Implementing Culturally Relevant Relationships Between Digital Cultural Heritage Objects

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Abstract. A vocabulary of culturally relevant relationships – CRR - between cultural heritage objects in Library, Archive, and Museum (LAM) was proposed with the aim of interlinking digital collections using the Linked Open Data (LOD) technologies. The CRR vocabulary was proposed to be used by culture curators, teachers, historians, etc. to enable them to interlink such digital resources to provide a richer context and to reveal new senses of such resources. This paper aims at testing and evaluating the CRR vocabulary, as follows. Wikipedia articles about remarkable cultural heritage objects as the painting Mona Lisa and the book Dom Casmurro are used to create RDF triples where the heritage object is the subject, relationships of the CRR vocabulary are the predicates, and links found in each Wikipedia article to other LAM digital objects, or other Web resources are the objects of each triple. The RDF graphs thus generated are presented and discussed. The necessity of improvements in the proposed CRR vocabulary is outlined and suggestions of these changes are proposed.

Keywords: Heritage objects · Digital collections · Interlinking · Culturally relevant relationships

1 Introduction

Since 2000’s cultural heritage collections of LAM are being published on the Web. The Web catalog technology makes such collection information silos because, although held by different institutions, many of such collections are complementary. Many of them have thematic intersections or are related to other web resources as authorities, historic events, subjects, exhibitions, or to articles in Wikipedia and its sibling resources DBpedia and Wikidata. The emergence of Digital Humanities (Zeng 2019) poses new challenges to libraries, archives, and museums (LAM). It requires that digital cultural heritage objects – HO - be machine-processable.

Some of these collections are now being published as structured data using LOD technologies. As more cultural heritage datasets are published according to LOD technologies the web of culture data [16]. The publishing of LAM digital collections according to LOD technologies will achieve their full potential as the published resources became structured interlinked and queried (Tim Berners-Lee 2006).
Aiming at exploring the synergies between such collections, and between them and other web resources, a research project (Marcondes 2019) proposed a vocabulary of culturally relevant relationships – CRR - between HO with the aim of interlinking such collections using the LOD technologies. The CRR vocabulary used as sources and inspiration of its relationships cases suggested by culture curators (Marcondes 2019, 125) [15] and ICA (2017) RIC-CM among others (Marcondes 2019, 122). Many relationships in such vocabularies are similar to the intended meaning of the CRR relationships that emerge from the cases suggested by culture curators which are the raw material for the development of the CRR vocabulary, but few of them have exactly the same meaning. A comprehensive description of the CRR vocabulary, including the meaning of each relationship, relationships with similar meaning in other vocabularies as Dublin Core, ICOM/CIDOC (2014) namespace/URI specification are detailed in the former cited paper; it was not included in the present paper due to its number of pages limitations. A table with the CRR vocabulary relationships is included in Sect. 3.

There are several LAM projects using LOD technologies (Marcondes 2019, 123) but few of them interlink collections hosted by different institutions. Related work highlight the value of initiatives to interlink LAM data and enrich metadata. Such practice is being increasingly recognized as one that adds value to LAM data [17], (Klein and Kyrios 2013), [2], (Zeng 2019), (McKenna, Debruyne and O’Sullivan 2020), [1]. The aim of CRR vocabulary is to provide a tool to interlink and enrich of LAM data.

The proposed interlink vocabulary is conceived as a tool to be used by culture curators in their work of contextualizing, commenting, evaluating, and make sense of HO, and improve their reuse for educational and cultural purposes. The CRR vocabulary now needs to be tested for its adequacy to interlink several HO and interlink them with other web resources, forming complex conceptualizations of events, works, agents, and themes of cultural relevance.

This phase of the research aims at testing the proposed vocabulary in real cases of sets of HO for which the relationships between them are remarkable and recognized in the academic literature on culture. The cases related in this paper are one of several test rounds planned.

This paper addresses the following questions. Are the proposed of CRR relationships complete and comprehensive to describe the different cases of culturally relevant relationships found/known in culture? Are the proposed relationships simple and intuitive so to be used by culture curators without special training?

2 Material and Method

There are many difficulties to test CRR vocabulary. To our knowledge, there is no standard methodology for testing vocabularies As proposed the vocabulary was conceived to be used by culture curators in their work to interlink HO available throughout the web. The CRR vocabulary was conceived to be simple and intuitive to be used by culture curators without any special training. Such aims guided its development.

Although conceived with such aims it is hard to summon up culture curator that understand the need for such vocabulary and are aware of LOD technologies and their potentials. In the face of this difficulty, we opt to use as test cases articles of Wikipedia
about largely recognized examples of HO. Such Wikipedia articles are full of links to other related HO, thus constituting conceptualizations similar to those that may be developed in real cases of interlinked HO by culture curators. Such test methodology seems to be objective and verifiable, therefore adequate to this phase of the research.

Cases of sets of digital HO with their interrelationships that are remarkable and recognized in the academic literature on culture were selected. The corresponding Wikipedia articles texts about such objects were used to identify other heritage objects linked (to simulate the CRR relationship) to the Wikipedia article, along with Agents, Concepts, Events/Processes, Time, and Places, which comprise the entities of the ontology proposed in this research project (Marcondes 2020, 133). Such links are manually extracted from the Wikipedia article’s text. Two cases of remarkable heritage objects are chosen, the painting Mona Lisa, https://en.wikipedia.org/wiki/Mona_Lisa, and the book Dom Casmurro, https://pt.wikipedia.org/wiki/Dom_Casmurro, by the Brazilian author Machado de Assis.

Links within each article text are indicative of a possible CRR relationship with such entities. The entities identified were then tentatively interlinked using the CRR vocabulary, forming a conceptualization. For each Wikipedia article were developed two tables, one with all links found within the article introduction paragraph (such paragraph is “pasted” as it is in the original Wikipedia article) and the other with chosen links found within the remainder of the article (not exhaustive); these are representatives of typical links between the HO corresponding to the Wikipedia article and other HO as books, paintings, documents, or entities as Agents, Concepts, Events/Processes, Time, and Places.

Results of each conceptualization are presented as several RDF (RDF Primer 2004) triples in a two columns table where the table title represents the subject of a triple, the 1st column represents the predicate and the 2nd column represents the object of each triple. Links used are not necessarily URI used in LOD since they are used just to demonstrate the interlinking features of the CRR vocabulary. Within the 2nd column, when an appropriate CRR relationship is not identified, a text from the Wikipedia article is quoted. Within the 2nd column when the triple object is a reference to a publication within the Wikipedia article, it is cited in the References with a note “(Wikipedia reference)”. When there is not an adequate CRR relationship to interlink the subject and the object of a triple, the corresponding 1st column of the Table is filled with the observation “There is not a foreseen CRR relationship”.

### 3 The CRR Vocabulary

A table with all of the CRR vocabulary relationships extracted from Marcondes (2019) follows. When the vocabulary was conceived there was an intention to reuse relationships from other vocabularies. Most of the time this intention was not carried out because the concepts in the original vocabulary have a slightly different meaning or were not relationships. This is the case of the CRR relationships 0021 Created_by/0022 Creator. Such relationships are somehow similar to Dublin Core element dc:creator, but dc:creator (see http://purl.org/dc/elements/1.1/creator) is not a relationship. In such cases, similar concepts are annotated within the CRR relationships (Table 1).
Table 1. CRR vocabulary relationships

| Relationship                      | Inverse Relationship |
|-----------------------------------|----------------------|
| Id: 0011 Based_on                 | Id: 0012 Base_for    |
| Id: 0021 Created_by               | Id: 0022 Creator     |
| Id: 0031 Design_or_Procedure_for  | Id: 0032 Design_or_Procedure |
| Id: 0041 Documents                | Id: 0042 Documented_by |
| Id: 0051 Has_Contribution_of      | Id: 0052 Contributor |
| Id: 061 Has_Subject               | Id: 0062 Is_Subject  |
| Id: 0071 Influenced               | Id: 0072 Influenced_by |
| Id: 081 Inspired                  | Id: 0082 Inspired_by |
| Id: 0091 Is_Illustrated_by        | Id: 092 Illustrated  |
| Id: 0101 Link_to_Agent            | Id: 0102 Link_Agent_to_Object |
| Id: 0121 Link_to_Event_Process    | Id: 0122 Link_Event_Process_to_Object |
| Id: 0131 Mentined_by_in           | Id: 0132 Mentions    |
| Id: 0141 Part_of                  | Id: 0142 Has_part    |
| Id: 0151 Portrays                 | Id: 0152 Is_Portrayed_by |
| Id: 0161 Provenance               | Id: 0162 Place_of_Provenance |
| Id: 0171 Similar_item             |                      |

4 Results

This section presents the two cases used to evaluate the CRR vocabulary

4.1 Da Vinci’s Mona Lisa Case, Mona Lisa (2020)

Links in the article introduction:
The *Mona Lisa* (/ˈmɒnə ˈliːsoʊ/; Italian: *Monna Lisa* [ˈmɔnna ˈliːza] or *La Gioconda* [la dʒɔˈkonda]; French: *La Joconde* [la zɔkɔ̃d]) is a half-length portrait painting by the Italian artist Leonardo da Vinci. It is considered an archetypal masterpiece of the Italian Renaissance [3, 4], and has been described as “the best known, the most visited, the most written about, the most sung about, the most parodied work of art in the world” [5]. The painting’s novel qualities include the subject’s expression, which is frequently described as enigmatic [6], the monumentality of the composition, the subtle modeling of forms, and the atmospheric illusionism [7].

The painting is likely of the Italian noblewoman Lisa Gherardini [8] the wife of Francesco del Giocondo, and is in oil on a white Lombardy poplar panel. It had been believed to have been painted between 1503 and 1506; however, Leonardo may have continued working on it as late as 1517. Recent academic work suggests that it would not have been started before 1513 [9–12]. It was acquired by King Francis I of France and
Table 2. Triples in the article Mona Lisa

| In | Predicate (CR Relationship) | Object |
|----|------------------------------|--------|
| 1  | 0131 Mentioned_in            | - Guinness World Record, [link](https://en.wikipedia.org/wiki/Guinness_World_Records) |
| 2  | There is not a foreseen CRR relationship | - Italian Renaissance, [link](https://en.wikipedia.org/wiki/Italian_Renaissance) |
| 3  | 0021 Created_by              | - Leonardo da Vinci, [link](https://en.wikipedia.org/wiki/Leonardo_da_Vinci) |
| 4  | 0151 Portrays                | - Lisa Gherardini, [link](https://en.wikipedia.org/wiki/Lisa_del_Giocondo) |
| 5  | “… is in oil on a white”, there is not a foreseen CRR relationship | - Lombardy poplar, [link](https://en.wikipedia.org/wiki/Populus_nigra) |
| 6  | 0101 Link_to_Agent           | - King Francis I of France, [link](https://en.wikipedia.org/wiki/Francis_I_of_France) |
| 7  | “… is now the property of the”, there is not a foreseen CRR relationship | - French Republic, [link](https://en.wikipedia.org/wiki/France) |
| 8  | “… on permanent display at”, there is not a foreseen CRR relationship | - Louvre Museum, [link](https://en.wikipedia.org/wiki/Louvre) |

is now the property of the French Republic itself, on permanent display at the Louvre Museum in Paris since 1797 [13].

The *Mona Lisa* is one of the most valuable paintings in the world. It holds the Guinness World Record for the highest known insurance valuation in history at US$100 million in 1962 [14] (equivalent to $650 million in 2018).

Other links found in the article to typical types of Heritage objects - books, documents, museum objects - in LAM collections, or to entities as Agents, Concepts, Events/Processes, Time, and Places, which comprise the entities of the proposed ontology (Marcondes 2019, 133), are also considered. Such links follow.

“Florence, Italy”, “Prado Museum La Gioconda, Wikipedia article: Mona Lisa (Prado’s version)”, “Isleworth Mona Lisa, Wikipedia article: Isleworth Mona Lisa”, “Mona Lisa at the Encyclopædia Britannica”, “Raphael Sanzio’s drawing after Leonardo’s Mona Lisa al Louvre Museum”, “The Heidelberg Document at Heidelberg University”, “Secrets of the Mona Lisa, Discovery Channel documentary on YouTube”, “Kemp, Martin; Pallanti, Giuseppe (2017), *Mona Lisa: The people and the painting*. Oxford: Oxford University Press ISBN 9780198749905”, “Discussion by Janina Ramirez and Martin Kemp: Art Detective Podcast, 18 Jan 2017”, “Research in 2003 by Professor Margaret Livingstone of Harvard University said that Mona Lisa’s smile disappears when observed with direct vision” (Table 3).
### Table 3. Additional triples in the article Mona Lisa

| In | Predicate (CR Relationship) | Object |
|----|-----------------------------|--------|
| 1  | 0162 Place_of_Provenance    | - Florence, Italy, [https://en.wikipedia.org/wiki/Florence](https://en.wikipedia.org/wiki/Florence) |
| 2  | 0012 Base_for               | - Prado Museum La Gioconda, [https://en.wikipedia.org/wiki/Mona_Lisa_(Prado)](https://en.wikipedia.org/wiki/Mona_Lisa_(Prado)) |
| 3  | 0012 Base_for               | - Isleworth Mona Lisa, [https://en.wikipedia.org/wiki/Isleworth_Mona_Lisa](https://en.wikipedia.org/wiki/Isleworth_Mona_Lisa) |
| 4  | 0062 Is_Subject             | - Mona Lisa at the Encyclopædia Britannica, [https://www.britannica.com/EBchecked/topic/388735](https://www.britannica.com/EBchecked/topic/388735) |
| 5  | 0012 Base_for               | - Raphael Sanzio’s drawing after Leonardo’s Mona Lisa at Louvre Museum, [https://www.louvre.fr/en/oeuvre-notices/head-and-shoulders-woman-three-quarters-profile-facing-left-folded-arms](https://www.louvre.fr/en/oeuvre-notices/head-and-shoulders-woman-three-quarters-profile-facing-left-folded-arms) |
| 6  | 0131 Mentioned_in           | - The Heidelberg Document at Heidelberg University, [http://monalisa.org/2012/09/11/302/](http://monalisa.org/2012/09/11/302/) |
| 7  | 0131 Mentioned_in           | - Secrets of the Mona Lisa, Discovery Channel documentary on YouTube, [https://www.youtube.com/watch?v=viHQRGpQ2w4](https://www.youtube.com/watch?v=viHQRGpQ2w4) |
| 8  | 0131 Mentioned_in           | - Kemp, Martin; Pallanti, Giuseppe (2017). *Mona Lisa: The people and the painting*. Oxford: Oxford University Press ISBN 9780198749905, [https://en.wikipedia.org/wiki/Special:BookSources/9780198749905](https://en.wikipedia.org/wiki/Special:BookSources/9780198749905) |
| 9  | 0131 Mentioned_in           | - Discussion by Janina Ramirez and Martin Kemp: Art Detective Podcast, 18 Jan 2017, [https://web.archive.org/web/20170401070045/https://www.acast.com/artdetective/monalisabyleonardodavinci-withmartinkemp](https://web.archive.org/web/20170401070045/https://www.acast.com/artdetective/monalisabyleonardodavinci-withmartinkemp) |
| 10 | 0131 Mentioned_in           | - Research in 2003 by Professor Margaret Livingstone of Harvard University, [http://news.bbc.co.uk/2/hi/entertainment/2775817.stm](http://news.bbc.co.uk/2/hi/entertainment/2775817.stm) |

### 4.2 Machado de Assis’s Dom Casmurro Case, Dom Casmurro (2019)

**Dom Casmurro** is an 1899 novel written by Brazilian author Joaquim Maria Machado de Assis. Like *The Posthumous Memoirs of Bras Cubas* and *Quincas Borba*, both by Machado de Assis, it is widely regarded as a masterpiece of realist literature. It is written as a fictional memoir by a distrusting, jealous husband. The narrator, however, is not
a reliable conveyor of the story as it is a dark comedy. Dom Casmurro is considered by critic Afranio Coutinho “a true Brazilian masterpiece, and maybe Brazil’s greatest representative piece of writing” and “one of the best books ever written in the Portuguese language, if not the best one to date.” The author is considered a master of Latin American literature with a unique style of realism (Jackson 1998).

Other links are found in the article as follows.

“Machado de Assis’ life as a translator of Shakespeare, and also his influence from French realism, especially Honoré de Balzac, Gustave Flaubert and Émile Zola”, “The Brazilian writer Dalton Trevisan once noted that Dom Casmurro is

Table 4. Triples in the article Dom Casmurro

| In | Predicate (CR Relationship) | Object |
|----|-----------------------------|--------|
| 1  | 0021 Created_by             | - Joaquim Maria Machado de Assis, https://en.wikipedia.org/wiki/Machado_de_Assis |
| 2  | there is not a foreseen CRR relationship | - The Posthumous Memoirs of Bras Cubas, https://en.wikipedia.org/wiki/The_Posthumous_Memoirs_of_Bras_Cubas |
| 3  | there is not a foreseen CRR relationship | - Quincas Borba, https://en.wikipedia.org/wiki/Quincas_Borba |
| 4  | there is not a foreseen CRR relationship | - masterpiece, https://en.wikipedia.org/wiki/Masterpiece |
| 5  | there is not a foreseen CRR relationship | - Literary Realism, https://en.wikipedia.org/wiki/Literary_realism |
| 6  | there is not a foreseen CRR relationship | - literature, https://en.wikipedia.org/wiki/Literature |
| 7  | there is not a foreseen CRR relationship | - fictional, https://en.wikipedia.org/wiki/Fiction |
| 8  | there is not a foreseen CRR relationship | - memoir, https://en.wikipedia.org/wiki/Memoir |
| 9  | there is not a foreseen CRR relationship | - narrator, https://en.wikipedia.org/wiki/Narrator |
| 10 | “… is not a reliable conveyor,” there is not a foreseen CRR relationship | - “… is not a reliable conveyor, https://en.wikipedia.org/wiki/Unreliable_narrator |
| 11 | “… it is a dark comedy”, there is not a foreseen CRR relationship | - comedy, https://en.wikipedia.org/wiki/Comedy |
| 12 | there is not a foreseen CRR relationship | - Afranio Coutinho, https://en.wikipedia.org/wiki/Afranio_Coutinho |
| 13 | there is not a foreseen CRR relationship | - Portuguese language, https://en.wikipedia.org/wiki/Portuguese_language |
| 14 | there is not a foreseen CRR relationship | - Latin American, https://en.wikipedia.org/wiki/Latin_American |
| 15 | there is not a foreseen CRR relationship | - Literature, https://en.wikipedia.org/wiki/Literature |
| 16 | 061 Has_Subject, Is_Subject | - Realism [6] |
not to be read as the story of Capitu betraying Bentinho, but as a story of jealousy itself”, https://en.wikipedia.org/wiki/Dalton_Trevisan. “A television miniseries titled Capitu, the feminine character of Dom Casmurro, was released in 2008”, “MetaLibri Digital Library’s Dom Casmurro”.

Table 5. Additional triples in the article Dom Casmurro

| In | Predicate (CR Relationship) | Object |
|----|-----------------------------|--------|
| 1  | Id: 0072 Influenced_by      | - Shakespeare, https://en.wikipedia.org/wiki/Shakespeare |
| 2  | Id: 0072 Influenced_by      | - Othello, https://en.wikipedia.org/wiki/Othello |
| 3  | Id: 0072 Influenced_by      | - Honoré de Balzac, https://en.wikipedia.org/wiki/Honoré_de_Balzac |
| 4  | Id: 0072 Influenced_by      | - Gustave Flaubert, https://en.wikipedia.org/wiki/Gustave_Flaubert |
| 5  | Id: 0072 Influenced_by      | - Émile Zola, https://en.wikipedia.org/wiki/Émile_Zola |
| 6  | There is not a foreseen CRR relationship | - Dalton Trevisan, https://en.wikipedia.org/wiki/Dalton_Trevisan |
| 7  | Id: 0011 Based_on           | - Television miniseries titled Capitu, https://memorialaglobo.globo.com/entretenimento/minisseries/capitu/ |
| 8  | There is not a foreseen CRR relationship | - MetaLibri Digital Library’s Dom Casmurro, http://metalibri.wikidot.com/title:dom-casmurro |

5 Discussion

In the sequel are presented and discussed sequentially, ordered by Table and line within each Table, the cases where an adequate CRR relationship is not found as a predicate (column 1) to interlink the subject of the triple corresponding to the Table to the HO described in column 2.

Table 2, line 2, there is not a foreseen CRR relationship between a heritage object and the artistic movement, style, or artistic period to which it is associated. The CIDOC CRM (2014) has is a similar entity, the E4P period for entities as the Jurassic, The European Bronze Age, the Italian Renaissance.

Table 2, line 5, there is not a foreseen CRR relation for material or technique used for a heritage object. There is a similar property in the CIDOC CRM (2014), the P33 used specific technique property.

Table 2, line 7, 8, there are not foreseen CRR relationships for ownership of a heritage object or its belonging to a collection of a heritage institution. Again there are
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some similar properties in the CIDOC CRM (2014), as the P52 has current owner and
P54 has current permanent location. Especially the relationship expressed in Table 2,
Line 8 should be included in the CRR vocabulary, as such a relationship is more specific
and implies the relationship expressed in Table 2, Line 7.

Table 4, lines 2, 3, there is not a foreseen CRR relationship between two works of
the same author.

Table 4, lines 4, 6, 8, 9, 10, 11, 12, 13, 14, 15, there is not a foreseen CRR relationship
similar to a thesaurus Associative Relationship.

Table 4, lines 5, 7, 16, there is not a foreseen CRR relationship between a heritage
object and entities such as artistic movements or periods to which it is associated. The
same relationship appears in Table 2, Line 2. Maybe the addition of such a relationship
to the CRR vocabulary would be useful.

Table 5, line 8, there is not (it was not foreseen) a CRR relationship similar to the
thesaurus Associative Relationship. As in Table 4 Lines 4, 6, 8, 9, 10, 11, 12, 13, 14, 15,
maybe the adding of an Associative Relationship would enable curators to interlink HO
and them with external entities without adding more specific relationships that could
make the CRR vocabulary hard to be used by culture curators.

Table 5, line 8, there is not (it was not foreseen) a CRR relationship for a downloadable
version of the HO. Such a type of relationship might be useful to ease the reuse of such
an HO.

Wikipedia offers many pages describing culturally relevant HO, as the Hamlet
(https://en.wikipedia.org/wiki/Hamlet), the Michelangelo’s david (https://en.wikipedia.
org/wiki/David_(Michelangelo), The Notre-Dame Cathedral (https://en.wikipedia.org/
wiki/Notre-Dame_de_Paris) and many others. Such pages are full of links to other
resources.

The choice of Wikipedia pages seemed appropriate as avoided the neet of training and
explaining curators the aim of CRR vocabulary and LOD technologies. Mona Lisa page
has 348 external links and Dom Casmurro page has 37 external links, according to https://
www.duplichecker.com. Links within a Wikipedia page are divided in Bibliography, i.e.
the bibliographic support to the claims made within the page, and External links, i.e.
links to resources other than Wikipedia pages. Most of the links in each page are to other
Wikipedia pages and documents thus simulating a LOD environment and the adequacy
of CRR vocabulary to assign meaning to such links. The result tables can also be easily
converted in RDF N triples and loaded in triplestores, thus opening up a new and wide
perspective of tests to be done.

6 Conclusion

The results of the test described above suggest the inclusion of the CRR vocabulary of
the following relationships: Belongs to the collection of the cultural heritage institution,
Link to the artistic movement or period, Link to a downloadable version, and a generic
Associative Relationship.

Two more cases are foreseen to be tested, the romance Don Quijote de La Mancha by
the Spanish writer Miguel de Cervantes Saavedra, https://es.wikipedia.org/wiki/Don_
Quijote_de_la_Mancha, and the panel painting Guerra e Paz by the Brazilian painter
Candido Portinari that decorates United Nations headquarters in New York, https://pt.wikipedia.org/wiki/Guerra_e_Paz_(Candido_Portinari).

A further test of the potentialities of the CRR vocabulary would be to convert the tables of each case into the triples that make up each one and load the corresponding datasets into a triple store. This will enable the conceptualization to be queried using SPARQL and the results evaluated according to its potentialities to answer queries that retrieve relevant facts about each case. After such tests, we intend to release a new version of CRR vocabulary.

There is another question in the development of the CRR vocabulary, how to implement a tool that enables culture curators to easily and friendly use the CRR vocabulary to annotate and interlink cultural heritage collections to create enhanced cultural resources made up of HO of collections in different institutions.

The proposed CRR vocabulary may be useful to enable the construction of new, curated, and innovative resources as virtual exhibitions, virtual classes, etc., build on the bases of digital resources from different LAM collections. As a project requisite the CRR vocabulary must be kept small and concise as to be used intuitively and without the need for any special training by culture curators.

As the number of LOD dataset available on the web grows the success the value aggregated by interlinking cultural heritage digital collections as proposed by Berners-Lee (2006) will be highlighted. The success of such an enterprise depends on cooperation among heritage institutions to interlink their LOD collections.

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