concept of *barrier* and *privilege*, the one understood as any kind of obstacle that prevents the full enjoyment of a good or service, and the other as any hierarchical relationship between individuals in a society. The aim is to overcome any type of barrier: the enjoyment of cultural heritage-public and private-without social disparities and territorial marginalisation; the overcoming of language barriers and educational gaps; the engagement of different audiences and cross-generational and multicultural groups; access, both to physical and digital space by people with specific access needs; the availability of cultural resources; the usability and long-term accessibility of digital objects through the adoption of new preservation strategies; and adequate metadata through standard protocols released in open formats (PND, 2022: 17-18). The digital space does not only embody the collection, selection and storage of information or a substitute for the lack of physical material goods, rather it provides a new way to reshape the relationship with audiences. It creates inclusive spaces where users are actively involved. Web accessibility becomes a powerful engine of involvement through the different forms of information transmission. It should in fact be declined not only as a right to access cultural heritage but also as an effective possibility of decoding content by every user, regardless of his or her skills, the technologies used, the contexts of use and any disabilities. Consequently, in order to achieve this goal, the following actions must be taken:

- Make information assets freely available online in accordance with standard data formats, with a preference for open formats and collaborative systems;

- Associate digital resources with clear and specific licences of use that ensure content reuse;

- Allow data to be reproducible so they can be blended with other data to create new content;

- Ensure the preservation over time of the data made accessible;

- Design collaborative solutions, following the principles of *universal design*, *user-centred design*, and *participatory design*.

It involves using methods, technologies and interfaces designed to produce meaningful, interdependent, inclusive and accessible digital resources (PND, 2022: 21). For accomplishing this goal, interconnected ecosystems that may remove informational barriers between sector databases and organisational systems toward a shared objective must be established. Bringing institutions and their data into communication requires overcoming long-standing operational patterns and organisational practices, moving from independent and self-contained vertical systems, or *data silos*, to a common distributed infrastructure of federated services and systems. Regardless of the cultural types of assets, all of this is largely facilitated by switching from closed databases to open systems and creating relatable and interoperable management systems. Since data are no longer intrinsically bound to the application that produced them, these requirements offer a double effect: 1) removing sectoral lock-ins; 2) and increasing the possibility of context reconstruction through connections between various databases.

It is also vital to think about the lifecycle of the resource and about the right strategy for digital growth, wherein the proper use of data is a prerequisite for benefiting from information heritage. To manage the phases of the information life cycle, from planning and design to creation, processing, transfer, and long-term preservation of the produced data and digital assets, it is crucial to define and use data-referenced management techniques. This process is by definition dynamic since description and reproduction in information systems are not enough. Description and reproduction represent only the first stage of a process that develops over time, and that has different stages such as enrichment, modelling, normalisation and relation. Data becomes alive and constantly evolves over time. As was previously mentioned, since a variety of actors participate actively in the processes of creating information about cultural heritage, it is essential that this data be handled in accordance with the principles, methods, and tools that enable its sharing and reuse to generate additional knowledge. When producing data, it is appropriate to recall the FAIR[45] principles. These principles describe the characteristics that digital resources must have in order to be used and reused for scientific, educational, and dissemination purposes, both by people and by machines:

- Traceability (Findable): digital resources must have persistent identifiers and appropriate descriptive metadata, which should be recorded in repositories that can also be indexed by machines.

[45] Full-text of FAIR principles is available here: https://force11.org/info/the-fair-data-principles/

- Accessibility (Accessible): metadata must be accessible to humans and machines through standard protocols and released in open format, even if the linked digital objects are not.

- Interoperability (Interoperable): metadata must be queryable and indexable by any other information system, an option that is feasible only if it is expressed in standard formats.

- Re-usability (Re-usable): digital resources and associated metadata must be released under clear licences that allow reuse and recombination, and expressed in languages that are recognized and understandable by the scientific community in the relevant domain. For instance, IIIF[46] technology allows the display and management of data following FAIR principles, thus facilitating the interoperability and reuse of reproductions of an asset. In fact, this tool stems from the need of some major digital libraries to transform the image into a digital resource, without the need to duplicate it, and to enable its annotation and manipulation (PND, 2022: 42-43). FAIR principles are the obvious and fundamental requirement for open science[47]. Open science is an umbrella term for a structural reform in how researchers work, collaborate, share thoughts, disseminate, and reuse results, rooted in the fundamental values that knowledge should be optimally reusable, modifiable, and redistributable. Open science is based on reusing other people's data and methods. As data represents a key substrate for the computer-assisted knowledge discovery process, it should be machine-actionable wherever feasible and carefully managed throughout their entire life cycle. According to Mons (2018), open access to research articles is just one aspect of open science. Meta-research over enormous volumes of distributed data is a new paradigm in science that uncovers a wide variety of patterns. Finding meaningful patterns and extracting knowledge that can be put into practice is a significant new problem in the data-rich era. Therefore, essential requirements for open science are data publication, data management, and reusable procedures to handle these data in many combinations (5).
Having said the above, the importance of data in both our professional and personal lives is now evident. Reusability of data opens the door to the creation of more inclusive, nonconformist, radical and free content. Knowledge is organised and produced from a different point of view, that is the one of collaboration and public dissemination. Open science and its principles set in motion the process of knowledge democratisation.

[46] International Image Interoperability Framework (IIIF), https://iiif.io/
[47] For an overview on Open science: https://www.dtls.nl/2016/04/14/5825-2/

1.3 The ingredients for a feminist, intersectional and cross-disciplinary approach

The vast and multifaceted world of Knowledge Organization and Information Science is made of interconnected fields, disciplines, methodologies and standards, as well as different people, projects and institutions. What comes out from this cauldron of participants is the growing role that data and new technologies are playing in humanities research and teaching, including in the process of democratisation of knowledge. Knowledge Organization is the discipline that takes part in this process of democratisation, and it is devoted to the set of techniques by which knowledge can be ordered in useful ways for its reference and use. It covers all semantic approaches to information (classification schemes, thesaurus, subject headings, terminology, taxonomies, ontologies) and their application in documentation, research, work organisation, and society more generally (Tomasi, 2022: 121). These tasks are carried out by librarians, archivists, subject specialists, and computer algorithms, and they all take part in the creation of a new ecosystem of culture.

Cultural heritage today, as in the past, is the outcome of a critical recognition, attribution of meaning, and hierarchization process that is constantly renewing itself, in accordance with shifting intellectual, political, and disciplinary sensibilities. As a result, it contemplates multiple interpretations and readings resulting from the opinions and attitudes of various generations, social groups, and individualities (PND, 2022: 15). In this definition, the concept of hierarchy hides a dark side, as it is a practice that can lead to the erasure in history, and in digitised and non-digitized collections, of many marginalised groups.

Being able to identify which parts have been cut off by rhetorical history and hierarchical procedures is thus an important step in the process of reshaping the figure of the 16th-century Venetian courtesan, and intersectionality plays a crucial role. The interconnected nature of social categorizations such as race, class, and gender and their application to a given individual or group, created overlapping and interdependent systems of discrimination. As stated by Enoch & Bessette (2013) archives are not neutral repositories, but institutional structures that shape the historical record. Over the years, these institutional structures have often excluded the working class, people of colour and women. A feminist and intersectional intervention on archives is thus essential in the process of knowledge production, as well as in providing the right tools to understand the present situation of marginalised women. It is in fact by looking at our past that we can make sense of our present, and build intergenerational bridges and coalitions with our histories. However, many vast and well-funded collections seem to diverge from this perspective as "over the last couple of decades, many of our most

visible projects have been organised around canonical texts, authors and cultural artefacts" (Wilkens, 2012).

On this matter, Amalia Levi's notions on 'archival silences' is enlightening:

> The term "archival silences" says more about our inability (or unwillingness) to see beyond the written text, than about the presence of silences in archives. Archival collections are indeed replete with silences [...] By design, archives were meant to preserve evidence of imperial and national administrations and material that, up to recent decades, reflected and celebrated an elite view of the world. Read literally, archival collections convey a limited, often skewed view of the human experience. They result in gaps and omissions in the historical record that are usually considered as problems to be solved. (2022: 3-4)

In his book, Michel-Rolph Trouillot (1997: 26) points out how such silences walk in the archive at four major moments: "The moment of fact creation (the making of sources); the moment of fact assembly (the making of archives); the moment of fact retrieval (the making of narratives); and the moment of retrospective significance (the making of history) in the final instance."

These silences hold a fertile and generative power, they embody a space where we can question what is not said, implied and alluded, and moreover how some things are present while others are not. Gathering information and material that were originally not considered significant enough means making marginalised voices easier to find, creating a digital space where these voices are heard and highlighted, and in which the environment is enriched with narrative vitality and interpretive pluralism.

However, we have to consider that the digitalization of these materials requires funding, equipment, people, and long-term institutional commitment, all aspects that many cultural institutions, local archives and marginalised communities might not be able to cover. The Open Access[48] movement is facing the same challenge, as the publication and dissemination of research papers is subject to high Article Processing Charges (APCs), which several universities and institutions of the global south cannot afford to pay[49].

[48]For an overview on Open Access, see Simone Aliprandi, *Fare Open Access. La libera diffusione del sapere scientifico nell'era digitale*, 2017. https://aliprandi.org/books/fare-openaccess/

[49] Initiatives have sprung up in the global south to prevent authors or institutions from having to pay APCs, such as AmeliCA (amelica.org), SciELO (scielo.org), IndiaRxiv (indiarxiv.in).

Returning to our feminist and intersectional research approach, dismantling rhetorical history and reconstructing the history, literary production, and life conditions of marginalised groups involves engaging with more radical practices and cross-disciplinarity. Information and library science, public history, history, and computational linguistics, together with other disciplines, can be intertwined and result in a variety of practices, methods, and technologies. Within this framework, the umbrella term 'digital humanities' embodies a wide range of scholarly practices that can actually transform historical and literary research: stylometry, text encoding, digital tools development, data curation and visualisation, data mining tools, open access policies, and born-digital preservation (Gavin & Smith, 2009).

All this, together with the theorization of mark-up technologies, helps in the promotion of the writing by women and its availability, and proves that digital humanities and women's studies are driven by the same liberationist spirit. Royster and Kirsch (2012) identified three key terms as characteristics of excellence in feminist research that can be of help: strategic contemplation, social circulation, and critical imagination. Flicking through the pages of *Registri* during my research in *Archivio di Stato di Venezia* made me realise the effective results of strategic contemplation:

> Ultimately, with the term strategic contemplation, we want to reclaim a genre of research and scholarship traditionally associated with processes of meditation, introspection, and reflection. We suggest that using a meditative/contemplative approach allows researchers to access another, often underutilized dimension of the research process. (2012:84)

Feminist scholars place a high value on strategic contemplation, which involves reflecting on the researcher's bodily response towards the physical archive and its material documents. Research becomes a lived process that involves meditation and introspection. This concept emphasises how engaging with the material artefacts, or visiting the historical location is an emotional experience that encourages imaginative inhabitation of the past. Strategic contemplation definitely leads to the rise of unexpected questions that many times diverge from the initial research question or even enrich it with further reflections.

The third point, which also cannot be forgotten in the undertaking of an intersectional approach, is critical imagination and it implies thinking beyond traditional figures, sites and the traditional ways of doing history. Feminist scholars should open up possibilities for multiple rhetoric that would not refuse to valorise one traditional, agonistic, and linear mode

of rhetorical discourse but would rather integrate other more risky moves (Enoch & Bessette, 2012: 646).

> We look at people at whom we have not looked before[..], in places at which we have not looked seriously or methodically before, at practices and conditions at which we have not looked closely enough, and at genres that we have not considered carefully enough[...] and we think again about what women's patterns of action seem to suggest about rhetoric, writing, leadership, activism, and rhetorical expertise. (Royster and Kirsch, 2012: 72)

This brings us back to the nature of digital humanities and digital practices, as they tickle our imagination and experimentation[50]. Making use and discovering new forms of literacy and tools allow researchers to become "multimodal" scholars. Integrating the concept of inclusion with the ones of multimodality and cross-interdisciplinarity is also the implementation of a radical and intersectional practice. Amplifying accessibility to resources, collections and materials also means adopting inclusive description, that is a description recognizing that no archival function is neutral and that inclusive description can be taken to avoid bias and harmful language. Recently, several efforts have been made to identify and gather useful guidelines and best practices for helping archivists and other professionals in the description of archival and cultural material online[51]. In 2020, archivist Charlotte Lellman, with the input and collaborative support of Hanna Clutterbuck-Cook, Amber LaFountain, Jessica Sedgwick, wrote the 'Guidelines for Inclusive and Conscientious Description'[52], which have the intent to support and encourage archivists in the creation of descriptions that are accurate, respectful and clear in order to minimise unnecessary harm. Societal backgrounds, personal and institutional biases, and power structures influence how records are created, maintained, presented, and interpreted (see also Kelleher, 2017). Archive descriptions play a role in how records are represented, influencing whether and how the collection is discovered, navigated, and understood.

The guiding questions proposed by Lellman (2020) are the following:

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[50] For a deeper overview on the creative power of DH and archives, see David Thomas, "Imagining Archives", in *The Silence of the Archive,* eds. David Thomas, Simon Fowler, and Valerie Johnson (London: Facet, 2017), 117-139.

[51] See the evolving list of resources for Inclusive Description realized by the Society of American Archivists (SAA): https://www2.archivists.org/groups/description-section/inclusive-description

[52] https://wiki.harvard.edu/confluence/display/hmschommanual/Guidelines+for+Inclusive+and+Conscientious+Description

- What role can your words have in either perpetuating or combating marginalisation and archival erasure?
- Who is harmed and who benefits from your description?
- In the interest of clarity and equity, what should be brought to the forefront to appropriately contextualise the records?
- What or who might you be leaving out?
- How have colonialism, racism, sexism, or other forms of hegemony impacted the origins of the records you are describing?

These guidelines underline that, in the process of knowledge organisation and production, each person plays a crucial role in how knowledge will be disseminated, interpreted and enriched by present and future generations. There is no kind of passivity, but rather a socially, culturally, politically active and generative process of creation[53].
There is no better conclusion to this paragraph than the words of Amalia Levi, from which we should take inspiration:

> Let us develop systems that are sensitive to the multiplicity of users, and that provide scholars with the capability to provide interconnections and links among items, access and engage with them in multiple ways. In short, let us emphasise what archivists do best: unearthing and weaving the web of context, holding together archival material, while providing our users with opportunities for enrichment. (2022: 4)

1.4 A new ecosystem of culture: relationships and public engagement

In the making of a new ecosystem of culture, the core term is ‘relationships’. What does ‘relationship’ mean in the cultural heritage panorama? We could interpret this word in two different ways:

1) Relationships between institutions and different types of audiences;

2) Relationships between data.

[53] A noteworthy example is provided by Duke University Libraries and its 'Diversity and Inclusion Digitization Initiative’. In 2017, the Advisory Council for Digital Collections (ACDC) issued a call for proposals on the topic of diversity and inclusion, drawing inspiration from both the strategic plan for the libraries and the institution. https://duke.app.box.com/s/vvftxcqy9qmhtfcxdnrqdm5kqxh1zc6t (last accessed: 17th December 2022).

Both of these relationships are driven by the same objective: encouraging processes of co-creation that merge historical periods, places, objects and people. The virtual space offered by the web, extends the possibilities for cultural institutions, libraries, archives and universities situated in different geographical areas to collaborate and generate knowledge. It also allows a wider dissemination of knowledge, as various audiences could benefit from the results of a collaborative project or digital collection. Audiences with different characteristics and belonging to specific communities would interact with these outputs and learn not only the knowledge transmitted, but also the existence of other institutions. In this web of relationships, digital cultural heritage is a resource that incorporates history and memory. From the interactions of users and institutions, information is originated and embodied by a network of multiple, free, and simultaneous uses of digital resources. This network is thus an inexhaustible source of stories that can be read, interpreted and reworked by those who access it. Pluralism of voices, tolerance and intercultural dialogue are the pillars of this network of communications. The absence of an open and multi shaped dialogue can lead to historical bias, which is already very much present and affects the lives of many members of our society. As it has already been mentioned, an intersectional methodology has, as main desire, an inclusive willingness. The lack of dialogue contributes to increasing stereotyped images, as well as to the intensification of foreign communities' marginalisation and segregation. Libraries (public, academic, digital), archives and museums are not exclusively 'an information agency', but they have a strong, heartfelt rootedness in their own traditions and cultural heritage. This heritage is and must be, of course, the object of valorisation (as well as of protection) and dialogue. Indeed, this heritage of the past is something more than an object of historical or economic interest: it is the foundational element of the valorisation (intangible and not economic) of the community itself, hence of people's lives. It is in this context that collaboration between scholars of different disciplines, local governments, individual libraries, and working groups has become increasingly popular. As mentioned in Sabba (2020: 11), public engagement is useful in introducing a broader audience to a type of heritage otherwise relegated to groups of scholars, amateurs and specialists; sharing then means raising awareness, and reflexively teaching preservation as an ethical approach to cultural heritage artefacts. In the Italian panorama, the Faro Convention of 2005[54] introduces,

[54] The Council of Europe Framework Convention on the Value of Cultural Heritage for Society was signed by seven member countries (Albania, Belgium, Bulgaria, Cyprus, San Marino, Spain, and Poland), ratified by twenty-one (Armenia, Austria, Bosnia and Herzegovina, Croatia, Estonia, Finland, Georgia, Hungary, Italy, Latvia, Luxembourg, Montenegro, North Macedonia, Norway, Portugal, Republic of Moldova, Serbia, Slovak Republic, Slovenia, Switzerland, and Ukraine), https://rm.coe.int/1680083746 (last accessed: 17th December 2022).

in fact, a broader vision of cultural heritage, understood as "a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time" (art. 2). It entrusts a specific role, a great responsibility and a previously unthinkable protagonist to ‘heritage communities’, that is ‘people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations’ (art. 2). This convention overturns the traditional point of view of authority, and marks the transition from "right of cultural heritage" to the "right to cultural heritage". That is, it is no longer only professors, professionals, librarians, archivists and preservation specialists who are the only ones to be held responsible for the cultural heritage, but it is all citizens, local communities, and visitors (and users) who embody a new role in the activities of knowledge preservation, enhancement and enjoyment. This does not exclude - let us be clear - specialists and professionals, as some opponents claim. But they are entrusted with a new and more demanding role in contemporary society, in the relationship with heritage communities, and with active citizenship. It affirms the individual and collective right "to benefit from cultural heritage and to contribute to its enrichment" (art. 4) and highlights how cultural heritage can contribute to the enrichment of "processes of economic, political, social and cultural development and land-use planning, [...]" (art. 8).

Cultural institutions are often seen by citizens as old fortresses: mysterious and at times almost inaccessible. In the context of the archives in particular, citizens might feel intimidated by the great amount of materials and its complex organisation and classification. Both in the physical archive and in the possible creation of a digital one, archivists and digital humanists should pay attention to the lack of knowledge and different levels of expertise of the public. Archives should not be mere ivory towers accessible only to academics and subject experts, they should be open to communities not only in theory, but also in practice. How to do it then? How can cultural institutions make the citizen feel closer to their cultural heritage? Within this framework, practices of public engagement could be of use[55]. The digital sphere offers the possibility of a change in perspective: who interacts with the heritage is no longer a passive user, but an active subject, capable of enriching the information universe and co-creating in a participatory way, connecting with others. The aim is making

[55] Cultural dissemination and practices of public engagement are also present in the National plan for digitization in Italy. For more details see chapter 6.3.2. (‘Disseminatione culturale e condivisione sociale’) and chapter 6.3.3. (‘Co-creazione e crowdsourcing’), https://digitallibrary.cultura.gov.it/wp-content/uploads/2023/01/PND_versione1_1_gen2023.pdf

citizens conscious agents that play a significant role in the processes of cultural production, and this is done through different practices of public engagement. There are many channels and tools that can innovatively complement traditional seminars, workshops, books and exhibitions: virtual exhibitions can reach a large and heterogeneous audience, and ensure the permanence over time of the content of what is being exhibited and discussed; thematic events, seminars and conferences can be organised, combined with guided tours, workshops, augmented reality and *gamification*; tourist itineraries can be built through the web, characterising them by territories, cities, institutions or cultural typologies; and social media can keep, in a conscious and strategic way, the attention and interest high.

Especially in the context of academic libraries, many projects of social history and public history[56] are developed, and result in partnerships among different participants. This kind of practice in Italy is formally recognized by the MIUR[57] as 'Third Mission'. Third Mission consists in the generation of knowledge outside academic environments to the benefit of the social, cultural and economic development. Progress is no longer only cultural and scientific, but also social, civil, economic and political, and it is subject to a new way of communication. There are various forms in which science so to speak 'socialises,' some more direct through technology transfer and economic valorization of research (patents, spin offs, third-party research, incubators), and others more complex, less 'material,' and difficult then to compute numerically speaking, such as public engagement in the valorization of cultural and scientific heritage (Sabba, 2019: 220). Pluralism of identities, cooperation, new networks and alliances, dialogues among archives, museums, local authorities and businesses, and the relationships between different disciplines are fundamental aspects of public engagement, citizen science and third mission[58]. Lifelong learning, practices of Information Literacy and open teaching (MOOC) are also considered Third mission practices (Morriello, 2020: 310).

Another practice of public engagement is crowdsourcing: a field of study that grew in popularity. In a renowned publication, Estellés-Arolas and González-Ladrón-de Guevara (2012) reviewed various papers and proposed a unified description:

> Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organisation, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The

[56] For an overview on Public History, see Thomas Cauvin, *Public history: a textbook of practice*. New York; London: Routledge, 2016;

[57] https://www.miur.gov.it/

[58] An in-deep analysis of academic libraries and their crucial role in Third mission can be found in Maria Cassella, *Biblioteche accademiche e Terza Missione*

> undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skills,while the crowdsourcer will obtain and utilise to their advantage that what the user has brought to the venture, whose form will depend on the type of activity undertaken." (197)

Crowdsourcing would be helpful, for instance, when there is a great amount of transcriptions that are needed in the realisation of a comprehensive digital project or archive. Often, cultural institutions and academics do not have enough funds, resources or time to complete such a huge project. In this scenario, crowdsourcing not only makes the citizen part and parcel of the process, but actually helps carry out the task[59]. The participative generation of contents produces cultural value and offers new possibilities in citizenship development from a cultural, economic and social point of view.

[59] An example of a scholarly crowdsourcing initiative is 'Transcribe Bentham', which regards the transcription of Bentham's previously unpublished manuscript. https://blogs.ucl.ac.uk/transcribe-bentham/ (last accessed: 17th December 2022).

Chapter 2

Exploring Knowledge Organization: data modeling and semantic enrichment

One of the main advantages of machine-readable data is interoperability between resources, which allows easy information interchange and cross-searching. This benefit serves as the foundation for the majority of metadata standards in the library and archive sciences, and it is enabled through the Semantic Web. The advent of the Web is undoubtedly the phenomenon that has most revolutionised the practices of Humanities Computing, and that led to a transversal shift of perspective in:

1) methodologies that all humanities disciplines share (markup, databases, hypertexts, classification and modelling systems);
2) the sharing of processes (representation, analysis, querying and access);
3) the importance of the life cycle of digital documents (production, description, management, preservation, dissemination, use and especially reuse).

The user is put at the centre of the fruition system, and distributed access to resources becomes a crucial component. Digital objects are naturally published online as a result of domain study, and the data-driven approach is essential for offering users more elaborated services. This innovation has helped archival information systems, electronic and later digital libraries, and scholarly editions[60] of texts discovering in the Web a venue that is discipline-neutral for the transmission and publication of research results. In the course of its development, the Web has undergone several changes: from its original purpose as a hypertext editor[61] to a user environment reserved for code specialists (Web 1.0); from a system of passive and elitist access to an environment of collective and participatory knowledge production (Web 2.0); and from a repository of information in the form of hypertext documents to the place where people go to share information (Web 3.0) (Tomasi, 2022: 30-31). The purposes of the Web 3.0 are described in the first article on Semantic Web written by Tim Berners-Lee, James Hendler and Ora Lassila:

[60] To further investigate practices of scholarly editions see Price, 2013.
[61] The history of the Web can be read in Tim Berners-Lee, Mark Fischetti, *Weaving the Web: the original design and ultimate destiny of the World Wide Web by its inventor*, San Francisco, Harper San Francisco, 1999.

> The Semantic Web is not a separate Web but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation [...] The essential property of the World Wide Web is its universality. The power of a hypertext link is that "anything can link to anything." Web technology, therefore, must not discriminate between the scribbled draft and the polished performance, between commercial and academic information, or among cultures, languages, media and so on. Information varies along many axes. One of these is the difference between information produced primarily for human consumption and that produced mainly for machines (2001: 37-38)

Since rules from any existing knowledge-representation system can be exported onto the Web, the goal of the Semantic Web is to offer a language that communicates both data and rules for reasoning about the data. The Semantic Web aims to make the meaning of the Web universally accessible and usable, and it can be described as a global network of interconnected and semantically annotated data, made possible through a mixture of formats and specifications that represent and share information in a global context. The semantic web, as described by Berners-Lee et al. (2001), envisions all Internet resources being connected by semantic links that express some sort of meaning regarding their relationships with one another. To accomplish this, it is necessary to deconstruct these interactions into tiny, atomistic parts known as *triples*; they are so named as they encode a *subject*, a *object*, and the semantic link (known as a *predicate*) between them (Gartner, 2015: 297).

As previously mentioned, in the panorama of Knowledge Organization and in the creation of a new ecosystem of culture, relationships between data play an important role. As stated by Francesca Tomasi, it is not only the document in its global dimension as an information resource that conveys information; rather, it is the data that constitutes the focus of attention (2022: 37). Converting documents into data means extracting the entities capable of qualifying the document's content and linking them to return meaning. This reflexion introduces the concept of Linked Data[62], that is structured data that has been linked to other data to make it more useful through semantic queries. It is based on standard Web technologies like HTTP, RDF, and URIs, but instead of using them to serve web pages only for human readers, it extends them to share information in a way that computers can read automatically. The phenomenon of Linked Open Data (LOD) has aided in the realisation of the *web of data movement*[63], a data-centric approach which has shifted the focus to atomic data, the resource qualified through a uniquely identified fragment and through semantic relationships. All data that is released on the Web in accordance with a set of best practices

[62] https://www.w3.org/standards/semanticweb/data
[63] https://www.w3.org/2013/data/

known as the *Linked Data Principles* (see Blaney, 2017) is referred to as Linked Open Data. These principles are based on the assumption that standards should be used for data access and display on the Web. The principles, on the other side, aim at creating connections between data from other sources. Similar to how hyperlinks on the old Web connect all HTML documents into a single global information space, these links join all linked data into a single global data graph. Linked Open Data (LOD) allows us to build what we can now call a *knowledge graph*[64], that is semantic relationships between scattered entities. On this matter, the World Wide Web Consortium (W3C)[65] is concerned with suggesting a technology stack for building the Semantic Web, i.e., a set of languages, technologies, standards, protocols useful and necessary for anyone who wants to publish their data on the web, build vocabularies, and write data management plans according to the principles of linked data.

In the context of cultural heritage, the phenomenon of the *Linking Open Data Cloud* has emerged and institutions, which store data about events, places, people and concepts, are increasingly seeking to dialogue in a multi-directional system of relationships[66]. LOD are now viewed by archives, libraries and museums as a tool that, on the one hand, enables data to be returned to an open environment (open data) and, on the other hand, presents a chance to create a network of the MAB[67] or even the GLAM[68] that enhances heritage from a perspective of dialogue and mutual enrichment (Tomasi, 2022: 39).

2.1 Data modelling in brief

The realisation of the semantic Web, as well as the realisation of a digital archive or project, goes as much through the definition of the logical structure to be given, based on principles of conceptualization and abstraction, as through the choice of tools, based on technical specifications and technological solutions. Conceptualization is applied to solve problems of

[64] A knowledge graph, often referred to as a semantic network, portrays a network of actual things, such as things, events, circumstances, or concepts, and shows how they are related to one another. A knowledge graph is made up of three main components: nodes, edges, and labels. Any object, place, or person can be a node. An edge defines the relationship between the nodes.
[65] https://www.w3.org/Consortium/
[66] https://lod-cloud.net/clouds/lod-cloud.svg
[67] MAB is the acronym under which AIB (Italian Library Association), ANAI (Italian National Archival Association) and ICOM Italia (International Council of Museums - Italian National Committee), in 2011 created a permanent coordination in which professionals from archives, libraries, and museums work together. http://www.mab-italia.org/index.php/musei-archivi-biblioteche/mab-italia
[68] In order to unite archivists, librarians, curators, writers, researchers, and anybody else with an interest in gathering, preserving, using, and promoting literary archives and manuscripts in Britain and Ireland, the Group for Literary Archives and Manuscripts (GLAM) was founded in 2005 by The John Rylands University Library, University of Manchester.
http://glam-archives.org.uk/

unique identification of resources (URI/IRI), transmission protocols (HTTP), character encoding (Unicode), interchange formats (XML), knowledge representation on the principle of a tripartite arrangement (RDF), along with its serialisations (Turtle, RDFa, Microformats), ontologies and Schemes i.e. conceptual models (OWL, RDFS, SKOS).

Before exploring these topics, we should examine the meaning of the word *model*. The term is used to describe an abstract concept and how it relates to other concepts, and it is characterised by three fundamental aspects:

1) A model is a representation of something, that is every model is a specific type of mapping. By portraying it with something else, such as words, images, and so on, it represents something—an object, a concept, etc.
2) A model is not the original and is not a replica. A model, as opposed to a copy, only captures some of the characteristics of the entity it represents. The features that are included in the model are often chosen based on the assumptions of the model's creator and the model usage.
3) A model is created to be applied by someone and can be useful for someone who can use it. At least for some operations and for a while, the model might be used in place of the original.

Thus, a model may be defined as a representation of anything made by someone for a particular purpose at a particular moment. It is a representation that emphasises some features and how they relate to one another while ignoring others. These elements were purposefully chosen to fulfil a particular function for a person or a group. A model must be expressed in language that is unambiguous, explicit, and that processes the main elements of the model in order for it to work meaningfully in a digital setting. In order to be automatically processed, models have to follow formal specifications. Formal models are models that exploit a specific set of rules to define the model's syntax and semantics. Formal models can be described as a collection of logical expressions or mathematical operations that serve for a specific type of model. For instance, the Entity-Relationship (ER) notation has been used to represent the conceptual level of relational databases, tables have been used to represent the logical level, and XML schemas have been used to represent the model for a collection of XML documents. When implementing formal models, we also establish that components of the structure implied have to be aligned with specific data types defined in the data model. In fact, constraints can be expressed using the model during data entry or data creation. To guarantee

that only reasonable data is supplied, for instance, we might add certain restrictions to our model for a date of birth. We can demand search results that fall within a given date range if the data "knows" that a particular text is a date thanks to the model's structure, which also makes it possible to query the data more accurately and wisely (Jannidis & Flanders, 2019: 28-29). Having said the above, the three primary purposes of formal models are to enable more complicated and semantically rich searches, to enable the addition of constraints to enhance data quality, and to support data communication between humans and machines. One area known for the application of formal models is *data modelling*, which is concerned with the modelling of entities such as documents, events, information systems, agents, data sets, and so forth (see also Schreibman, 2016: 307). Taking as an example one of the archival documents used for the project prototype, let us talk about how we can perform manual entry of information. The date of a *processo*, as the one of Veronica Franco, can be an interesting case: on one side, any trial is written and takes place on a specific date, and this date constitutes a piece of information. On the other hand, other dates can be found in the document of a trial as part of the text and they can refer to events of the past. We need to treat that specific date as metadata, or data about an entity, in order for the date of the trial to serve as a method of managing the digital item—for example, to identify trials written around a given date or to sort a collection of *processi* by date. The name(s) of the creator(s), a title, a creation or publishing date, and other details about the entity that the digital resource is intended to represent are examples of typical metadata. Additionally, metadata may contain details on the digitization process, such as the creator's name, the type of digitization—for instance, OCR or manual transcription—the editing techniques employed, and so forth. One method is to preserve the metadata bundled with the original data while making it distinguishable from it using mark-up. Annotation or mark-up is information that is applied to a specific area of a digital item, such as a text, and it enables the computer to precisely extract information without relying on inference. This annotation is also defined as *inline annotation* or *inline mark-up*. At this point, we have to make a distinction between the *modelled instance*, the *data model*, and the *metamodel*, which are the main parts of formal modelling (Jannidis & Flanders, 2019: 33). The *modelled instance* is a digital representation of a particular entity, such as a document, piece of art, or event. The *data model* is an abstract structure that, through the identification of significant entities and their relationships to one another, functionally describes a universe of discourse—that is, a portion of reality. It adheres to a fundamental mathematical model that outlines the conceivable operations that could be performed on the data. Complex data models typically specify the data types for all or some

of its components as well as information on the data's structure. Usually, a data model is expressed using an existing *metamodel* suitable for the task at hand, such as entity relationship modelling for databases or XML for textual data. In the aforementioned case of the trial, this might involve adding metadata and annotations to the text of the *processo* in the form of inline mark-up. A schema would serve as the representation of the data model for our markup, and we may choose to utilise the TEI Guidelines and its schema, HTML, or a different model. In this case, the *modelled instance* is the encoded *processo*, the *data model* is the TEI (or HTML), and the *metamodel* is XML. The metamodel effectively represents an agreement (represented as a formal standard) regarding notation and syntax, as well as a protocol for establishing descriptive systems or languages that make use of this syntax, as well as for defining their vocabularies and grammar. Having a shared syntax allows the creation of data process tools, while freely creating individual languages supporting the diversity of descriptive approaches. The rules of XML specify the delimiters that separate the markup from the content and the XML metamodel offers a method for establishing a markup language via the schema: a set of instructions outlining the characteristics of a genre or class of texts.

As previously noted, numerous actors can participate in the dynamic and shared construction of new bibliographic information, taking part in a process of data reuse and enrichment by linking individual datasets. The Resource Description Framework (RDF)[69] has the goal of making structured data interconnected and reusable through triples, and it is based on XML. Linked data technology, in fact, ensures the interoperability of data in different contexts than the original one in which it was produced, while retaining its semantic value. It is like an interplay of atomic entities that, by coming together, form molecules that in turn structure a specific domain. The knowledge included in a single, granular dataset should be supported and organised using RDF as an infrastructure, an architecture that makes explicit the semantic values of the relations between the data pertaining to a resource. In other words, RDF represents the semantic web language's grammar and syntax, and its normative structure is represented by a triple (Guerrini, 2022). Over the years, the development of RDF has been at the centre of attention, and its relevance has been highlighted by the following uses:

- Providing web metadata (e.g. content rating, capability descriptions, privacy preferences, etc.).

[69] For an overview on RDF see: https://www.w3.org/TR/rdf-concepts/ (Last accessed: 20 December 2022).

- Applications that demand open information models instead of restricted information models (e.g. scheduling activities, describing organisational processes, annotation of Web resources, etc.).
- Enabling data to be handled outside the specific environment in which it was developed, in a way that can function at the Internet scale, much as the World Wide Web has done with hypertext.
- Interworking: making applications collaborate with one another to create new information by merging data.
- The Web is evolving from containing only content that is human-readable to becoming a global network of collaborating processes through the automated processing of Web information by software agents. RDF provides a world-wide *lingua franca* for these processes.

In order to be automatically processed, the data model of RDF needs to be represented through a *triple*, that is, statements characterised by three elements: *subject*, *predicate*, *object* (also called a *property*). The *subject* is the part of the sentence that identifies the described entity, the *predicate* represents the property of the entity, while the *object* is the value of the entity's property. The predicate is often defined as a property of the triple and can be interpreted as a relation between *subject* and *object.*

Subject	**Predicate**	**Object**
Le Lettere	Is published in	Milano
Le Lettere	Has editor	Bombiani
Bompiani	Is editor of	La noia

Table 1: Examples of RDF triples.

Figure 2: graph of RDF model.

In the graphical representation of a RDF triple, the *subject* and *object* are the *nodes* linked by the *predicate*. The direction of the arc is significant as it always points toward the *object*. *Subject*, *Predicate* and *Object* are also named *Resource*, *Property* and *Property value* and, as it has already been mentioned, they form a *statement*. In order to be automatically read by computers, the RDF model has some restrictions that must be followed. The *Subject* and *Predicate* must have a Uniform Resource Identifier (URI); the *Object* can have a URI or a string of numbers, characters and symbols called *literal*. Even though the URI is itself a string, it is not expected to convey a meaning and to be understood by humans; rather, it is a unique identifier that can be universally read by machines. As noted earlier, the *literal* can be the *object* of a triple and it can be used to describe resources' properties, for instance, the name of a person, the title of a book, the date of birth of an author. A *literal* interrupts the series of connections and relationships with other entities, as it is not identifiable and differentiable by the machine (Guerrini & Possemato, 2015: 47-50). Another example of a triple is the *RDF link*, which describes the relationship between two resources through three URIs instead of two: each element of the triple is identified by a specific URI. The distinctive feature is that the *object* is not identified by a *literal*, but by a URI. The role of URIs is essential since their presence results in information that can be successfully reused. In a RDF graph, if the node is a URI it is represented with an oval shape, as a rectangle if it is a literal. If two nodes in two different graphs have the same URI, they can be merged into a single graph without affecting the meaning of the triples in it. In this way, the graph becomes a *cluster*, that is, a set of triples with the same *subject*.

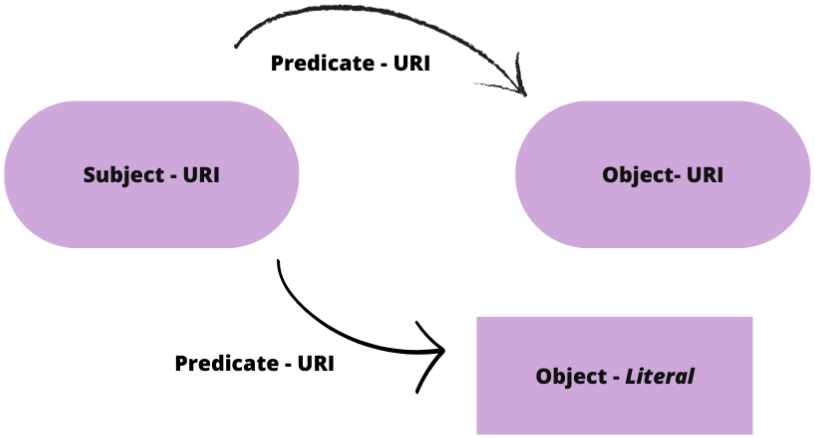


Figure 3: A cluster, RDF graph with two triples with the same Subject.

If the *object* of one graph is the same as the *Subject* of another graph, it is possible to merge the two entities into one: the URI however is the *object* of a triple and at the same time is the *subject* of a new triple in a concatenated representation named *chain*.

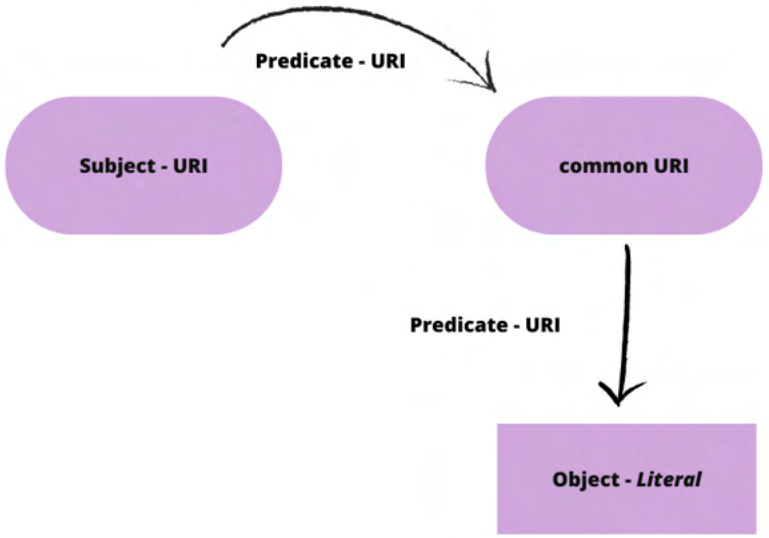


Figure 4: RDF graph chain with two triples with the same Object/Subject in common.

The semantic extension of RDF is called RDF schema[70] (RDFS). When defining terms used in RDF and determining features of other resources, such as the domains and ranges of attributes, the RDF schema language is used to declare basic classes and types. In a nutshell, the *domain* and *range* properties are intended to help you understand how the property connects a subject to an object. The *rdfs:domain* of an rdf:Property declares the class of the *subject* in a triple whose predicate is that property, while the *rdfs:range* of an rdf:Property declares the class or datatype of the *object* in a triple whose predicate is that property. Here an example:

ex:supervisor	rdfs:domain	foaf:Person
ex:supervisor	rdfs:range	foaf:Organization

Each structure *Subject-Predicate-Object* is related to and aggregated with other structures, giving birth to a more complex grid in which each *subject* can potentially become the *object* of another triple. These links express the type of relationships between entities. Choosing to structure linked data using RDF triples has considerable benefits, mainly due to the model's extreme ability to create conditions for sharing and reusing data in the information space. The use of HTTP URIs to uniquely identify resources and the vocabularies used to express the relationships between them makes RDF a universal model that can be used in any context. The ability to use different language schemas (OWL, RDFS), provides elasticity in the use of RDF for highly structured data. From here it follows that in heterogeneous environments such as libraries (which produce data mostly in MARC[71] formats) and archives (historically less oriented toward this form of structuring), it is possible to overcome the barriers of different languages and data structures, and thus realise shared projects (Guerrini & Possamato, 2015: 57).

[70] RDFS, https://www.w3.org/2001/sw/wiki/RDFS
[71] https://www.loc.gov/marc/

2.2 Making meaning from data: standards, vocabularies and ontologies

RDF provides a generic, abstract data model for describing resources using triples consisting of *subject*, *predicate*, and *object*. However, it does not provide the domain-specific terms needed to describe the classes of resources and the patterns of relationships existing between them. Inner information, represented through markup, and outer information, represented through RDF, must also be able to dialogue with the world of the Web. This function is supported by taxonomies and vocabularies expressed in ontological languages. Using vocabularies in structuring the predicate of the *triple* assigns meaning and thus defines the semantics of the data. It is therefore necessary for vocabulary to be shared and accessible to machines. Ontologies, which are explicit formal specifications and descriptions of the entities and concepts that encompass a specific information domain (Gruber, 1993), are now widely used across the Internet. An ontology's purpose is to generate a formally processable set of declarations about the multiple types of entities that exist within the domain and their relationships to one another. We could imagine an ontology that describes a record that includes entities representing physical materials (leather, silk, paper, parchment, and so forth) and the concept of *being made of* a material (a book is made of paper, glue, leather). Ontologies are often built with the intention of formalising a domain in order to coordinate and mediate across various applications of that knowledge. The ability to communicate the similarities between two projects' databases for managing museum records will be made possible by the same ontology, even if the field names are in different languages or adopt different terminology.

Researchers who need to share information in a particular domain use a common vocabulary that is defined by an ontology. As already mentioned, developing ontologies means sharing a common understanding of the structure of information among people or software agents; enabling reuse of domain knowledge; making domain assumptions explicit; separating domain knowledge from operational knowledge; and analysing domain knowledge. An ontology expresses different concepts, for example, glossaries, thesauri, taxonomies, schemas, data models, formal ontologies. Together with controlled vocabularies, ontologies are central resources to the preservation of knowledge and data mining.

When textual information needs to be validated for operational purposes, the need for controlled vocabulary generally emerges. The improvement of query recall is the primary initial reason for data entry harmonisation. Keywords can be used to accomplish indexation in its most basic form. However, if relying solely on user input, the likelihood of typographical

errors rises as the number of users increases. The accuracy of search results is harmed over time as a consequence of these inevitable events, which is why sets of predefined values are provided. As described in FAIR Cookbook (2020)[72] a controlled terminology is "a normative collection of terms, the spelling of which is fixed and for which additional information may be provided such as a definition, a set of synonyms, an editor, a version, as well as a licence determining the condition of use". The collection of details pertaining to a particular restricted terminology term is referred to as term metadata. As terms in a controlled terminology appear as a flat list, no formal representation of the relationships between the entities the controlled language represents is made. Controlled terminologies, which are frequently created to serve a data model or an application, have this as their primary flaw and restriction.

The terminology adopted to express metadata schemas, ontologies, and vocabularies is not unique, but depends on the context of use. For this reason, selecting the proper vocabulary to describe data is critical. In structuring a dataset, the use of controlled vocabularies and ontologies for the creation of triples, and the predicate in particular, is of great importance. The logic of the semantic web has defined a set of guidelines for the selection, use and, if necessary, creation of new vocabularies and ontologies, providing a useful documentation on best practices for publishing linked data[73]. Among these practices, the following are those who deserve extra attention: choosing, if possible, existing vocabularies recognized by the Web community, rather than creating new ones; adhering to shared rules to ensure understanding and reuse of one's dataset on the Web. According to Guerrini and Possemato (2015: 81) when choosing one or more vocabulary, we should keep in mind that it has to be:

- *documented*: it means that these vocabularies should have descriptive pages regarding classes and properties used;
- *auto-descriptive*: each property or term in a vocabulary should have a label, a definition;
- *plurilingual*: every element of a vocabulary, even the ones represented by numerical identifiers, should have labels, definitions and comments in many languages;
- *reusable*: being used in multiple datasets to guarantee the reusability of the vocabulary;
- *authoritative*: published by qualified agencies and institutions, which can guarantee the quality of the content and its accessibility over time;

[72] https://faircookbook.elixir-europe.org/content/home.html
[73] See: *Best practices for publishing linked data: W3C*, 9, January 2014, https://www.w3.org/TR/ld-bp/

- *long-term accessible*: ensure characteristics of maintainability, persistence, and use over time;
- *equipped with persistent URLs*;
- *updated*: guarantee a policy of constant versioning; updating the vocabulary and assuring its compatibility with the different versions published over the years; important changes in vocabularies should be documented.

As the number of ontologies increased significantly over the years, existing tools for selecting the proper vocabularies are of great importance. Among these, we can find catalogues of general purpose ontologies, such as Linked Open Vocabularies (LOV)[74], ontology.es; catalogue of domain ontologies, es. BioPortal[75] , SWEET[76] (Cota, Daquino & Pozzato, 2020: 25).

Together with these recommendations, attention should be paid also to the concept of ontology reuse. Since the beginning of the semantic web, ontology reuse has been a crucial component of its development (Gruber, 1993). Reusing ontologies makes integration processes easier and promotes semantic interoperability between data sources. Well-established ontologies are more likely to adhere to the aforementioned characteristics, such as authoritative, long-term accessible, equipped with persistent URLs and updated. The approaches of ontology reuse can be motivated by standardisation and popularity. Ontology reuse by standardisation is the practice of reusing ontologies derived from authoritative organisations, like W3 Consortium[77] and ISO[78]. Ontologies endorsed by the W3C, such as PROV-O[79] or Time Ontology[80], and community standards ontologies, such as FRBRoo[81], are a few examples. Standard ontologies offer reference models for describing information that spans domains, such as events, temporal aspects, and provenance, and frequently offer domain-oriented models to enable stakeholders to carry out lossless data translation into RDF. Ontology reuse by popularity refers to the decision of implementing ontologies that are popular and reused in many third-party ontologies by import, extension or specialisation. FOAF[82] is an example of a standard for semantic social network data. Other well-known

[74] https://lov.linkeddata.es/dataset/lov
[75] https://bioportal.bioontology.org/
[76] https://github.com/ESIPFed/sweet
[77] https://www.w3.org/
[78] https://www.iso.org/home.html
[79] https://www.w3.org/TR/prov-o/
[80] https://www.w3.org/TR/owl-time/
[81] https://www.cidoc-crm.org/frbroo/home-0
[82] http://xmlns.com/foaf/0.1/

examples are Schema.org[83] and DBpedia[84] (Cota, Daquino & Pozzato, 2020: 40).

Logical models of museums, archives and libraries can be seen as some of the possible infinite modelling of web entities, constructed taking into account the principles and tradition of each disciplinary field. This new perspective helps to better clarify the role of data professionals, the concept of metadata, the characteristics of logical models, and to shape a unified view of the bibliographic, archival, and museum universe. Ensuring navigation to other catalogues and contexts, external to libraries, is the turning point in the approach to entities of logical models. Interoperability among catalogues is the mission of Library and Information science because it is the prerequisite for universal bibliographic control. For bibliographic systems and their users, navigation and exploration to various information contexts, from archives and museums to the semantic web, is an essential feature. Today, an information retrieval system that does not provide comprehensive navigation and exploration is doomed to swiftly lose its appeal and serve an ever-shrinking audience. This is due less to the fact that the system cannot be viable or well-designed without this characteristic, as our catalogues have always been, but rather to the fact that if it is built and designed in isolation, it runs the risk of remaining so (Bianchini, 2022: 66). In the cultural sphere, classification systems, controlled vocabularies and authority files employed primarily in structuring and standardising the data are widely used. Vocabulary is used to classify terms used in a particular application, characterise relationships, and define constraints on the use of these terms. Ontologies are used in systems whose concepts must be uniquely identified and where software agents can recognize these objects and consequently make associations. As previously mentioned, ontologies are diagrams of attributes and relationships between entities; they enable the representation of resources through the description of their characteristics and the semantic identification and enrichment that binds these entities together. Ontologies allow categorization, deductive reasoning and, as formalised tools, they follow rules expressed by semantic languages, such as SKOS, OWL[85] and RDFS[86].

In the sphere of metadatation, standards and ontologies used are numerous. Guerrini and Possemato (2015: 85-90) provide a useful overview, and divide some of them according to the topic domain:

[83] https://schema.org/
[84] https://www.dbpedia.org/
[85] Ontology Web Language (OWL), W3C standard for writing ontologies, https://www.w3.org/OWL; Resource Description Framework Schema (RDFS), an extension of RDF with some common classes and properties, https://www.w3.org/TR/rdf-schema;
Simple Knowledge Organization System (SKOS), is a family of language formals created to represent glossaries, classifications, taxonomies and any kind of structured vocabulary, https://www.w3.org/2004/02/skos.
[86] RDFS has been used in the project data.bnf.fr and it can be seen here: https://data.bnf.fr/

a) Ontologies for bibliographic description and archival studies: FRBR[87], ISBD elements[88], RDA[89], EAC-CPF[90], OAD[91];
b) Ontologies for authority data: FRAD[92], MADS in RDF[93];
c) Ontologies for the description of people: FOAF[94];
d) Ontologies for the description of places: GeoNames Ontology[95], FAO Geopolitical Ontology[96];
e) Ontologies for the description of rights: CC REL[97];
f) Ontologies for citations: BIBO[98]
g) Ontologies for metadata preservation: PREMIS[99], PRONOM Vocabulary.[100]

Together with this list, there is also the contribution of other cultural institutions. The activity that has always characterised the work of institutions responsible for the preservation of heritage, of that heritage that symbolises the common and collective memory, is the description of cultural resources. The three pillars that historically have served as the foundation for the need to define and exchange best practices for the description of the heterogeneous, multifaceted, and multiform resources that populate the cultural horizon are ICCU[101], ICAR[102], and ICCD[103], particularly when considering the Italian context. Italy has established its own set of standards, methodological first and structural afterward, creating *ad hoc* conceptual models. Within the global framework, the notable works of IFLA[104], ICA[105], and ICOM[106] must be highlighted as well. The goal is to solve the issue of dialogue between

[87] Functional Requirements for Bibliographic Records, enacted by IFLA, has been one of the first to be expressed in RDF.
[88] It is the translation of ISBD (International Standard Bibliographic Description) in RDF, https://www.iflastandards.info/isbd/elements.html
[89] Resource Description and Access (RDA), http://www.rda-rsc.org/content/about-rda
[90] Encoded Archival Context (Corporate bodies, Persons, Families) Ontology, http://culturalis.org/eac-cpf.
[91] Ontology for Archival Description (OAD) is an initiative of the project *Reload,* https://labs.regesta.com/progettoReload/oad-ontology
[92]Functional Requirements for Authority Data, https://www.ifla.org/wp-content/uploads/2019/05/assets/cataloguing/frad/frad_2013.pdf
[93] MADS/RDF (Metadata Authority Description Schema in RDF), http://www.loc.gov/standards/mads/rdf/
[94] Friend of a Friend (FOAF) has been the first instrument for the creation of metadata regarding people on the semantic web, http://xmlns.com/foaf/0.1/
[95] https://www.geonames.org/ontology/documentation.html
[96] https://www.fao.org/countryprofiles/geopolitical-ontology/download/en/
[97] Creative Commons Rights Expression Language (CC REL), https://creativecommons.org/ns
[98] Bibliographic Ontology (BIBO), https://www.bibliontology.com/
[99] Preservation Metadata: Implementation Strategies (PREMIS), https://www.loc.gov/standards/premis/
[100] https://www.nationalarchives.gov.uk/PRONOM/Default.aspx
[101] Istituto Centrale per il Catalogo Unico (ICCU), https://www.iccu.sbn.it/it
[102] Istituto Centrale per gli Archivi (ICAR), https://www.icar.beniculturali.it
[103] Istituto Centrale per il Catalogo e la Documentazione (ICCD), http://www.iccd.beniculturali.it
[104] International Federation of Library Associations and Institutions (IFLA), https://www.ifla.org
[105] International Council on Archives (ICA), https://www.ica.org
[106] International Council of Museums (ICOM), https://icom.museum

frequently genuinely diverse descriptive models in the face of objectively heterogeneous data. From MARC to ISBD, from the AACRs - AACR2[107] to the more global standard represented by the new RDA model for the digital world to the American ontology BIBFRAME[108,] libraries have dedicated a significant portion of their theoretical reflection to provide a standard process for the construction of the catalogue construction: from the publication of theoretical guidelines to the development of ontological models (Guerrini, 2022: 117). As regards archives, it is useful to mention ISAD together with ISAAR(CPF), the consequent EAD and EAC(CPF) structural standards, the more recent RiC-CM[109] with the RiC-O[110] ontology, but also the aforementioned Italian OAD and the EAC-CPF (Tomasi, 2022: 51-55). The model proposed by the CIDOC-CRM[111] has given a great contribution, as different cultural institutions are gradually conforming to this standard. CIDOC-CRM is a formal ontology whose purpose is to make possible the exchange and integration of descriptions, information and documentation for scholarly research among heterogeneous sources of cultural heritage: museum collections, archaeological sites, monuments, and scholarly records preserved in archives and libraries. CIDOC-CRM has been developed since 1996 by a working group composed of computer scientists, archaeologists, art historians, philosophers and library scholars, with the co-partnership of ICOM[112] and CIDOC[113]. Useful entities to represent knowledge related to cultural heritage preserved especially in museums were selected from structured databases representative of the field, and the semantic contents of hundreds of database schemas from the museum, archival and library sectors were integrated into a single structure. It is an ontology that describes the conceptualization of a specific domain (cultural heritage), but has high-level categories and classes, such as *Temporal entity*, *Period*, *Activity*, *Modification*, *Persistent item*, *Creation*, *Conceptual object* (Biagetti, 2016). Conservation and Heritage Science documentation refers to a broad category that includes the description and recording of all significant elements—including people, places, things, and events—involved in the history of a cultural object. The National Gallery of London carried

[107] Anglo-American Cataloguing Rules (AACR). "First published in 1967 and edited by C. Sumner Spalding, a second edition (AACR2) edited by Michael Gorman and Paul W. Winkler was issued in 1978, with subsequent revisions; (AACR2R) appearing in 1988 and 1998; all updates ceased in 2005", https://en.wikipedia.org/wiki/Anglo-American_Cataloguing_Rules.
[108] https://www.loc.gov/bibframe
[109] Records in Contexts – Conceptual Model (RiC-CM), version 0.1, 2016, version (official) 0.2, 2021, https://www.ica.org/en/records-in-contexts-conceptual-model.
[110] Records in Contexts – Ontology (RiC-O), https://www.ica.org/standards/RiC/ontology.html.
[111] CIDOC Conceptual Reference Model (CRM), https://www.cidoc-crm.org. Latest version, https://cidoc-crm.org/version/version-7.1.1.
[112] International Council of Museums, https://icom.museum/en/
[113]To see how CIDOC-CRM has been used and applied, see Mazurek et al., «Applicability of CIDOC CRM in Digital Libraries», 2012, https://cidoc-crm.org/Resources/applicability-of-cidoc-crm-in-digital-libraries.

out the semantic models as part of the IPERION-CH H2020[114] project and provided useful examples for the implementation of the CIDOC-CRM model as a tool for documenting an object's composition, state, and rate of deterioration or damage through time, as well as all efforts made to prevent, stop and analyse this deterioration process. The purpose is to cover the range of historical activities of a cultural heritage object in detail and capture its complexities. The example here illustrated (see Figure 5) is presented in the form of a flow diagram, which explains the entities that are linked together and the connected properties. In Figure 5, the diagram is an example of Events in a cultural object's life. A wide range of activities can be considered as extra events in an object's history, such as the commissioning of the piece, its movement, any modifications or conservation treatments, new ownership transfers, etc. Their example does not provide a detailed description of the whole range of these additional occurrences, but the generic linkages that most of them share have been explained. The flow diagram is rendered using a 2D presentation via Mermaid[115].

[114] Integrated Platform for the European Research Infrastructure ON Cultural Heritage, http://www.iperionch.eu/
[115] Mermaid is a JavaScript-based diagramming and charting tool that uses Markdown-inspired text definitions and a renderer to create and modify complex diagrams, https://github.com/mermaid-js/mermaid

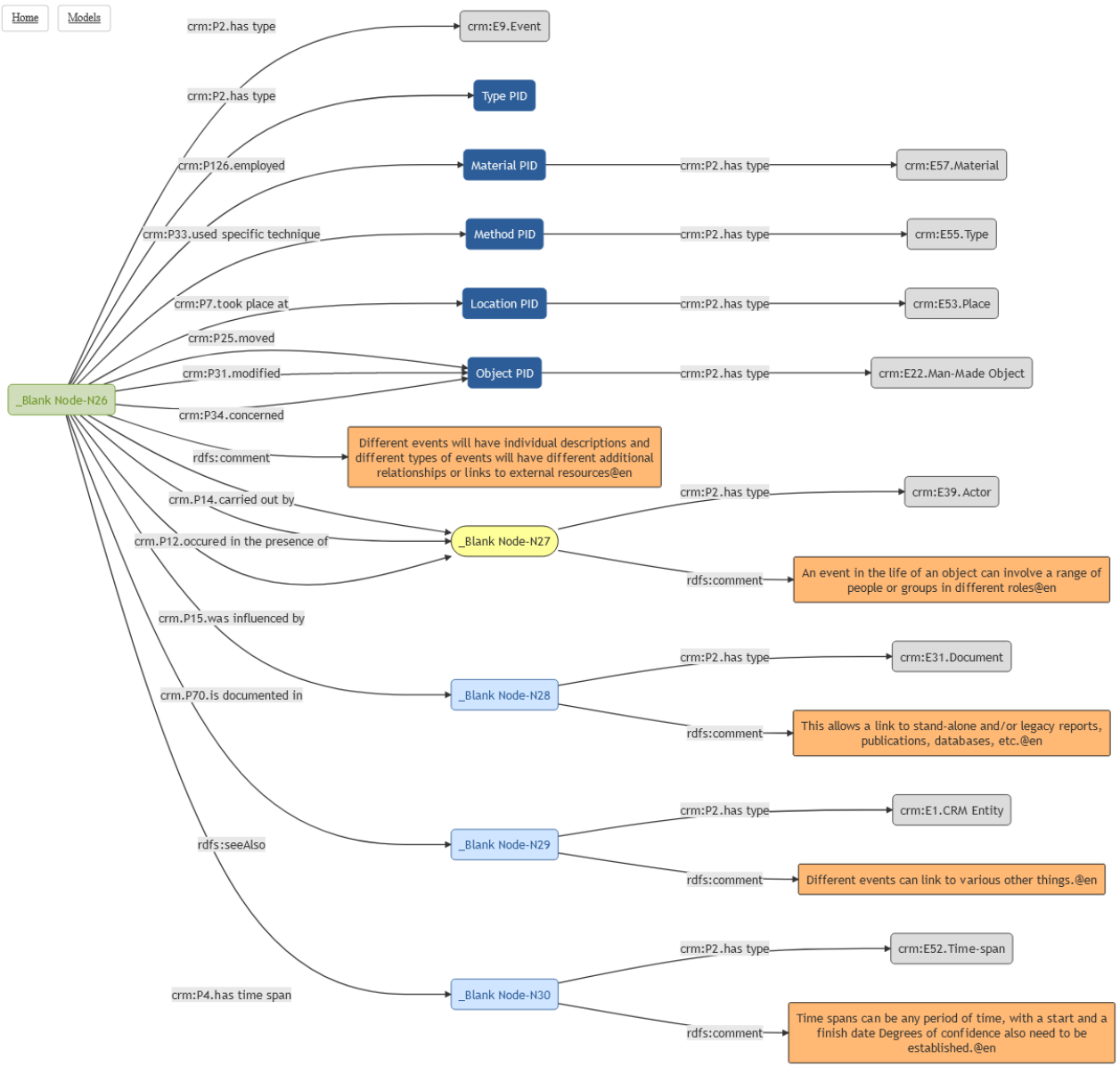


Figure 5: Cidoc-CRM model example by the National Gallery representing primary relationships describing other events[116]

From standards, natively designed to describe analogue cultural resources, cultural institutions have had to deal with the description of digital objects, the result of a process of converting those primary sources from tangible resources to be described and inventoried, to resources that have to undergo a process of metadatation. Traditionally, when we talk about metadata, we divide them in three categories:

[116] https://jpadfield.github.io/cidoc-crm.examples/

1) descriptive metadata, typically the task of the DC model[117];

2) technical and administrative metadata, a role that in Italy is covered by the ICCU's MAG[118] standard;

3) structural metadata, usually represented through the METS[119] system, designed and maintained by the Library of Congress.

With the emergence of the LOD paradigm, standards are now often classified and selected based on three levels of data management: 1) descriptor sets - i.e., Schemas (*element sets*); 2) ontologies or more generally RDF vocabularies, that is the concretization of conceptual modelling; 3) the values associated with the elements (*value vocabularies*) - that is, the terms acquired from the controlled vocabularies. Values associated with data are no longer just lists of terms in a controlled dictionary, but are themselves reconsidered and republished from a LOD perspective (Tomasi, 2022: 56-57). In Italy, collaborative projects such as SAN LOD[120], Internet Culturale[121], CulturItalia[122] e Alphabetica[123] have been giving proof that ontologies are the fundamental tools for achieving semantic interoperability, as they conceptualise a domain and act as mediators for integrated search of digital objects managed in different repositories. By developing and publishing the LOD of the National Archival System (SAN), the ICAR has achieved a series of objectives for providing advanced services to users and developing innovative tools and methodologies aimed at technological and semantic interoperability:

1. The definition of a conceptual model of the SAN formalised in an ontology expressed in OWL language, fully corresponding to the information structure conveyed by the XML schemas proposed to the member systems as exchange paths for the contribution to the Catalogue of Archival Resources - CAT of its data related to archival complexes, producer subjects, research tools and preservation subjects;

[117] https://www.dublincore.org/
[118] MAG, https://www.iccu.sbn.it/export/sites/iccu/documenti/manuale.html
[119] METS, https://loc.gov/standards/mets/mets-home.html
[120] Sistema Archivistico Nazionale (SAN), http://dati.san.beniculturali.it.
[121] Internet Culturale, https://www.internetculturale.it.
[122] CulturaItalia, http://www.culturaitalia.it.
[123] Alphabetica, https://alphabetica.it/web/alphabetica/

2. The definition of a series of extensions to the basic Ontology for the integration of entities, information elements and relations between objects originally not envisaged in the CAT SAN paths;

3. The creation of thesauri and tools formalised according to Semantic Web standards that can support the control of the description of the archival heritage and at the same time constitute general information frames capable of integrating data from various sources, contextualising them on the basis of time (history and institutions) and space (territory, historical toponyms);

4. The production and publication of SAN data in LOD format.

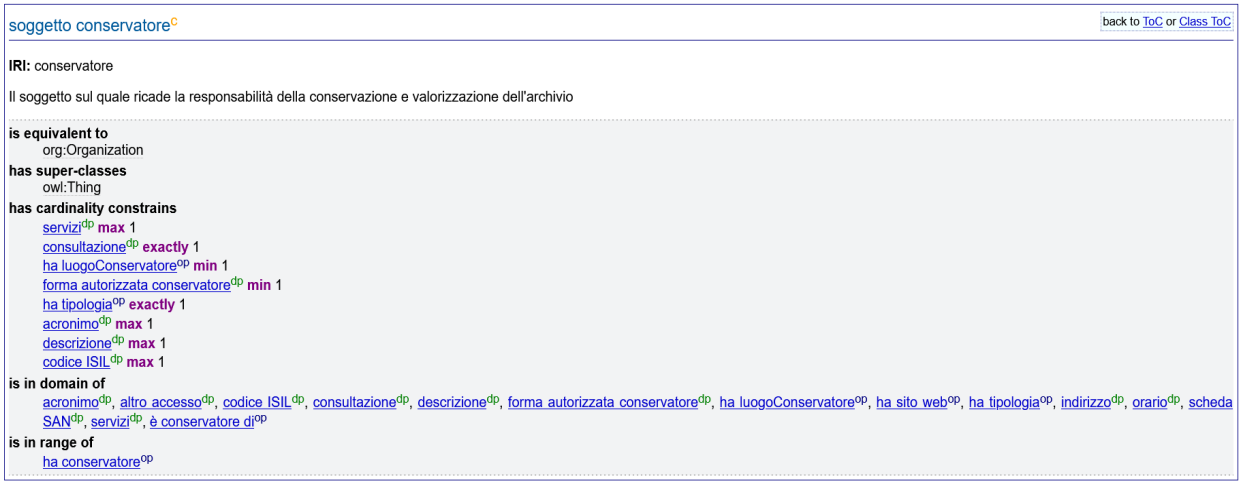


Figure 6: Instance of the class *soggetto conservatore* in SAN-LOD ontology[124]

[124] http://dati.san.beniculturali.it/lode/aggiornato.htm#classes

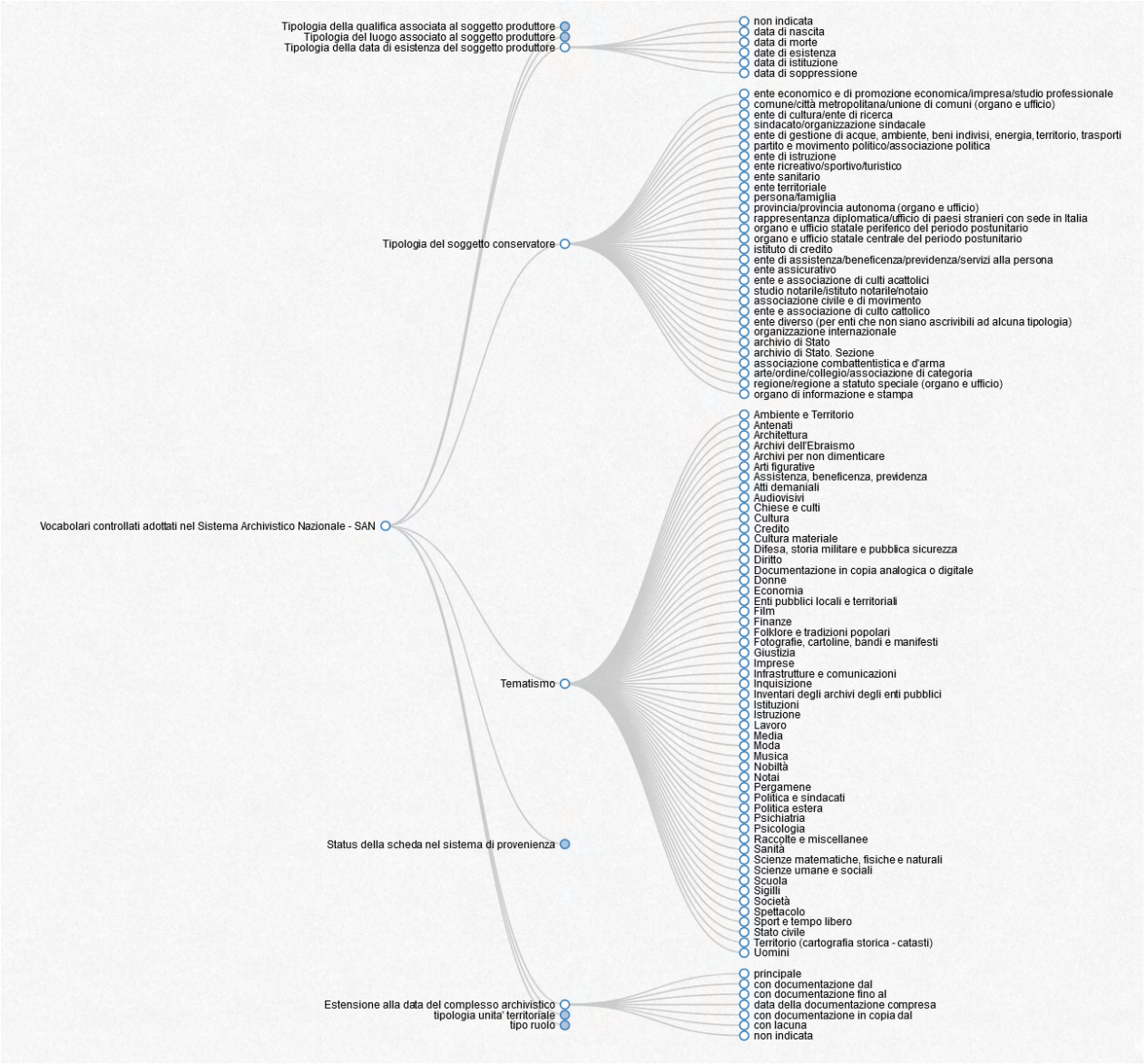


Figure 7: SAN-LOD Thesaurus[125]

In the Semantic Web and in the exposition of data in datasets consisting of triples in RDF with Linked open data technologies, ontologies and standards play a key role in expressing the semantically qualified relationships. Ontologies are excellent for modelling and storing data on intricate information ecosystems, workflows, cultural heritage objects, and anything else that calls for a focus on the relations between objects.

[125] http://dati.san.beniculturali.it/skos/

Chapter 3

The subject of the study: courtesans in 16th-century Venice

In a mythical version of the domestication of women, the Florentine humanist Leon Battista Alberti claimed that the woman's inherent ability to bear, care for, and nourish children was what kept her confined to the home. Alberti's perspectives actually reflect the lives of Renaissance women. This point of view was frequently expressed in both the literature of the time and the Venetian environment. For instance, the Venetian humanist Giovanni Caldiera asserted that the family had a hierarchical structure just like the State. Within the domestic sphere, the *paterfamilias* acted as a kind of doge or prince, and a woman's job was to submit to her husband's wishes (Martin, 1985: 22). The humanist Francesco Barbaro stated in *On Wifely Duties* that a wife's obedience to her husband was the most important component of a marriage and that it was required to maintain peace in the household (Barbaro, 1978: 193). Women were expected to become devoted wives and mothers, and it was usually the father that had the duty of finding the best husband in terms of wealth and social status. Daughters were tools for the family strategies their dads pursued, and they were influenced by practical interest and cultural norms. The daughter who was going to marry was to be endowed by her father in a manner congruent with her status, and the obligation of the *dote*, in the father's impossibility, pertained to the mother (Molmenti, 1880: 158; Chojnacki, 1975: 582). The dominant values limited women's acceptable gender roles to being wives or confined to convents, and they tied men's honour to power over their daughters' sexuality. In practice, even that constrained career decision appears to have been determined by the father and not the daughter. As already mentioned, a girl's father's assessment of potential son-in-laws often depended on factors other than her preference. In some cases, families lacked the wealth to arrange marriages for all of their daughters, forcing some of them into convents. This was due to the significant dowries that parents were required to commit to favourable marriages (Migiel & Schiesari, 1991: 143).

Women were constantly controlled and judged by male family members. Girls lived in semi closure, and were kept behind closed doors when they were *novizze*, that is before getting married. They were told how to act, how to behave, and how to dress. Control over their body involved authority over their sexuality, but also over their clothing and physical

appearance. In 1598, Cesare Vecellio in *De gli habiti antichi et moderni di diverse parti del mondo* wrote "sono così ben guardate e custodite nelle case paterne, che ben spesso nè anche i più stretti parenti le veggono se non quando elle si maritano".[126] I am focusing on this particular topic, clothing, to portray how men's power over women also involved fashion. Control over clothing is another form of authority over the female body and her sexual appearance. From Figure 8, we can deduce that young unmarried daughters were entirely covered when going outside their household.

Figure 8: *Donzella*, Venetian young unmarried woman[127]

[126] Translation: "they are so well looked after and guarded in paternal houses, that very often neither even the closest relatives see them except when they marry"
[127] Image retrieved from https://hdl.handle.net/2027/ucm.5323779607

Figure 9: Venetian courtesan[128]

Courtesans, as written in different deliberations of the 16th century, were particularly limited in their fashion decisions and were forbidden to wear pearls and precious textiles as silk[129]. Particularly the pearl served as a Renaissance marker of a woman's status and class. When courtesans disobeyed the restrictions and flaunted their priceless stones while wearing pearls, they were essentially fighting for the rights of Renaissance women. Their raucous rebellion's

[128] Image retrieved from https://hdl.handle.net/2027/ucm.5323779607
[129] *ASV, Senato, Deliberazioni, Terra, reg. 32, fol. 147*, 21 February 1543; Leggi e memorie, 108, no. 105.

clothing included pearls, a lot of lace, and beautiful, imported silk. In Vecellio (1598: 330), courtesans are described as follows:

> Quelle meretrici, che vogliono acquistar credito col mezzo della finta honesta, si servono dell'habito vedovile et di quello ancora delle meritate; già sole vano la maggior parte d'esse andar in abito di donzelle; usanza non ancora dimessa affatto, benchè usata con medestia maggiore, i maniera che potendo essere vedute, sono finalmente sforzate scoprirsi alquanto et è perciò impossibile, ch'elle non sieno conosciute a qualche gesto; et perchè son loro prohibite le perle, sono in particolare conosciute ier tali, quando mostrano scoperto il collo. Vestono del resto pomposamente: sotto usano brocadelli di seta, come anco calze ricamate, così carpette et camicie.[130]

The control over their clothing was intended to limit the glitz and luxury of some of the most popular courtesans, such as Veronica Franco. To show that a woman could achieve wealth without being married or financially dependent on a man meant undermining the patriarchal institution of the family, in which power was in the hands of the husband. Of course, this profession was also demonised because of moral and religious reasons. Male descriptions of encounters with courtesans are numerous and often ambiguous, as we can trace both positive and negative narrations. Numerous references to Venetian courtesans can be found in Coryat's *Crudities*, including those concerning their clothing, etiquette, social interactions, religious activities, and "sinful" behaviours. He provides the intriguing etymology of "courtesan" as follows (264):

> The woman that professeth this trade is called in the Italian tongue *Cortezana*, which word is derived from the Italian word *cortesia* that signifieth courtesie. Because these kinde of women are said to receive courtesies of their favourites.
>
> Which word hath some kinde of affinitie with the Greek word ἑταῖρα, which signifieth properly a sociable woman, and is by Demosthenes, Athenaeus, and divers other prose writers often taken for a woman of a dissolute conversation.

Coryat also stated that "so infinite are the allurements of these amorous Calypsoes, that the fame of them hath drawen many to Venice from some of the remotest parts of Christendome, to contemplate their beauties, and enjoy their pleasing dalliances." The traveller Montaigne

[130] Translation: Those *meretrici*, who wish to gain credit by means of pretended honour, make use of the widow's gown and that of the married women; most of them alone go in the dress of *donzelle*; A custom not yet resigned at all, although used with greater modesty, so that, being able to be seen, they are finally forced to uncover themselves a little and it is therefore impossible that they are not known by some gesture; and because pearls are forbidden to them, they are particularly known as such when they show their necks uncovered. They also dress pompously: they wear silk brocades underneath, as well as embroidered stockings, carpets and blouses.

wanted to see for himself if the fable of Venetian women's beauty was true. He was so surprised by courtesans' professionalism that, in his *Journal de voyage* (1580)[131], he wrote that Venetian courtesans demanded a separate fee for conversation alone, in addition to the standard fee for the full negotiation (Rosenthal, 1992: 55). Of a different opinion is Garzoni (1593), who rails against the *meretrici* with a generous portion of severe misogyny:

> Quanto da loro si riceve, e acquista, non è altro, che mille immondezze, e sorditezze, le quali honestamente nominare non si ponno, e s'abbellisce il concetto descrivendo quanto son brutte, sporche, laide, infami, furfante, pidocchiose, piene di croste, cariche di menstruo, puzzolenti di carne, fetenti di fiato, ammorbate di dentro, appestate di fuori, che le Gabrine in comparatione son più desiderabili che loro. (601)

When it served the needs of the citizens of the Republic, both elegant aristocratic women and sophisticated and *cortigiane honeste* were hailed as symbols of freedom, justice, and splendour in Venice. The courtesan was seldom defended by its fellow citizens as a laudable terrestrial Venus. However, they were often the victims of those who envied them for their popularity and, in a few cases, literary applause. Venetian men, especially those who felt insecure about their social status, unleashed their anger on aspiring prostitutes, denouncing them in court or denigrating them with satirical insults (Rosenthal, 1992: 47). Sixteenth-century Venetian writers tried to express their uncertain opinions on the patronage system by creating a figure of the courtesan. They changed her from being seen as the classical Venus Anadyomene (born from the sea) to an example of a world that was driven by greed, gain and ambition. This contrasted with the idealised civic icon, the Virginal Venus, who shielded Venetian men from their self-proclaimed "libertà". The courtesan that is portrayed in Pietro Aretino's works and those of Lorenzo and Maffio Venier is seen as disorderly and dominated by dishonesty, sin and immorality. These authors claim that the courtesan lives in a corrupt, deceitful, and filthy world.

The courtesan is used as a symbol of moral, economic, and social destruction in both Lorenzo Venier's satirical poems and Pietro Aretino's pornographic dialogues, the *Ragionamenti* (1534), or *Sei giornate* (1536) .

Their creation of a brand-new genre of pornographic literature that highlighted the contradictory roles of courtesans and prostitutes in Venetian society served as a model for later writing on *meretrici* and by courtesans. Satire produces this fiction of power by allowing the satirist to establish, over a period of time, a rhetorical stance that absolves him, and

[131] see Montaigne (2007)

like-minded readers, of the allure of a woman—while absolving him, her, and his readers of any liability for whatever they do considers distasteful. Aretino never compliments courtesans on their literary or creative abilities; instead, he emphasises the dishonest, economic rewards that supposedly feed their mercenary ambitions in his pictures. Even in his well-known letter, dated December 15, 1537, to the courtesan Angela del Moro, also called La Zaffetta, he only cynically praises her, saying that she alone overcomes the ordinary, vulgar courtesan by having put a veil of dignity in the face of lust. The acclaim he receives from other writers who also criticise courtesans is woven into his disdain for them. In this way, the courtesan serves as a vehicle for male authors to establish their reputations. In Il trentuno della Zaffetta composed by Lorenzo Venier, the author describes Zaffetta being raped by eighty men on the island of Chioggia. The most cruel and humiliating punishment a courtesan could experience was gang rape. A "trentauno" was meant to permanently label a courtesan with a disfiguring disease by increasing her risk of contracting syphilis as well as publicly humiliating her (Rosenthal, 1992: 38). Even though it was viewed as a violent crime by the Ventian Forty in the early modern era, rape was never severely punished. It is outrageous to think how certain horrendous crimes were not punished or condemned appropriately, while a woman only needed to decide not to be a devoted wife to be discriminated against and live as an outcast.

Being a courtesan during the Renaissance gave a woman a certain amount of independence, giving her the chance to be financially independent and in charge of her own life. Nonetheless, as we have just discussed, this social class was extremely discriminated both in everyday life and in the literary panorama. Courtesans were often in danger because of threats of syphilis, maternal death, or execution if found guilty of witchcraft. However, some of them managed to overcome these difficulties with intelligence and determination.

3.1 Prostitution laws, Courtesans and the Plague (1575)

In Renaissance Italy, prostitution was a fact of daily life. However, Renaissance Italians had a mixed impression of the profession despite it being permitted. In the Middle Ages, the Church believed in St. Augustine of Hippo's assertion "If you get rid of whores, the world would be devoured with lust" to declare prostitution a "necessary evil." The 13-century scholar Thomas Aquinas concurred, writing that "if prostitution were to be suppressed, reckless lusts would overthrow society." Similarly, "Take away prostitutes from the earth and you will fill it with sodomy" is another example of how courtesans were considered for their

functionality. It was believed that society was shielded from male lust by prostitutes, who served as sinful receptacles (Barzaghi, 1980: 10).

Particularly, they were thought to prevent men from harbouring romantic interests in other guys rather than women. The Venetian Republic was able to tacitly support propaganda that condemned sodomy and promoted prostitution thanks to an unrestricted press industry.

In the *Carampane*[132] district, prostitutes were also allowed to openly flaunt their physical attributes from the first floor windows of brothels. This is when the *Ponte delle Tette* and *Fondamenta delle Tette* received their names. The famous Venetian diarist and patrician Marin Sanuto noted with concern that there were 11,654 prostitutes in a city of 100,000 inhabitants. However, according to Ruggiero, the number of courtesans reported by him and in other tourists' reports is overstated (1985: 152-3). Even if prostitution was legalised in Venice in 1358, it did not make it a respectable profession (Clarke, 2015: 422). As in many other European cities, Venice followed a similar path during the later Middle Ages whereby local authorities first attempted to spatially confine prostitution before finally establishing municipal brothels where the sex trade could be lawfully performed.

Early 14th-century laws in Venice were focused on making commercialised sex illegal, at least in public venues. Owners of inns and taverns were forbidden from permitting prostitutes to dwell or work on their properties, and Venetians were forced to send away prostitutes from their taverns. Even though these laws did not completely ban prostitution from the city, they most likely made sure that it remained marginal. As already mentioned, the Venetian government, like other authorities, agreed to legalise prostitution in 1358. A single official brothel area that would be governed and watched over by public officials was established and called *Castelletto*. Venetian authorities demanded that all prostitutes reside in the *Castelletto* area, which they attempted to isolate from the surrounding parts of the city.

At first, courtesans, *ruffiane* and *meretrici* were expected to live there permanently and were not allowed to leave, save on Saturdays, without the Capi's permission. However, it was impossible to enforce such severe regulations, and the authorities had to continuously face the issue of prostitutes spreading outside of Rialto.

The Capi appear to have accepted this reality in 1416 when they enacted a law requiring all prostitutes and their *ruffiane* to wear the traditional emblem of prostitution, a yellow scarf, when they were out in public[133]. Prostitutes were initially prohibited from these areas in order

[132] In Treccani, the definition of *carampana* corresponds to the description of a woman who is vulgar, gaunt, or ugly and old, https://www.treccani.it/vocabolario/carampana/

[133] This law was abolished on the 23rd May, 1421. See *ASV, Capitolare dei Signori di notte, c. 42*

to keep them as respectable locations. Nonetheless, the presence of prostitutes at inns and taverns was beneficial because it increased business and income from the tax on wine sales (Clarke, 2015: 429). Despite these constraints, courtesans were not willing to be enclosed in a single area of the city. Some deliberations prove these women's willingness to spread their influence and live their life in Venice without limitations. According to a deliberation dated 30 March 1468, some *meretrici* had moved near San Samuele, attracting "molti zoveni de diverse condicion cum arme e speso fano briga cum grandissimo periculo de tutti boni citadini et homeni di ben"[134] and were therefore sanctioned with the payment of 10 *livre* and 25 *scuriade.* Outside the spatial and geographical sphere, authorities' control over courtesans involved also clothing and specific holy celebrations: on the 21st February of 1543, the Senate prohibited courtesans to wear gold, silver and silk, chains, pearls, rings with and without stones[135]. Another deliberation also denied courtesans the possibilities to go to church on holy days and major solemnities[136].

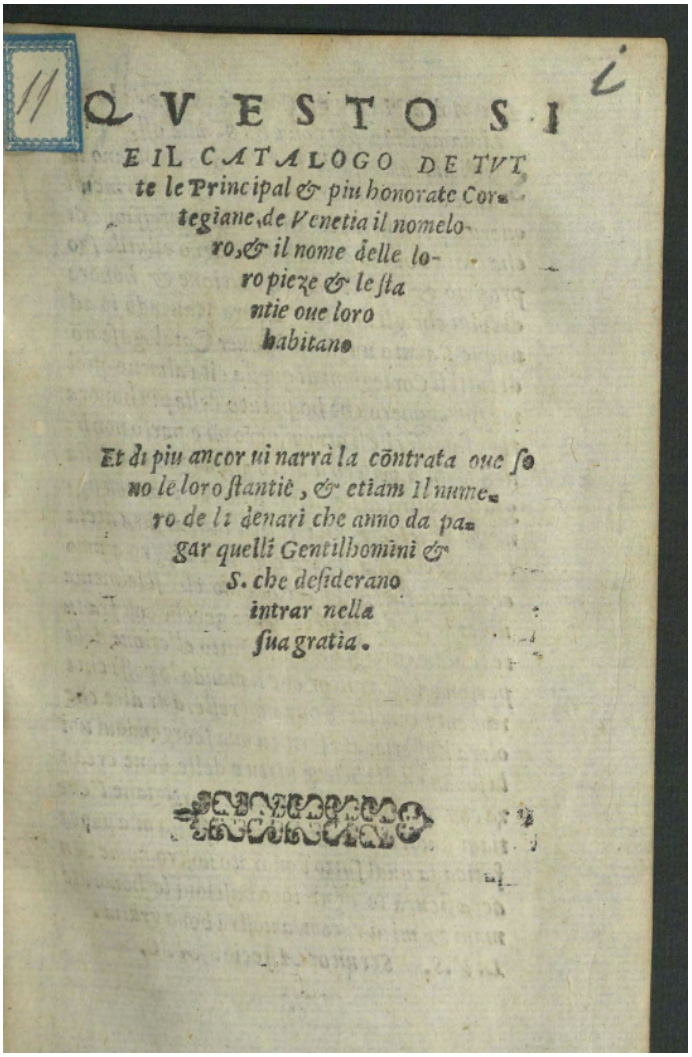
Meretricio was therefore strictly regulated, with magistrates passing laws to protect respectable citizens from the corrupting effects and influence of prostitutes. In *Leggi e memorie venete sulla prostituzione fino alla caduta della Repubblica* (1870), a summary of many prostitution laws is provided, together with a list of the courtesans condemned between 1579 and 1617 called *Rubrica delle pubbliche Meretrici condannate per trasgressioni alle Leggi promulgate dal Magistrato delle Pompe dal 1579 al 1617.* A great deal of measures were taken in order to restrain *meretrici*'s power and influence, several of which concerned housing, hygiene, dress and ornaments, and the frequentation of public places. More measures and deliberations can be read in the aforementioned *Leggi e memorie venete sulla prostituzione fino alla caduta della Repubblica*, and in *Le leggi di sanità della repubblica di Venezia*[137](1998). These bibliographic resources are useful tools; they allow us to reconstruct the figure of the Venetian courtesan, as well as understanding the social and political dynamics of the time. They are a precise testimony of the social control that was exercised over these women and the ambivalence of power. These women also performed tasks of a social nature assigned to them. Venetian legislation did not distinguish between courtesans, *meretrici* and *donne di mala reputazione*, although many laws concerned the former exclusively, as only the *cortigiana honesta* could afford to compete with the *grandi dame*

[134] Courtesans were attracting young men that were often dangerous and armed. See *ASV, Consiglio dei Dieci, Registri Misti, 17, c. 49*
[135] *ASV, Senato Terra , Registro 32, c. 125*
[136] *ASV, Capitolare I, Provveditori alla Sanità, c. 157*
[137] Vol. 2

(Bosco & Castelli, 1994: 307-8*)*. This gives proof of a form of control that not only regards economical wealth, luxury and courtesans' affairs, but also a form of control over their bodies, clothes, belongings, properties and spaces they frequented. Despite many limitations, prostitution occasionally gave women the chance to assert their power. With the money they made, courtesans could employ servants, make purchases, and perhaps even acquire the respect of the neighbourhood merchants and craftspeople. Money might therefore be able to lessen the moral stigma that was typically associated with prostitution and enable more successful courtesans to rise to a higher socioeconomic level. Having more freedom and living outside the domestic sphere, courtesans were able to possess property, publish works, engage in different conversations in *salotti* and gain notoriety (Clarke, 2015: 420). Veronica Franco herself, is the proof that a *cortigiana onesta* could make her way in the aristocratic and literary society, gaining in popularity and admiration. Seeing that at the beginning of her profession Veronica Franco used to charge her clients with two *scudi* (see Figure 11), makes us realise how she was capable of overturning her life career, both as courtesan and author. Franco's name, her address, the mediation procured by her mother and her fee, appeared in the clandestine *Catalogo de tutte le principal et più honorate cortigiane di Venetia*[138] (1558-1560)[139].

No copies of the 16th-century print of the Catalogue remain today, but only a later manuscript copy preserved in the library of the Civic Correr Museum in Venice[140]. The catalogue, of whose author we only know the initials A. C., also includes Veronica's mother, Paola Franca. The price of two *scudi* assigned to Veronica Franco seems justified given that she did not yet enjoy great fame and notoriety at the time. In the first half of the 1570s, Franco's price had risen considerably, as she frequented the prestigious Venetian salon of Ca' Venier and became friends with influential members of society of the time. Her celebrity reached its peak in 1574, when the young King Henry III of France wanted to meet her. As an act of gratitude for that meeting, Veronica Franco gave the sovereign a portrait of herself and addressed a letter with two sonnets to him (Graf, 1888: 221).

[138] Full-text available, https://epub.ub.uni-muenchen.de/58160/1/W8H.lit.2779_11.pdf. The Catalogue is also printed in the book *Leggi e memorie venete Leggi sulla prostituzione fino alla caduta della Repubblica* (1870)
[139] See Ceccato, S., & Toso Ambrosini, M. (1984)
[140] ms. Cicogna 2039, formerly 2483, pp. 505-517.



QVESTO SI
E IL CATALOGO DE TVT
te le Principal & piu honorate Cor=
tegiane, de Venetia il nomelo=
ro, & il nome delle lo=
ro pieze & le ſta
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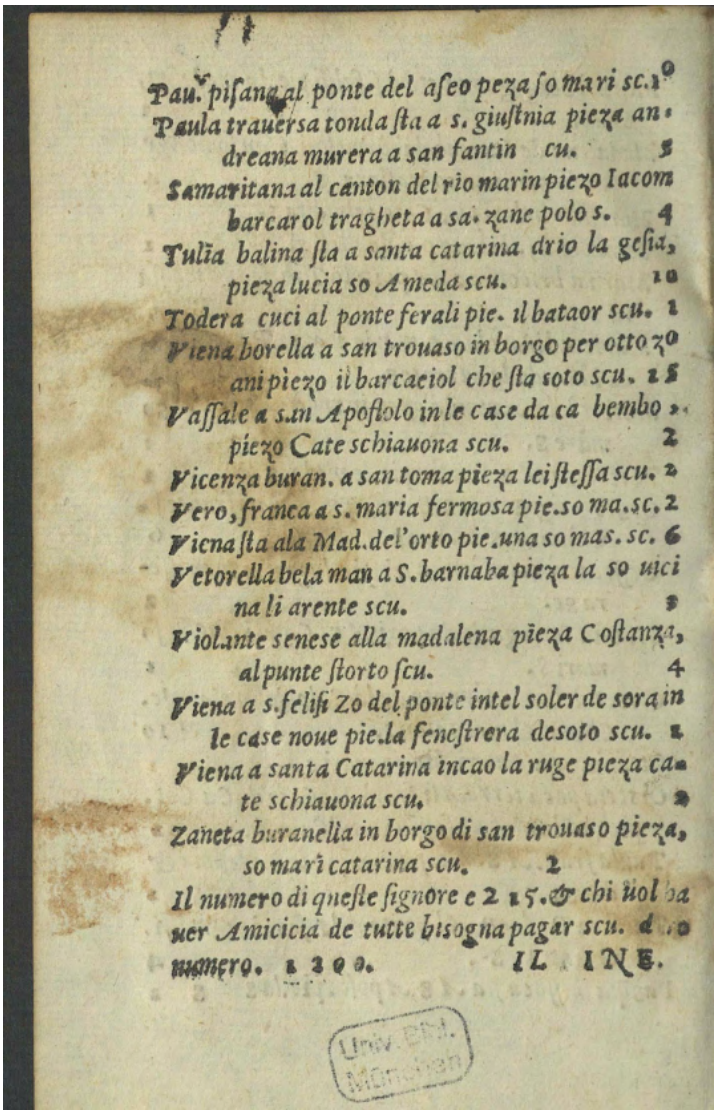
Et di piu ancor ui narrà la cõtrata oue ſo
no le loro ſtantiè, & etiam il nume=
ro de li denari che anno da pa=
gar quelli Gentilhomini &
S. che deſiderano
intrar nella
ſua gratia.

Figure 10**:** *Catalogo de tutte le principal et più honorate cortigiane di Venetia*[141]

[141] Image taken from here: https://epub.ub.uni-muenchen.de/58160/1/W8H.lit.2779_11.pdf



Pau. piſana al ponte del aſeo peza ſo mari sc. 10
Paula trauersa tonda ſta a s. giuſtnia pieza an-
dreana murera a san fantin cu. 5
Samaritana al canton del rio marin piezo Iacom
barcarol tragheta a sa. zane polo s. 4
Tulia balina ſta a santa catarina drio la geſia,
pieza lucia so Ameda scu. 10
Todera cuci al ponte ferali pie. il bataor scu. 1
Viena borella a san trouaso in borgo per otto zo
ani piezo il barcaciol che ſta soto scu. 15
Vaſſale a s.in Apoſtolo in le case da ca bembo
piezo Cate schiauona scu. 2
Vicenza buran. a san toma pieza lei ſteſſa scu. 2
Vero, franca a s. maria fermosa pie.so ma.sc. 2
Vicna ſta ala Mad.del'orto pie.una so mas. sc. 6
Vetorella bela man a S. barnaba pieza la so uici
na li arente scu. 3
Violante senese alla madalena pieza Coſtanza,
al punte ſtorto ſcu. 4
Viena a s.feliſi Zo del ponte intel soler de sora in
le case noue pie.la feneſtrera desoto scu. 2
Viena a santa Catarina incao la ruge pieza ca-
te schiauona scu. 2
Zaneta buranella in borgo di san trouaso pieza,
so marì catarina scu. 2
Il numero di queſte ſignore e 215. & chi uol ha
uer Amicicia de tutte bisogna pagar scu. d. 10
numero. 1200. IL IN E.

Figure 11: The name of Veronica Franco appears in the catalogue of courtesans[142]

However, life for everybody changed in 1575. In the summer of 1575, plague struck Venice, stopping one of the most dynamic cities in Europe. Church services were suspended, businesses like shops, inns, and taverns were shut down, and street artists and mountebanks could not catch the attention of people. *Carnevale* was also cancelled. Half of the population was forced to remain at home because of quarantine. The wealthy left the city in great numbers, but the poor were forced to stay, unprotected in overcrowded, unsanitary dwellings. As Venice was one of the wealthiest of the 16th century, people, goods, ideas, innovations and money circulated quite fast. This made the city susceptible to the transmission and spread

[142] Image takes from here: https://epub.ub.uni-muenchen.de/58160/1/W8H.lit.2779_11.pdf

of the disease. In fact, since the plague came to Europe in the 14th century, Venice and other Italian towns had been at the epicentre of epidemics due to their importance as commercial and transportation hubs. Following the Black Death and the various, less deadly plagues that struck with cruel regularity throughout the 14th century, European cities were motivated to introduce and improve strategies to stop the spread of illness. Many measures were followed, such as quarantine, travel restrictions, and self-isolation. On July 31, 1576, the Venetian Senate decided to confine all citizens to their *contrade* for two weeks, imposing social distancing. Excluded from the decree were nobles belonging to the main state bodies or involved in the management of the emergency, along with members of the bureaucratic apparatus[143]. Aside from the regular passage of ships to and from the *lazzaretti*[144], the plague hospitals situated on islands in the lagoon, the city was eerily silent.

Before people learnt disease transmission and germ theory, illnesses were widespread in urban areas, as citizens lived in poor-hygiene conditions. Prior to the invention of antibiotics, turning to prayer was frequently the preferred line of action. Besides, when ill, the wealthy class of Venice might consult physicians or pharmacists. Contrary to physicians, pharmacists and barber-surgeons received their training through guild apprenticeships, providing them higher confidence in the practice of the craft. Over 50 apothecaries, or one for every 3,000 persons, were present in Venice by the middle of the 1500s (Jenkins, 2017: 203).

The most inventive methods of illness prevention were quickly copied by Venice from its close neighbours. Venice borrowed the practice of *quarantena* from the Republic of Ragusa (now Dubrovnik), demanding persons and ships arriving from infected places to stay in isolation for 40 days before entering the city (see Tomic & Blazina, 2015). As stated in Benedetti (2021: 17, 112, 113), a detailed count made by the *Provveditori alla Sanità* gives us the ultimate number of the deceased, which is 50,726[145]. The number is astonishing not just because of its size, but also because it is quite near to the current population of Venice.

Among these 50,726 people, 23,443 were women. Many of them were probably courtesans, giving the dangerous nature of their profession in these cases. Plague was associated with the idea that illness was the result of the corruption of the body. Prejudices and beliefs as old as the Bible about the impurity of mating with menstruating women, and medical-scientific language identified women's lust as a pathogenic factor.

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[143] *ASV, Collegio, Notatorio , reg. 42, cc. 123r-124r.*
[144] *Asv, Provveditori alla sanità, b.6, cc. 156v-156v.*
[145] *ASV, Provveditori alla Sanità, b.6, c. 167r*.

The docile and paid sexuality of the meretrice or courtesan, however, was juxtaposed in the collective imagination with the subversive and unclean sexuality of the witch. At the centre of the culture of transgression, the female body was both tolerated, because it was regulated by the laws of the business of lust and male needs, and illicit, as it belonged to women who choose the devil causing misfortunes and harms, including male impotence (Vanzan Marchini & Nelli, 1995: 53).

One of Veronica Franco's main opponents, Maffio Venier, lamented the moral and physical depravity of courtesans in a canzone on the plague (Rosenthal, 1992: 20):

> Or le tue belle membra e 'l crine adorno
> d'oro, di perle e d'ostro
> forman di vaga ninfa orrido mostro.
>
> Now your beautiful limbs and tresses adorned with gold
> and pearls and crimson cloth turn a lovely nymph
> into a horrid monster[146]

From these few lines, we can get an idea of how the plague might have increased the negative stereotypes associated with the figure of the *meretrice* and courtesan. Once again, the focus is placed towards the body of the woman, and how she decides to use it. Not surprisingly, who is condemned in society is not the man that actually seeks courtesans' services, but the courtesan. Further research on the link between the plague and stereotypes associated with the *cortigiana onesta* could be carried out, providing essential and useful information for the reshaping of this social class.

3.2 Veronica Franco

> *"Tra le Veneziane del secolo XVI questa leggiadra donna puossi giudicare l'aspasia. Nata nel 1553, crebbe in non ordinaria avvenenza, in ispirito, in cultura, in leggiadria; fregi tutti de' quali appresso abusò accalappiando gl'incauti, e cantando troppo lubricamente di amori. Era la sua casa aperta alla gioventù più dedita a' dissipamenti, sì però, che chi volea trovarsi più ricco di sue benigne parole dovesse andare più provvenuto non dei doni della fortuna, ma di quelli dello spirito e dello ingegno.."*[147] (Gamba, 1827: 321)

[146] Translation found in Rosenthal (1992: 20)

[147] Translation: Among the Venetian women of the 16th century this graceful woman may be judged the aspasia. Born in 1553, she grew up in no ordinary loveliness, in inspiration, in culture, in gracefulness; friezes all of which she later abused by ensnaring the unwary, and singing too lubriciously of loves. His house was open to

The most well-known of all the so-called honest courtesans in 16th-century Venice, Veronica Franco, was a poet who was celebrated for her elegance and artistic achievements (1546-1591). The *Catalogo de tutte le principal et più honorate cortigiane di Venetia*, a handbook for prospective clients that was published in 1565, included both Veronica Franco and her mother Paola Fracassa. Her mother and father, Francesco Franco, belonged to the venetian citizen class (*cittadini originarii*), which occupied the majority of the city's public offices. They insisted that Veronica and her three brothers get individual tutoring at home (Kaborycha, 2016: 144). Veronica Franco had three brothers: Girolamo, who died during the plague of 1575, Orazio and Serafino. She married Paolo Panizza, a doctor by profession, at a very young age, but separated from him shortly afterwards. We certainly know that he was already dead in 1582. Among her protectors were Marcantonio Della Torre, provost of Verona, owner of the castle of Fumane, praised by Veronica in the 25th chapter of her *Terze Rime*, a true idyllic-descriptive poem of 565 verses; Lodovico Ramberti, from an ancient and illustrious family; Guido Antonio Pizzamano, a clerk at the magistracy of the *avogadori fiscali*, who became famous because even though married he kept a nun, Camilla Rota, as his mistress. According to her own statement, Veronica Franco had two sons, Achilletto, possibly by Giacomo di Baballi from Dubrovnik (also named in Veronica Franco's first will of 1564), and Enea, by the patrician Andrea Tron. In 1574 her fame as a high-ranking courtesan reached its peak when Henry III of Valois, stopping over in Venice from 18 to 28 July on his way back from Poland to France, chose her to spend a night with him in the house of St. John Chrysostom.

Veronica Franco was linked to the Venetian intellectual aristocracy as she visited the famous literary circle 'Ca' Venier' that revolved around Domenico Venier. This academy of *virtuosi* included G. Gradenigo, C. Magno, G. Molin, J. Zane, among others, as well as the Venier: Domenico, his brother Lorenzo, Marco (who often appears as a correspondent in her love rhymes) and Maffìo, Lorenzo's son and Domenico's nephew, who in his anti-Petrarchism poetry also made Franco the object of his crude invective. In 1575, she was asked by Francesco Martinengo to edit a commemorative miscellany in honour of Count Estore Martinengo, captain of infantrymen, who died that year: *Rime di diversi eccellentissimi autori nella morte dell'illustre sign. Estor Martinengo conte di Malpaga*, in which appear the sonet of Franco and those of Domenico Venier, Marco Venier, Orsatto Giustinian, Bartolomeo Zacco, Celio Magno, Andrea Menchini, Marco Stecchini, Orazio Toscanella, Giovanni

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the youth most given to dissipation, so, however, that those who wished to find themselves richest in his benign words should go most provided not with the gifts of fortune, but with those of spirit and wit.

Scrittore, Valerio Sali and Antionio Cavassico. In 1580, Veronica Franco edited his fifty *Lettere familiari a diversi dalla s. Veronica Franco all'illustriss. et reverendiss. monsignor Luigi d'Este, cardinale (s.n.t., ma Venezia)* with a dedicatory letter to Luigi d'Este, cardinal of Ferrara, dated Venice 2 August 1580. Benedetto Croce gave the letters the attention they deserve, printing them in *Lettere dall'unica edizione del MDLXXX, con proemio e nota iconografica* (1949). Only two of the 50 letters bear the name of the addressee, the one to Henry III of Valois, which opens the collection and is followed by the two sonnets already mentioned, and the XXI, to Tintoretto, which is important not only for the theoretical questions on painting it addresses, but also because it contains a precise reference to the portrait the painter made of her (see Figure 12). Also famous is the letter addressed to a mother urging her not to initiate her daughter into the life of a courtesan (Bianchi, 2013: 84-5).

Figure 12: Tintoretto's portrait of Veronica Franco[148]

[148] Image taken from Wikipedia

The publication of the letters took place the same year (1580) in which Ridolfo Vannitelli, tutor of his son Achiletto, forwarded to the tribunal of the Holy Office a complaint against Franco *publica meretrice* accusing her of having resorted to spells, and diabolic invocations and of having used for that purpose a blessed ring, a blessed olive, water, and candles, which she had sent to the next church of San Giovanni Nuovo. Veronica was inevitably put on trial, but managed to avoid any conviction. Milani (1996), who also published the transcript of the trial, has recently spoken of another trial of May 1587 in which Veronica Franco denounces a certain Bortolo for heretical behaviour[149]. As regards her initiatives towards the Venetian society and women, Franco wrote to the Venetian authorities in 1577, three years prior to the publication of this letter, about starting a sort of halfway hospital for women, which she offered to run herself. Franco suggested an alternative to the institutions of the time, one that welcomed penitent prostitutes as well as abandoned wives and their children. The old institutions expected women to be either unmarried or willing to endure harsh religious discipline (Kaborycha, 2016: 146). She died on July 22, 1951, at the age of 45, in San Moisè.

3.2.1 Witchcraft in Venice: Veronica Franco's processo (1580)

The archetypal Renaissance *witch* represented a threat to social harmony. She interfered with food supplies, women's and children's health, disrupting the domestic realm. Like courtesans, these women represented the image of a woman liberated from the stereotypes imposed by heteronormativity, patriarchy, and femininity myths. As a sexual enchanter, the witch castrated and fled patriarchal authority. She abandoned her responsibilities for reproduction and represented modern misconceptions about the post-menopausal body as an old crone. One of them is the *Malleus Maleficarum* (also known as *The Hammer of Witches*), a significant authority that codified a set of profoundly misogynistic principles that served as an encyclopaedia of witchcraft and an instruction manual for inquisitors. The Dominican friar Heinrich Kramer and his confrere Jacob Sprenger collaborated on its publication in 1487 with the intention of suppressing heresy, paganism, and witchcraft in Germany. Other major treaties of the time were Ulrich Molitor's *De lamiis et phitonicis mulieribus* ('Of Witches and Soothsayers') and Johannes Nider's *Formicarius* (1475, written between 1436 and 1437). *Malleus Maleficarum* is divided into three parts. The first deals with the discussion of the nature of witchcraft: women, because of their weakness and inferior intellect are predisposed to succumb to Satan's temptations. The second part takes up many of the positions expressed in the first and elaborates on them in an attempt to make it clear how witchcraft is done and

[149] ASV, Sant'Uffizio, b. 59, n. 30

how it can be easily eliminated. The last section deals with providing practical instructions on the capture, trial, imprisonment and elimination of witches. It discusses how much trust should be placed in the statements of witnesses, who frequently accuse out of envy and malice; however, the authors consider public gossip sufficient to bring a person to trial and find that, indeed, an overly vigorous defence on the part of the defender is evidence that the latter is also bewitched. The manual provides guidance on how to prevent authorities from being subject to witchcraft and reassures readers that, as representatives of God, judges are immune from the powers of witches. From *Malleus Maleficarum* we can get an idea of how the misogyny of the time was perceiving non-conforming women as a threat, and how men were particularly obsessed with female sexuality. An example can be found in section II, where it is stated that witches were known to "collect male organs in great numbers, as many as twenty or thirty members together, and put them in a bird's nest." (Institoris & Sprenger, 1995: 213). Shifting to the context of Venice, the subject of witchcraft was a matter of the Inquisition, also known as *Sant'Uffizio,* which was established in 1542. When discussing witchcraft, finding a definition is always one of the first issues that arise. There are many different interpretations, ranging from the persistence and attempted resurgence of pre-Christian religions to the practice of "wise witchcraft" or Satanism. Finding a unique definition becomes even more difficult when terms like sorcery, diabolism, invocation, conjuration, divination, necromancy, *maleficium*, and sortilege are introduced. The Venetian society as a whole used the modern term for witchcraft, *stregoneria*, to include all types of witchcraft in the Venetian context. There were, however, terms such as *erbaria* and *fattucchiera* that were also often used. *Erbaria*'s roots were in the use of folk cures, or perhaps love spells or poisons. Maleficent magic, the pacing of *fatture*, and substances meant to cause illness or death on or near a person were typically associated with the figure of the *fattucchiera* (Martin, 1989: 4). In the book *Le Strighe*, Bernoni Domenico collected folk Venetian legends on witches (1874), and therefore it can be a useful resource to understand how these figures were drawn and perceived. Within the political framework, the Inquisition applied the term *stregoneria* to every attempted or suspected attempt by the practitioner to influence supernatural forces to his or her own purposes. We have already mentioned some Inquisitorial manuals, such as the *Malleus Maleficarum.* However, according to Ruth Martin (1989: 56), a point of reference for the *Sant'Uffizio* was also the *Directorium Inquisitorum* of Nicolau Eymeric (1376). In the *Archivio di Stato di Venezia*, we can find the fond *Savi all'eresia (Santo Ufficio),* which comprehends the following archival materials:

- *processi* (trial files, relating to proceedings in the city of Venice or instituted elsewhere and then received in Venice), 1541-1794

- *processi* (procedural acts and judgements)

- *libri expeditorum* (alphabetical indexes of those on trial)

- dispatches from public representatives and various letters to the heads of the Council of X

- various papers, partly from the archives of the Council of Ten and the State Inquisitors, with parts and deeds copied from 1289

Of interest for the case study, and more in general for a future realisation of the digital archive of courtesans, is the index of *processi* that took place between 1541 and 1794. It provides the date of the trial, the surname and first name of the person on trial, his or her country, the type of the heresy, the number of the sheets making up the trial, the number of the envelope in which the trial is located, the importance of the trial and the sentence if pronounced, being noted therein. In Figure 13, we can see the information regarding Veronica Franco's trial (line n. 188), in particular that she was accused of performing *incantesimi*.

183.	Franchez Dr Donato	Padano	1661	libri proibiti	110	2.
184.	Franchi Giorgio	Venezia	1771	ateismo	149	2.
185.	Franchi Pes Giovanna	Pesaro	1672	petitegij qualif.	116	67.
186.	Franci fra Gbatta	Firenze	1651	incantesimi	106	5.
187.	Franco Lazaro	Trieste	1564	luteranismo	20	20
188.	Franco Veronica	Venezia	1580	incantesimi	46	7.
189.	Francol Lazzaro	Muggia	1564	luteranismo	19	1.
190.	Francesco Giacomo	Siena	1548	battezzato 4 volte	7.	7.
191.	Frangipane Giacomo	Udine	1572	ugonotti	31	15
192.	Frangipane Giorgio					
193.	Franceina Elena	Venezia	1620	stregheria	75	2.
194.	Frara Cecilia	Pieve di Sacco	1668	stregheria	114	....
(2)6 195.	Frattina Giacomo	Pozzo	1578	luteranismo e biamentinato	43.	3
196.	Frattina Isabella	Portogruaro	1568	luteranismo	25	142.
197.	Fregonis Bernardo	Spilimbergo	1582	libri proibiti permessa la detenzione	62	11
198.	Fraschi Pes Elena	Treviso	1555	bestemmie ecc.	12	16.

Figure 13*:* Index of *Sant'Uffizio trials*[150]

[150]https://asve.arianna4.cloud/patrimonio/57ac86b7-16b6-4511-ab17-19440333932f/303-%C2%ABsantuffizio-tre-savi-alleresia%C2%BB-1876

In this list, we can also spot other women accused of *stregoneria* and *incatesimi*. It seems thus important trying to discover who these women were. Were these women of a high social status? Were they married? Were they young? Many different types of women were frequently accused by the Catholic Church of using magic to bind their clients', neighbours', friends', or even their own family members' passions. In Guido Ruggiero's *Binding Passions: Tales of Magic, Marriage, and Power at the End of the Renaissance* there are many examples of "prostitution, concubinage, love magic, renegade clerics, a social hierarchy that largely overlooked the victimisation of lower-class women, and a vision of sex as fitting within a passive- active dialectic that easily slid into violence" (1993: 12). Among these stories there are the ones of Andriana Savorgnan and Paolina di Rossi, both Venetian courtesans (see Ruggiero, 1993: 55-6). Nonetheless, both men and women could be accused of *stregoneria*. In most of the cases, about 70% were women, and more than 40% of them were priests of some kind. Men were mostly accused of treasure hunting and other lucrative practices. Women mostly practiced *maleficium*, love magic, and conjuring. Women were widely perceived to be less strong-minded and clear-thinking than men, in addition to being more malicious and deceitful, making them more vulnerable to devilish attacks (Burke, 1978: 164). As regards the age and marital status, Martin (1989) provides information of 158 women out of 490 identified as being accused of *stregoneria*. Although there is some evidence from earlier times, the data primarily cover the time after the mid-1620s, when it became customary to record the age of persons being questioned (Table 2, Table 3).

Age	**Number**	**%**
below 25	32	20
26-35	48	31
36-45	36	23
over 46	42	26

Table 2: Age of Venetian women accused of *stregoneria*

Status	Number	%
married	170	62
widowed	72	26
single	32	12

Table 3: Social status of Venetian women accused of *stregoneria*

We can notice that women aged between 26 and 35 were the ones accused the most of witchcraft. At the age of 34, Veronica Franco was called before the Inquisition courts (8 October 1580) to defend herself against fictitious accusations that she had performed heretical incantations in her home in San Giovanni Novo. In 1575, she had already given proof of her ability to protect herself from vindictive behaviours winning a poetic argument against Maffio Venier, who tried to undermine her reputation as an author and degrade her from *cortigiana honesta* to *puttana pubblica*. The man that denounced her to the Inquisition is Ridolfo Vannitelli, who was employed by Veronica Franco to tutor her sons. Vannitelli accused Franco of a number of things, including witchcraft, playing illegal games, and making deals with the devil to entice merchants to fall in love with her. Additionally, he criticised her for being popular, claiming that she was getting too much support in the city and that she was favoured by those who ought to loathe her. Both Maffio Venier and Ridolfo Vannitelli, appealed to strong institutions that supported them in their efforts to rebuild a broken social structure based on patriarchal or aristocratic ideologies. Legal and poetic battles both highlight Franco's self-assurance and determination to stand her ground against treacherous enemies. Franco tries to reclaim her domestic property and her *cittadina* status while she is in court. In his complaints to the *Sant'Uffizio*, Redolfo Vannitelli described Francisco Franco as a public nuisance who violated established social norms and class distinctions (Rosenthal, 1992: 153).

> Dice di esser maritata hora, hora essere vedova, hora volersi maritare, et finge tra l'altri un matrimonio falsamente fatto qui con uno Romano, et ciò ha fatto solo per ricuperare perle, le maniglie d'oro, et altre gioie, ch'ella portava contra la dispositione della parte fatta dal Ser.mo Principe.

Heightened tension and fear of exposure permeated the lives of Venetian people. Citizens constantly received pressures from the republic to pray and purge their souls, eradicating

immoral behaviour and evil habits. Courtesans were undoubtedly vulnerable to their frequently vengeful neighbours, jealous suitors, and scared employees in the clandestine, corrupt Venetian atmosphere. Class tensions and social discontent may have been the main driving forces for Vannitelli's furious accusations of Veronica Franco's alleged immoral behaviour. Many witchcraft trials began as minor quarrels and they frequently indicated conflicts between social groups or positions of authority (Rosenthal, 1992: 161). The allegations Vannitelli lists, in fact, expose social and class tension between servant and courtesan, and it echoes a language where women are the target for moral condemnation and are reduced to the level of vulgar whores: "Non gastigandosi questa fattuchiara puttana pubblica barra, molti si metteriano a far simili cose contra la santa, et catholica fede".

He accuses her of dishonest and illicit dealings with her lovers and other men, of wearing pearls (that were prohibited to courtesans by sumptuary laws), and of eating meat on Friday.

It is significant to note that, contrary to what was the case in the cities of other European countries during the same period, no one convicted of witchcraft in Venice during the years 1581–1590 was either sentenced to death or subjected to severe torture. However, there was a great chance of facing humiliation in front of others and harsh punishments if proved guilty. In 1586 and 1589, Emilia Catena *meretrice pubblica* and Isabella Bellocchio *cortesana* humiliations' serve as two examples. Both women were sentenced to a public lashing in Piazza S. Marco and were made to wear a *mitria* with their allegations inscribed next to the Rialto Bridge after being suspected of performing incantations (Rosenthal, 1992: 158). In a time where marriage was done exclusively for the sake of economic advantages, love was seen as a dangerous and confusing emotion. Many women, particularly courtesans, were accused of witchcraft by males who fell in love with them. They were suspected of being witches practising love magic and that men's attraction to them was the result of these incantations (Ruggiero, 1985: 65).

Franco's expert handling of the inquisitors' questions displays her forthright manner and her command of language, which contributed to the drop of her charges. She stood for herself with intelligence, determination and manner proving the worth of women, courtesans in particular, despite it being hidden by discriminations and stereotypes on the female sex.

Chapter 4

The case study: workflow and methodologies

One aspect of digital humanities is certainly the fact that many of the activities carried out by its researchers are aimed at the realisation of a project. By employing computational methodologies for the valorisation of humanities data, digital humanities bring novelty on research output, whether it is the digital scholarly edition (diplomatic, interpretive or critical) of a text, a collection of historical and archival documents, a museum exhibition of cultural artefacts, and cultural objects, even heterogeneous in terms of medium, format and type. The digital humanist is the person that knows how to recognise the needs - multiple, complex and multifaceted - of humanities research and who at the same time is aware of the most appropriate computational methodologies to realise a project. Traditionally, we know that there are certain methodologies that are shared by the different humanities disciplines, such as mark-up languages, databases, semantic web languages, modelling or classification, hypertextuality and multimedia, transcription, interpretation, dissemination and conservation. Digital projects can be as simple as a collection of files that are kept in a file system or database, where they can be called by a browser and be accessible. Collections usually start from a consistent argument, an idea, therefore the goals and purpose of the project should be very clear (Mancinelli, 2021: 69). This meand that the selected resources (let us say texts, images, audio or video files), already digital or to be digitised, will certainly help answer the research question. This collection of cultural objects, together with its data and metadata, has to be uploaded in a repository in order to be viewed by other people as well. Of great importance in the digital era and in this new ecosystem of culture is the process of documentation. The description of the components that were used during the creation of the project makes the final product reproducible. From the previous chapters, we are aware that interoperability and reusability are key issues in the Semantic Web. The aforementioned FAIR principles and their strategy must be applied not only to open data, but to the digital project itself. The cornerstones that must be followed in the production of open data for a digital project are:

1) Unambiguous identification of data, so that they are findable;

2) The use of open protocols for maximum accessibility;

3) The use of standardised metadata and controlled vocabularies for interoperability;

4) The publication of data with open licences and declaration of provenance to guarantee proper re-use.

The project documentation becomes part and parcel of its proper realisation, guaranteeing its reusability. To make the workflow of a project easier and functional, Tomasi (2022: 152) highlights some best practices to take into account. One of the first steps consists in briefly analysing some aspects of the project such as purposes, type of users, access mode and content. Which are the goals, objectives and research questions? What kind of users will access the project? How will access to content change according to the device used? Once we get an idea, the second step is to determine the state of the art, that is to outline the existing projects about the same topic or which have a similar approach. This allows the digital humanist to reflect on what has already been produced, deciding which strategies and methodologies are most suitable for the purposes of the new project. Then, in order to build the collection that will constitute the project, it is important to understand what kind of data we are dealing with (texts, images, audio, video, etc.). These materials could be archival documents, rare books, letters, journals, catalogue descriptions and so forth. It is thus essential to find the best formats to represent the data retrieved from these resources. This means also providing metadata standards and controlled vocabularies. In particular, we should answer these questions: are there metadata standards already provided for the types of data that are intended to be processed? If they exist, how can they be reused? If they do not exist, how should a set of *ad hoc* resource descriptors be created? Once the idea has been conceptualised and the data and metadata realised, it is important to reflect on how the content can be displayed and navigated by the user, that means considering principles on information architecture (IA). In Rosenfeld and Morville (2002), IA is described with the following definitions:

1. The combination of organisation, categorisation and navigation schemes within an information system;

2. The structural design of an information space to facilitate task execution and intuitive access to content;

3. The art and science of structuring and classifying websites and intranets to assist users to find and manage information

4. An emerging discipline and group of practices focused on bringing the principles of design and architecture into the digital landscape.

It emerges that finding a single, accepted and valid definition is quite difficult. Information architecture involves reflecting on the characteristics that the interface must have, such as header, navbar, sections, contextual navigation, primary navigation, footer. While creating the interface of a digital project, archive or collection, it is important to consider also the principles and norms of *usability* and *user interface design*[151] which comprehend navigation tools, visualisation tools such as maps, timelines, word search, interaction tools (buttons, hover, widgets etc.), and exploration tools (thematic virtual exhibitions, storytelling, gamification). Last but not least, we already mentioned the importance of documenting every step of the process. Together with documentation, a bibliography where the user can check all bibliographical and sitographical references necessary to understand where the resources in the project come from must be provided; this involves also sharing repositories (es. Zenodo[152], GitHub[153], Figshare[154] etc.) and licences.

These principles have also become the basic elements from which to start the creation of the prototype on Veronica Franco's archival material and its future implementation in a digital archive of courtesans. The digital sphere can possibly provide new and useful ways of engaging with textual features and of treating literature and heterogeneous materials. In other words, digitalisation evolves into a new method of literary, critical, and interpretive awareness of the text's qualities. Dealing with a digital project also means engaging with different technological skills and developing them. These skills make a digital humanist a figure that mirrors a literary critic, a literally-historical scholar and an editor (Engel & Thain, 2015). Together with these, the humanist also boosts basic knowledge of web development, which allows the practice of computational creativity:

- Mark-up languages (for instance, HTML5 and CSS3);

[151] Designing user interfaces for hardware and software, such as computers, home appliances, mobile devices, and other electronic devices, with the goal of optimising usability and the user experience is known as user interface (UI) design or user interface engineering. User interface (UI) design for computers or software is largely concerned with information architecture. The process of creating interfaces is what effectively conveys to the user what is crucial. Graphical user interfaces and other types of interface design are referred to as UI design. Making user interactions as easy to use and effective as feasible in achieving user goals is the aim of user interface design (user-centred design).
[152] https://zenodo.org/
[153] https://github.com/
[154] https://figshare.com/

- Working with images resolution and file types (.tiff, .psd, .jpg, and .gif in particular) to comprehend how to best perform the process of scanning a text and generating that image for web viewing at proper sizes and resolution;

- File management skills to upload files for publishing, maintain file directories, download files, evaluate file sizes and permissions, and restrict access to specific website areas as necessary.

Among these skills, it is also important to be able to discuss differences and similarities among the most widely used Content Management Systems (CMS) in the Digital Humanities, such as WordPress[155], Drupal[156] and Omeka[157]. Having this in mind allows the digital humanist to give birth to a digital project that not only helps at disseminating cultural content, but also preserves it. Of pivotal importance is also the research on the domain of knowledge and on the subject of study; by gaining awareness of the main aspects characterising the subject of study, we can generate new knowledge.

4.1 Modelling the domain of Knowledge

4.1.1 The selected materials

In imagining a future digital archive of courtesans, we would expect many heterogeneous materials dialoguing with each other. The digital archive would not be solely a place of preservation of these materials, but rather the reorganisation of a knowledge that, through metadata, is focused on a certain social class within a specific historical framework. The documents selected for the realisation of the prototype are thus of different nature, both archival and bibliographical. The research and collection of the archival materials took place in *Archivio di Stato di Venezia* (ASV), and it concerns the selection of essential documents regarding Venetian 16th-century courtesans, Veronica Franco in particular: a *deliberazione* of 1543 enacted by the Senate and by *Provveditori sopra le Pompe*, regarding the luxury of courtesans and their clothing; Veronica Franco's first *testamento* (will) of 1564; and Veronica Franco's *processo* of 1580, in which she was accused of witchcraft. The literary work selected for this project is Veronica Franco's *Lettere familiari a diversi*, with the transcription of the edition curated by Benedetto Croce in 1949. The facsimiles, and thus the digitisation,

[155] https://wordpress.com/it/
[156] https://www.drupal.org/
[157] https://omeka.org/

and the transcriptions of the *delibera*, *testamento* and *processo* will be present in the prototype, while for Veronica Franco's *Lettere* there will be only the transcription of the text.

4.1.2 Tools used for the archival documents and letters

eScriptorium and SegmOnto

The sector of research and heritage organisations has long been interested in the automatic transcription of printed documents (OCR) and manuscripts (HTR). Recent advancements in processing power and the creation of artificial intelligence-based systems have created new opportunities. Things only started to change for manuscripts in the middle of the 2010s with the introduction of software like Transkribus and eScriptorium[158]. A workspace for organising the crucial steps of a transcribing campaign is provided by the eScriptorium application. In its application, there are three main steps: 1) loading images (including taking them from a PDF or IIIF server); 2) examining the layout by identifying groups of text lines; 3) and finally transcribing. Both hand labour and Kraken can be used for these latter two phases. The transcriptions can be then exported in common formats as XML ALTO[159], and reused to make digital editions (Chagué, 2019: 25). Together with these key activities, eScriptorium provides other tools for project management, including team building, sharing of transcripts, pictures, and templates, grouping of images into *documents*, which are then organised into *projects*, and assigning documents a label.

In view of the creation of a digital archive of courtesan, and thus in the perspective of dealing with a wider corpus of texts and archival documents, five digitisation of *delibere* that were provided by the *Archivio di Stato di Venezia* have been transcribed and corrected through eScriptorium. Before performing the transcription process, the text of this archival materials has been segmented with SegmOnto, a controlled vocabulary used for the description of the layout of pages. SegmOnto is considered as "a generalist description scheme" that applies to written works created since the invention of the codex. SegmOnto aims at describing and representing any type of document, without focusing only on a specific kind of source. For the layout analysis, SegmOnto follows two classification tasks:1) zones, that underlines the page different types of region such as main text and running title; and 2) lines for the type of lines present in the zones. For the purposes of this case study, we selected as zone labels the *DropCapitalZone*, *MainZone*, *MarginZone*, *NumberingZone* and

[158] http://6002.cophilab-cloud.ilc.cnr.it/
[159] https://altoxml.github.io/

the *TitlePageZone*. As lines labels we used instead the *DefaultLine*, *DropCapitalLine* and the *HeadingLine*. For instance, in Figure 15, the red zone has been labelled as *TitlePageZone*, as it expresses information that allows the identification of a *delibera* (date and magistrate). The blue zones are labelled as *MainZone*, that is the main text of the document, while the purple zones are identified as *MarginZone*. The number "12" in the right upper corner and at the end of the page is labelled as *NumberingZone*.

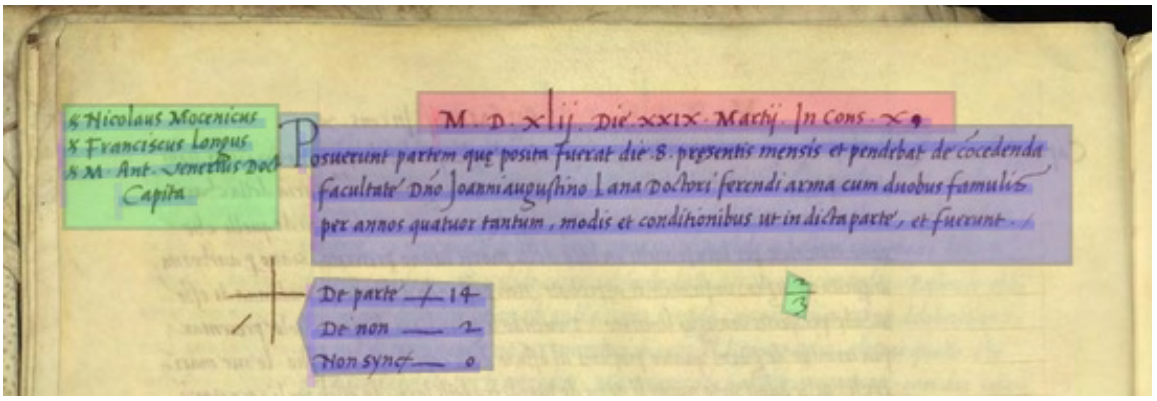


Figure 14: Example of SegmOnto segmentation of Zones and Lines.

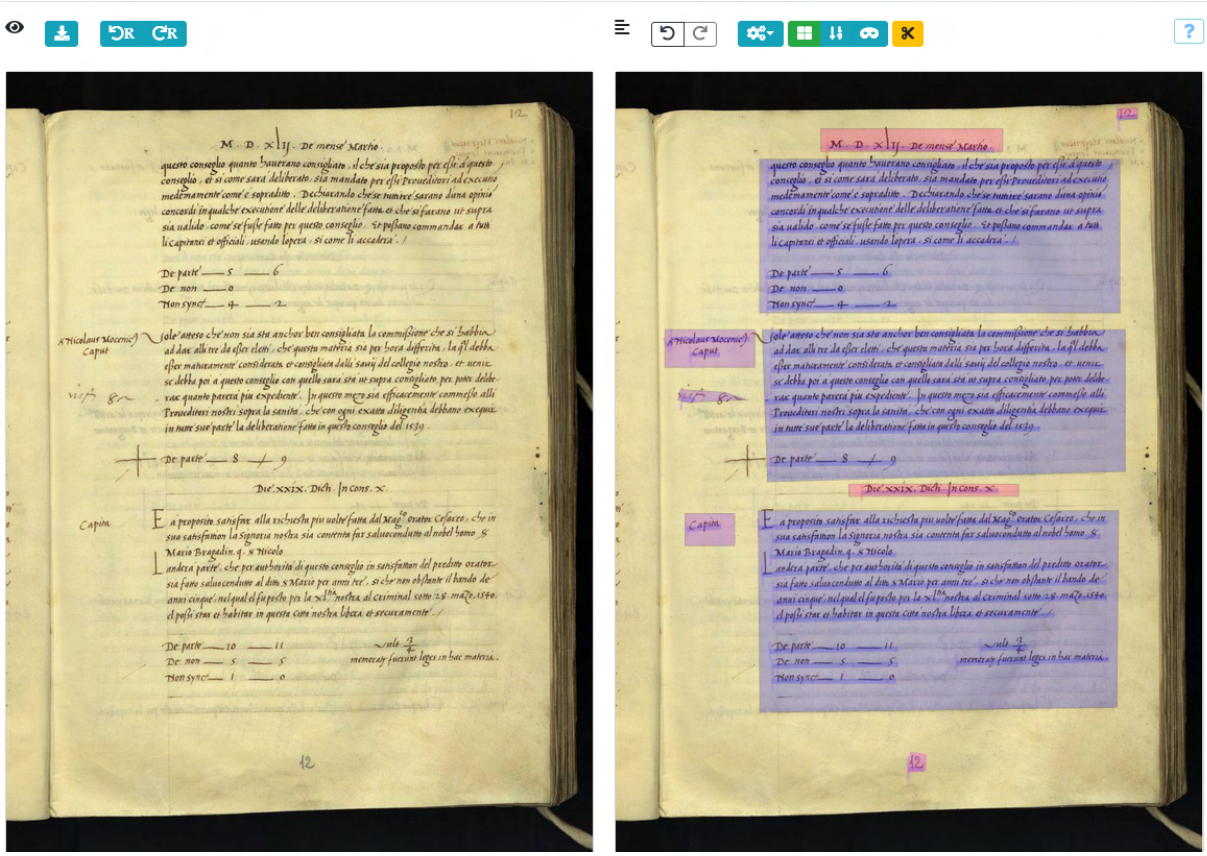
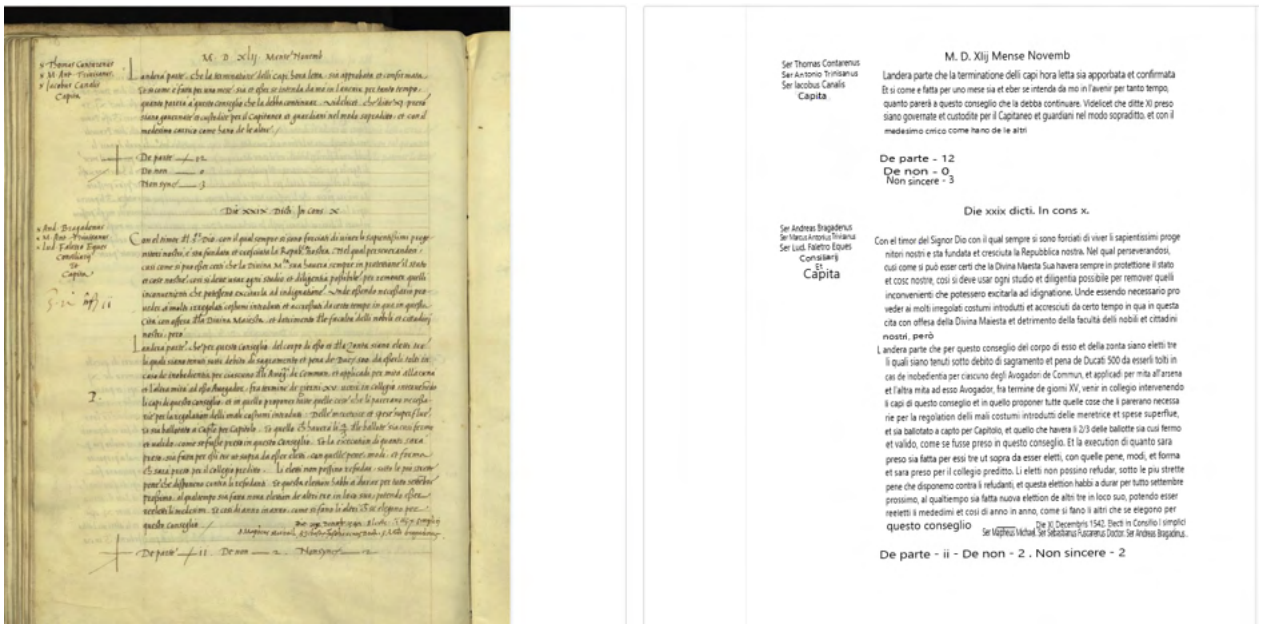


Figure 15: Example of segmentation performed with SegmOnto on eScritorium.



Ser Thomas Contarenus
Ser Antonio Trinisanus
Ser Iacobus Canalis
Capita

M. D. Xlij Mense Novemb

Landera parte che la terminatione delli capi hora letta sia approbata et confirmata Et si come e fatta per uno mese sia et eber se intenda da mo in l'avenir per tanto tempo, quanto parerà a questo consiglio che la debba continuare. Videlicet che ditte XI presa siano governate et custodite per il Capitaneo et guardiani nel modo sopraditto. et con il medesimo crico come hano de le altri

De parte - 12
De non - 0
Non sincere - 3

Die xxix dicti. In cons x.

Ser Andreas Bragadenus
Ser Marcus Antonius Trinianus
Ser Lud. Faletro Eques
Consiliarij
Et
Capita

Con el timor del Signor Dio con il qual sempre si sono forciati di viver li sapientissimi progenitori nostri e sta fundata et cresciuta la Repubblica nostra. Nel qual perseverandosi, cusi come si può esser certi che la Divina Maiesta Sua havera sempre in protettione il stato et cosc nostre, cosi si deve usar ogni studio et diligentia possibile per remover quelli inconvenienti che potessero excitarla ad indignatione. Unde essendo necessario pro veder ai molti irregolati costumi introdutti et accrescuti da certo tempo in qua in questa cita con offesa della Divina Maiesta et detrimento della facultà delli nobili et cittadini nostri, però

Landera parte che per questo consiglio del corpo di esso et della zonta siano eletti tre li quali siano tenuti sotto debito di sagramento et pena de Ducati 500 da esserli tolti in cas de inobedientia per ciascuno degli Avogadori de Commun, et applicadi per mita all'arsena et l'altra mita ad esso Avogador, fra termine de giorni XV, venir in collegio intervenendo li capi di questo consiglio et in quello proponer tutte quelle cose che li parerano necessarie per la regolation delli mali costumi introdutti delle meretrice et spese superflue, et sia ballotato a capto per Capitolo, et quello che havera li 2/3 delle ballotte sia cusi fermo et valido, come se fusse preso in questo consiglio. Et la execution di quanto sara preso sia fatta per essi tre ut sopra da esser eletti, con quelle pene, modi, et forma et sara preso per il collegio predito. Li eletti non possino refudar, sotto le piu strette pene che disponemo contra li refudanti, et questa elettion habbi a durar per tutto settembre prossimo, al qualtiempo sia fatta nuova elettion de altri tre in loco suo, potendo esser reeletti li medesimi et cosi di anno in anno, come si fano li altri che se elegono per questo consiglio

Die XI Decembris 1542. Electi in Consilio I simplici
Ser Matheus Michael Ser Sebastianus Fuscarenus Doctor. Ser Andreas Bragadenus.

De parte - ii - De non - 2 . Non sincere - 2

Figure 16: Example of transcription done with eScriptorium

After being segmented with SegmOnto, a pre-existing model has been applied for the transcriptions of the *delibere*. It was used as a starting point for the training of a more precise model. Having an accurate model for text transcriptions will allow a smoother and faster process for the transcriptions of the numerous archival documents that will constitute the digital archive of courtesans. In this way, working on a big corpus of handwritten *delibere*, *processi* and *testamenti* will be possible and it will accelerate the creation of TEI models.

International Image Interoperability Framework (IIIF)

While digital image management has not only been characterised by a variety of formats, infrastructures and visualisation tools that have often had a temporary period of operation, the International Image Interoperability Framework (IIIF)[160] was created to overcome these and other problems related to data exchange and reuse. It is a framework which promotes collaboration between archives and textual criticism. The IIIF enables the exchange and integration of images whose information of both the physical object and the digital facsimile is provided via a manifest expressed in Json-LD (Linked Data)[161] format. The IIIF, which developed within a very active international community, aims at interoperability and the

[160] https://iiif.io/
[161] https://json-ld.org/

sharing of image-based resources: it consists of a working environment that can be defined as a "tool, model, standard, infrastructure".
The first version was published in 2012 with the aim of disseminating data preserved by the institution itself and its reuse according to FAIR principles. According to these principles, research data must be resources that can be shared, made accessible and reproducible or effectively reused. IIIF is a new technology and as such is still subject to unresolved questions regarding the tools and concrete practices of use, including the representation model of image information in connection with transcriptions (in TEI), suitable tools for manipulating images and for their visualisation (es. Mirador[162], Universal Viewer[163]). Through IIIF, images can be integrated and visualised in another project through a series of APIs:

- Image API[164]
  Enables the user to choose a portion of the image and adjust its quality, resize, and rotation. It can retrieve photographs from anywhere in the world.

- Presentation API[165]
  Packages each image with its associated metadata, allowing viewers to learn about the picture's history, title, and even the website in which it was found.

- Authentication API[166]
  Link to a user interface for logging in and services that offer credentials to manage and limit access.

- Content Search API[167]
  Conduct a text search to look for any relevant annotations or text within digital assets.

- Change Discovery API[168]
  Gather any updates made by companies that offer digital items.

[162] https://projectmirador.org/
[163] https://universalviewer.io/
[164] https://iiif.io/api/image/3.0/
[165] https://iiif.io/api/presentation/3.0/
[166] https://iiif.io/api/auth/1.0/
[167] https://iiif.io/api/search/2.0/
[168] https://iiif.io/api/discovery/1.0/

- Content State API[169]

  Create a highly specific link that points to a particular view of an object, such as a specific section of a page that has been rotated.

In the project prototype, the facsimiles of the *delibera*, *testamento* and *processo* have been uploaded on a IIIF server in order to follow the FAIR principles and to improve the experience of the user that has access to the archival documents. In this manner, not only the content and information regarding the images is available and reusable, but also the images are. New knowledge can thus be created and shared.

eXist-db

In addition to the text encoding of the archival documents in TEI, a prototype webpage with eXist-db[170]has been developed[171]. It is one of the best platforms to support projects involving scholarly materials in TEI or large XML data. The significant differences between eXist and other SQL and NoSQL database systems will be discussed in more detail below.First of all, eXist is centred on documents, that means eXist is a NoSQL document-oriented database, in contrast to conventional Relational Database Management Systems (e.g., Oracle, MySQL), which are table-oriented. While eXist stores XML documents, several other NoSQL document databases store JSON documents. JSON handles data-oriented documents with ease, whereas XML handles both text- and data-oriented markup. Another feature of eXist is that it is schemaless. Before you can begin storing your data, Relational Database Management Systems and even a few NoSQL databases require you to design your data structure. In this sense, eXist is versatile and it allows us to store documents without previously defining any kind of schema. In addition, another aspect of eXist that has been considered for the selection of the best tool for the prototype is structured search. In eXist-db you can establish different indexes for your queries and searches. When combined with the possibility to filter based on the structure of the document, eXist search results become more accurate, especially when dealing with structured documents such as TEI.

[169] https://iiif.io/api/content-state/1.0/
[170] http://exist-db.org/exist/apps/homepage/index.html
[171] Fo a useful guide of eXist-db, see Siegel & Retter, 2014

4.2 The Knowledge base

4.2.1 Semantic enrichment and mark-up with XML-TEI and Wikidata

For the basic structure of the text and certain aspects of transcription, the aforementioned TEI (Text Encoding Initiative) standard was chosen as mark-up language. Used in many digital publishing and archiving projects, the TEI project aims to develop a standardised encoding model for the representation and management of humanistic-literary data in a digital environment. The TEI is a metalanguage based on XML - a specification published by the W3C, i.e. a consortium for Web standard languages - and which since 1987 has established and implemented a common vocabulary for the description of data repositories for humanists through standards for a specific conceptual domain.

Each document of Veronica Franco's prototype is marked up in XML/TEI format and metadata (people, places and dates) are extracted from each document. Where there is a reference to an official URL, links to the places and people have been created through identification on Wikidata[172]. Having a different nature, archival documents and letters have been treated differently, although they share some common elements.

First of all, the following are TEI elements generally used in the encoding process: <teiHeader> for metadata, <facsimile> for image information, <text> for the content, <body> for the main content, for divisions, <p> for paragraphs or <ab> for portions of text, and <pb/> for page breaks. The <teiHeader> and <text> elements are mandatory and thus they have been used also in our encoding of the archival documents and Veronica Franco's letters.

The <teiHeader> covers the description of an encoded work and provides documentation of the text itself, its source, and its modification. This information is essential for the scholars using the texts, for librarians, archivists and for softwares of text processing as well. This element offers metadata regarding the document that has been encoded. A file description <fileDesc>, that contains a complete bibliographical description of the digital file itself is nestled within the TEI encoding created for the prototype and from which a user of the text could obtain a proper bibliographic citation, or from which a librarian or archivist could generate a catalogue entry. Thus, the bibliographic description of an electronic text is supplied by this mandatory element. Inside the fileDesc element we find three mandatory and four optional elements. One of the mandatory elements is the <titleStmt>, which collects details about a work's title and the people who created its content. Nested in the title statement, there can also be the element <respStmt>; when the specialised elements for

[172] https://www.wikidata.org/wiki/Wikidata:Main_Page

authors, editors, etc. are insufficient or do not apply, the statement of responsibility provides a statement of responsibility for the intellectual content of a text, edition, recording, or series. It may also be used to store data on people or groups who contributed to the creation or dissemination of a bibliographic work. In the TEI model realised we find <resp> (responsibility), incorporating an indication of the type of intellectual responsibility a person has or the function that an organisation plays in the creation or dissemination of a document.

```
· <title xml:lang="ita">Testamento 10 Agosto 1564</title>
  <respStmt>
      <resp>Marcatura in TEI a cura di</resp>
      <name>Eleonora Zordan, Tiziana Mancinelli, Federico Boschetti</name>
  </respStmt>
```

Another required part of the <fileDesc> element is the <publicationStmt> element. Its purpose is to identify the organisation that makes a resource available (such as a publisher or distributor) and to provide any extra details about how it is made available, such as licensing terms, identification numbers, etc. The tag <availability> provides details on the accessibility of a text, such as any limitations on its use or distribution, its copyright status, and any applicable licences.

```
<publicationStmt>
        <publisher>Università Ca' Foscari di Venezia, VeDPH </publisher>
        <date>February 2023</date>
        <availability>
        <licence
target="http://creativecommons.org/licenses/by-nc/3.0/deed.en_US">Distributed under a
Creative Commons Attribution-NonCommercial 3.0 Unported License
        </licence>
        </availability>
 </publicationStmt>
```

The last mandatory part in the fileDesc element is the <sourceDesc> element. It is used to list the sources from which a digital file was derived. This could be a written text or manuscript that has been printed, a different computer file, some sort of audio or video recording, or a mix of these. Nested in <sourceDesc> there are many elements describing the analogue archival documents. For instance, the <msDesc> (manuscript description) contains a

description of a single, identifiable manuscript or other text-containing artefact, like an early printed book. In our case, this element is used for the realisation of a model describing *carte* of *processi, testamenti* and *deliberazioni.* The tag <msContents> defines the intellectual content of an entire manuscript or a manuscript part. In a possible wider digital archive, containing numerous deliberations, wills of different authors and trials as well, it is thus appropriate to define a class for each of this type of documents. In the following example, we can see the element <msContents class =”#testamenti”>.

```
<msIdentifier>
        <country>Italia</country>
        <institution>Archivio di Stato di Venezia</institution>
        <collection>Notarile, Testamenti</collection>
        <idno type="shelfmark">busta 1019, numero 806.</idno>
        <msName> Testamento di Veronica Franco (10 agosto 1564) </msName>
 </msIdentifier>
        <msContents class="#testamenti">
        <summary>
        <ab><date type="willDate" when="1564-08-10">10 agosto 1564</date>.
        <placeName type="willPlace"
        ref="https://www.wikidata.org/wiki/Q641">Venezia</placeName>.</ab>
        <ab><term type="willType">Testamento nuncupativo</term> di
        <rs type="person" ref= "https://www.wikidata.org/wiki/Q257493">Veronica
        Franco</rs>, scritto in vista del primo parto.</ab>
        </summary>
        </msContents>
```

The <msDesc> module also contains <physDesc> (physical description), which provides a full physical description of the archival documents.

```
<physDesc>
        <objectDesc>
        <supportDesc>
                <support> </support>
                <extent>
                <measure unit="pages" quantity="4"> Il testamento originale è costituito da 4
                pagine, di cui una bianca.</measure>
                <dimensions type="willPage" unit="cm">
                <height>30</height>
                <width>19,5</width>
                </dimensions>
```

```
            </extent>
        </supportDesc>
        </objectDesc>
    </physDesc>
```

The tags <history> and <provenance> have been selected because of the importance of *context* and *provenance* in archival studies[173]. In the case of the *testamento*, we do have the *segnatura* and the fond in which the analogue document can be found, however, it is also important to mention which *notaio* dealt with Veronica Franco's will.

```
<history>
        <provenance> Atti notarili di
                <rs type="notary">Anton Maria Vincenti</rs>
        </provenance>
</history>
```

Another information regarding the elements selected for the TEI encoding that seemed important to highlight was the subject description of the archival resources. Subject and Class selection is a practice widely used in library sciences, among the most well-known and established standards we find the *Nuovo Soggettario di Firenze*[174] in Italy, and the *Library of Congress Subject Headings* (LCSH)[175] internationally. For this prototype, the URIs from the LCSH have been used in order to meet the needs of an international audience who wants to uniquely identify the subjects. Therefore, at the end of the <teiHeader> it has been inserted the <xenoData> tag, which offers a container element where non-TEI formatted metadata may be inserted. Inside the <xenoData> the RDF/XML syntax representing the triple of each subject has been inserted. The example below is the subject description of Veronica Franco's *testamento* (1564), but the same subjects could be applied to other courtesans' wills.

```
        <xenoData>
        <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
                xmlns:skos="http://www.w3.org/2004/02/skos/core#">
                <skos:Concept rdf:about="http://id.loc.gov/authorities/subjects/sh85142737">
```

[173] An significant work about manuscript context and provenance has been done with Mapping Manuscript Migrations (MMM), a semantic portal that allows large-scale discovery and exploration of data concerning the history of European mediaeval and early modern manuscripts, https://mappingmanuscriptmigrations.org/en/about

[174] https://thes.bncf.firenze.sbn.it/

[175] https://id.loc.gov/authorities/subjects.html

<skos:prefLabel>**Venezia**</skos:prefLabel>
</skos:Concept>
<skos:Concept rdf:about="http://id.loc.gov/authorities/subject/sh85123070">
<skos:prefLabel>**XVI secolo**</skos:prefLabel>
</skos:Concept>
<skos:Concept rdf:about="http://id.loc.gov/authorities/subjects/sh85033561">
<skos:prefLabel>**Cortigiane**</skos:prefLabel>
</skos:Concept>
<skos:Concept rdf:about="http://id.loc.gov/authorities/subjects/sh2002006563">
<skos:prefLabel>**Testamenti**</skos:prefLabel>
</skos:Concept>
</rdf:RDF>
</xenoData>

As regards the encoding of the text of *processo*, *deliberazione* and *testamento*, some elements have been selected and used. In our ecosystem of knowledge of 16th-century Venice many participants take part in the narration of the events regarding courtesans and Veronica Franco. Each person has a role and plays an action in a specific place and in a particular point in time. For this reason, place, people's roles and dates have been encoded, and where it was possible they were identified through an URL/URI with Wikidata. For the name of people and magistrates the element <rs type="people"> and <rs type="magistrate"> have been used. Here are some examples of how these information have been encoded with TEI and Wikidata:

<placeName ref="https://www.wikidata.org/wiki/Q690779">S. Marcilian</placeName>,

<placeName ref="https://www.wikidata.org/wiki/Q946542">S. Francesco de la Vigna</placeName>

<rs type="magistrate" ref="https://www.wikidata.org/wiki/Q88205852">Avogadori</name>

<rs type="person">Aloysius Basadonna</name>

These elements represent points of access in our organisation of knowledge of Venice and courtesans of the 16th-century, and in a digital archive comprehending a wider amount of information and data, they would be even more essential and useful. Many names mentioned in Veronica Franco's will and in some of the *deliberazioni* are not present in Wikidata or VIAF, and therefore they do not belong to an authority file. A further development of this project would be the creation of a controlled-vocabulary and ontology of the lively Venetian society of the time, giving space not only to *cortigiane honeste* but also to less known places of Venice, magistrates and people involved in the network of relationships of the time. Other features of the text and of the text structure have been encoded in the following way: the main text areas have been encoded with the tag anonymous block <ab>, which "contains any arbitrary component-level unit of text, acting as an anonymous container for phrase or inter level elements analogous to, but without the semantic baggage of, a paragraph", as stated in the TEI guidelines.

The encoding of Veronica Franco's letters differs from the one of the archival documents. As only two of these letters actually have an addressee and a date, the TEI model is very simple. However, this could be taken as a starting point for further enrichments and it could be used differently in other digital humanities projects. Information of great importance, especially if the scholar is comparing different editions of a text, is the <biblStruct> tag inside the <sourceDesc> element, which provides information about the editor, the publication date of the edition and the publishing place.

The <correspDesc> element could be used to encode information regarding the sender <correspAction type ="sent", the addressee <correspAction type="received", and the place <settlement> and the date <date when ="YYYY-MM-DD">. This information could become other important points of access in the knowledge ecosystem and in the organisation of a digital archive of courtesans, making research and access to information easier and functional.

4.2.2 The RDF model

As previously mentioned in Chapter 2, the RDF expresses the semantic web language's grammar and syntax, and its normative structure is represented by a triple (Guerrini, 2022). For this case study, an example of RDF graph (Figure 18) has been realised starting from the subjects of the archival resources. As seen in the TEI model, each subject has been uniquely identified through the controlled vocabulary of the *Library of Congress Subject Headings*

(LCSH). The W3C recommends using the Simple Knowledge Organization System (SKOS)[176] to express thesauri, taxonomies, classification schemes, subject-heading systems, and other types of structured controlled vocabulary.

Through SKOS, it is possible to express a knowledge organisation system as machine-readable data. Following these recommendations, SKOS was chosen for the realisation of an RDF graph. RDF triples are used to express SKOS data, which can then be encoded using whatever RDF syntax (RDF/XML or Turtle).

A knowledge organisation system is seen by the SKOS data model as a concept scheme made up of many concepts. These SKOS concepts are identifiable by URIs, making them a component of the World Wide Web. The subjects of the archival documents (the 16th century, Venice, courtesans and the type of document, such as *processo* or *testamento*) have been thus identified with URI(s) from the LCSH and expressed through the class *skos:Concept,* which is used to convey an idea, a notion or an abstraction. It describes the conceptual or intellectual structure of the knowledge base. Each *Subject* has both a *label* and *skos:Concept*, and thus the RDF statement is composed of *Subject*, *Predicate* and two *Objects* (see Figure 17).

Subject	Predicate	Object
http://id.loc.gov/authorities/subjects/sh85142737	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.w3.org/2004/02/skos/core#Concept
http://id.loc.gov/authorities/subjects/sh85142737	http://www.w3.org/2004/02/skos/core#prefLabel	"Venezia"
http://id.loc.gov/authorities/subject/sh85123070	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.w3.org/2004/02/skos/core#Concept
http://id.loc.gov/authorities/subject/sh85123070	http://www.w3.org/2004/02/skos/core#prefLabel	"XVI secolo"
http://id.loc.gov/authorities/subjects/sh85033561	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.w3.org/2004/02/skos/core#Concept
http://id.loc.gov/authorities/subjects/sh85033561	http://www.w3.org/2004/02/skos/core#prefLabel	"Cortigiane"
http://id.loc.gov/authorities/subjects/sh2002006563	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.w3.org/2004/02/skos/core#Concept
http://id.loc.gov/authorities/subjects/sh2002006563	http://www.w3.org/2004/02/skos/core#prefLabel	"Testamenti"

Figure 17: Triples of the RDF data model

[176] https://www.w3.org/2004/02/skos/

Figure 18: Graph of the data model of a *testamento*

Conclusions

Future directions and limitations

A general limitation of this dissertation is the relatively small corpus of documents encoded with TEI. Enriching the corpus to widen the database of information regarding Venetian courtesans would definitely allow the representation of more significant relationships between entities (places, people and dates). Another limit encountered was the absence of many names mentioned in the *delibera* and *testamento* from Wikidata, and thus the impossibility of uniquely identifying them. For this reason, a further development of this project would imply the creation of an authority file and controlled vocabulary for the accurate representation of Renaissance Venice and courtesans' lives. As regards the automatic transcription of handwritten texts, another limitation has been the quality of images. It was in fact possible to automatically transcribe on eScriptorium only the digitised *delibere* sent from the *Archivio di Stato di Venezia*, which were of course of a high quality level. The cost of the digitisation was, however, not very cheap and therefore it represents an obstacle in the future extension of the digital archive. A future direction could involve including more literary works written by courtesans, proving both an historical and literary overview. Veronica Franco's *Terze Rime (1575)* could be integrated, together with the works of other *cortigiane oneste* such as Gaspara Stampa.

The primary aim of this dissertation was to gain insight into the possibilities offered by the digital sphere, and to identify the best practices and methodologies for the realisation of a digital archive that wants to represent and disseminate a very specific knowledge base and that can thus be considered a thematic archive. Another objective was highlighting the importance of the study of social groups that have been historically and culturally silenced and belittled because of their gender, profession and social class. Digital humanities and new emerging technologies can help in narrating history from a different perspective, giving space to those women that have always been labelled as outcasts.

Archival sources

ASV, Capitolare dei Signori di notte, c. 42

ASV, Capitolare I, Provveditori alla Sanità, c. 157

ASV, Collegio, Notatorio , reg. 42, cc. 123r-124r.

ASV, Consiglio dei Dieci, Registri Misti, 17, c. 49

ASV, Provveditori alla sanità, b.6, cc. 156v-156v.

ASV, Provveditori alla Sanità, b.6, c. 167r.

ASV, Sant'Uffizio, b. 59, n. 30

ASV, Senato, Deliberazioni, Terra, reg. 32, c.147

ASV, Senato, Deliberazioni, Terra , reg. 32, c. 125

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