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# Linked Metadata for 3D Models: from Dublin Core to Europeana Data Model

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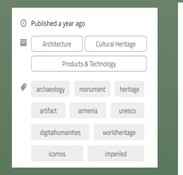
# Linked Metadata for 3D Models: from Dublin Core to Europeana Data Model

Xiying Mi, Metadata Librarian; Bonita Pollock, Metadata Librarian; Richard R. Bernardy Jr., Digital Collections System Administrator
University of South Florida Libraries

## Sketchfab

Pros
- Designed for 3D models
- Embedded 3D model display
- Social media site for 3D objects with tagging and direct sharing
- Supports VR and AR
- Compatible with all mainstream VR tech
- Free to use
- Browser neutral and mobile platform

Cons:
- Unstructured metadata
- No indexes
- Lack of flexibility
- Limited searching capabilities

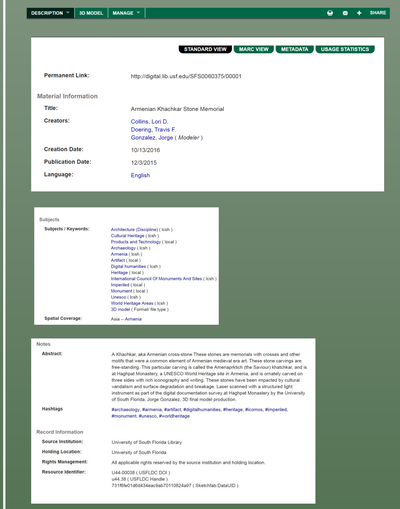




A Khachkar, aka Armenian cross-stone These stones are memorials with crosses and other motifs that were a common element of Armenian medieval era art. These stone carvings are free-standing. This particular carving is called the Amenaprktich (the Saviour) khatchkar, and is at Haghpat Monastery, a UNESCO World Heritage site in Armenia, and is ornately carved on three sides with rich iconography and writing. These stones have been impacted by cultural vandalism and surface degradation and breakage.

Laser scanned with a structured light instrument as part of the digital documentation survey at Haghpat Monastery by the University of South Florida. Jorge Gonzalez, 3D final model production.

https://sketchfab.com/USF_digital

## SobekCM




http://digital.lib.usf.edu/3d-models/ (coming soon)

Pros:
- Structured metadata
- Indexed
- Increased accessibility and findability
- More interoperability
- Open source platform

Cons:
- Lost crowd sourcing capability
- Not linked data

## Enhanced Metadata

### Cultural Heritage Object

| CHO Identifier | U44-00038 ( USFLDC DOI ) |
|---|---|
| Title | Armenian Khachkar Stone Memorial |
| Alternative title | Amenaprktich (the Saviour) khatchkar |
| Time period | Early Medieval |
| Country | Armenia (Republic) |
| Location | Monastery of Haghpat |
| Materials | Stone (worked rock) |
| Architecture type | Monumental stone |
| Description | A Khachkar, aka Armenian cross-stone These stones are memorials with crosses and other motifs that were a common element of Armenian medieval era art. These stone carvings are free-standing. This particular carving is called the Amenaprktich (the Saviour) khatchkar, and is at Haghpat Monastery, a UNESCO World Heritage site in Armenia, and is ornately carved on three sides with rich iconography and writing. These stones have been impacted by cultural vandalism and surface degradation and breakage. Laser scanned with a structured light instrument as part of the digital documentation survey at Haghpat Monastery by the University of South Florida. Jorge Gonzalez, 3D final model production. |
| Dimensions | |
| Language | |

### Digital Representation

| Digital identifier | http://digital.lib.usf.edu/l/SFS0060375/00001/evideo |
|---|---|
| Creator | Collins, Lori D. |
| | Doering, Travis F. |
| 3D Modeler | Gonzalez, Jorge |
| Scanning date | 20151203 |
| Record creation date | 20161013 |
| Imaging | Terrestrial laser scanning |
| Format | 3D |

### Provenance

| Institutional identifier | http://digital.lib.usf.edu/SFS0060375 |
|---|---|
| Institution | University of South Florida |
| Holding Location | **University of South Florida Library** |
| Identifiers | u44.38 ( USFLDC Handle )<br>731f6fe01d6d434eac9ab70110824a97 (sketchfab:DataUID ) |

### Classification

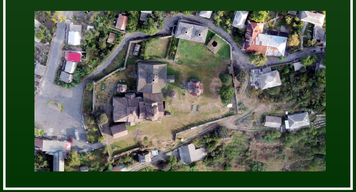
| Subject | Architecture (Discipline) |
|---|---|
| | Cultural Heritage |
| | Archeology |
| | Digital Humanities |
| | World Heritage Areas |
| Affiliations | UNESCO World Heritage site |
| | International Council of Monuments and Sites |
| Keywords | Artifact |
| | Heritage |
| | Imperiled |
| | Monument |
| | Khachker |
| | Armenian cross-stone |
| | Stone Carving |
| | Cross motifs |
| Twitter hashtags | archaeology, armenia, artifact, digitalhumanities, heritage, icomos, imperiled, monument, unesco, worldheritage |

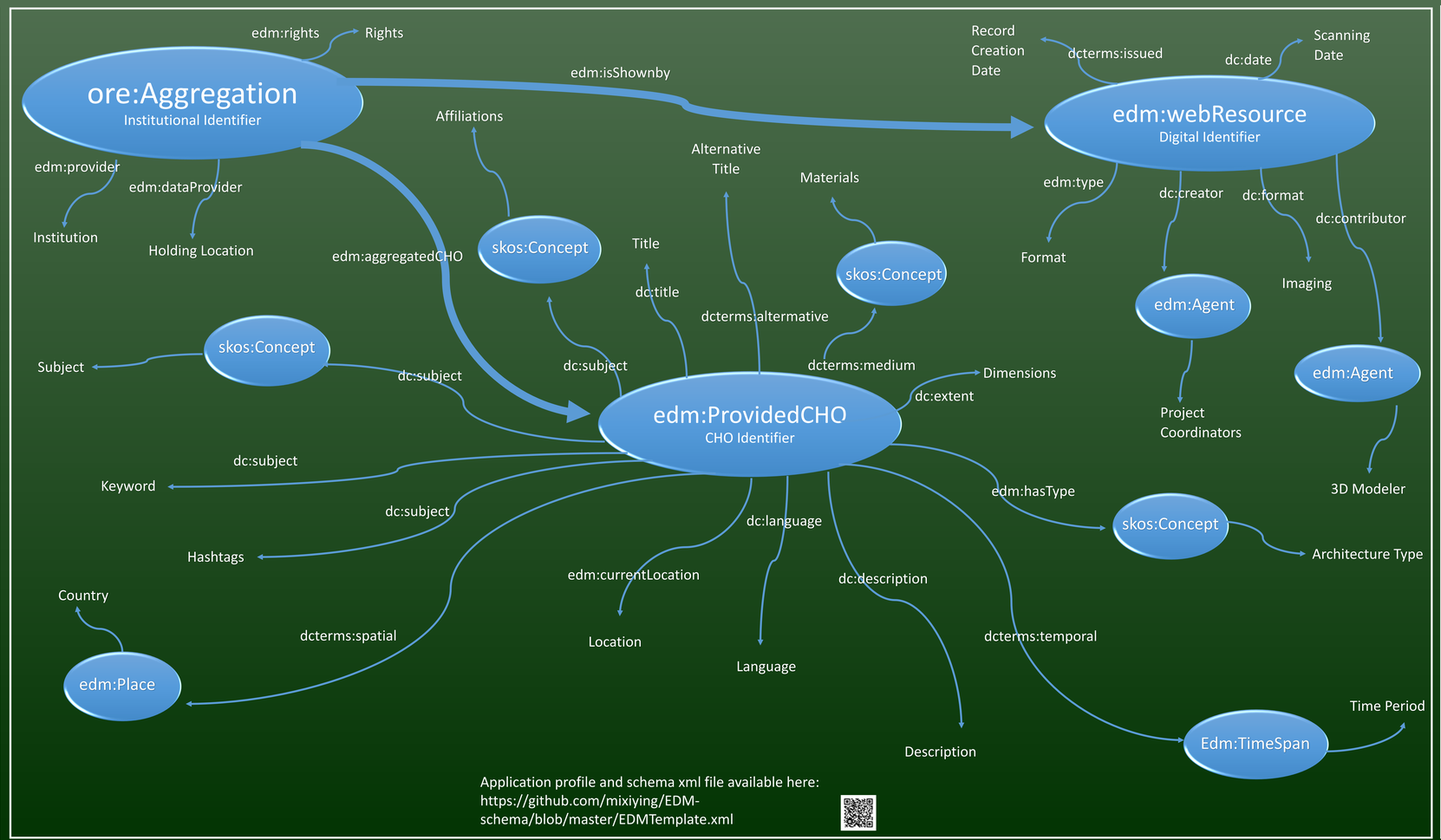
### Rights

| Rights | All applicable rights reserved by the source institution and holding location. |
|---|---|

## Project Background

Drs. Lori Collins and Travis Doering are Research Associate Professors, archaeologists, and co-directors of the University of South Florida Libraries' Digital Heritage and Humanities Collections (DHHC). The DHHC is using 3D and spatial survey, modeling, digital database and collections development strategies to preserve and protect the world's cultural and natural heritage by creating high resolution digital representations of imperiled sites, landscapes, monuments and artifacts. The collection displayed in this poster is from their on-going work in Armenia to digitally preserve World Heritage sites using 3D and imaging methods. To see their 3D models currently available through Sketchfab, please visit: https://sketchfab.com/USF_digital.






Application profile and schema xml file available here: https://github.com/mixiying/EDM-schema/blob/master/EDMTemplate.xml

## Metadata Harvesting Process

Richard Bernardy, the Digital Collection System Administrator, writes scripts for metadata harvesting, crosswalking and content management.

**Targeting host of the collection**: open-source software SobekCM

**Metadata harvesting and formatting process:**
- standard data mining techniques
- scripted metadata capture from Sketchfab.com
- relational database built for captured metadata
- metadata and controlled vocabulary formatting
- mapping of metadata schema
- packager app generates submission packages via database and mapping document
- Post-ingest metadata review and revision

**New features for this collection**: Twitter hashtag linked field created to support social media search. The new feature was coded in JavaScript/jQuery.