

| Ontology | Main Purpose | Key Contents | Main Classes | Strengths | Weaknesses |
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| CIDOC-CRM | - Provide a standardized conceptual reference model for the cultural heritage domain- Facilitate information exchange and integration between different cultural institutions- Support the management and research of cultural heritage objects | Cultural heritage and related information (attributes (type, material, technology, etc.), life cycle information, ownership information, etc.), events, time, place, participants | Conceptual Object, Actor (including persons and organizations), Event, Time-Span, Place, Type | Covers a wide range of concepts in the cultural heritage domain. Facilitates data exchange between different systems and institutions. Provides a unified terminology and conceptual framework | Contains complex and somehow redundant concepts, especially for image captioning tasks. Limited support for describing visual features of artworks. Don't support describe emotional or interpretive content of artworks |
| ArCo | Create a comprehensive knowledge graph of Italian cultural heritage, transforming catalogue data into Linked Open Data (LOD) and providing a standardized ontology network to describe various cultural properties | Specific cultural properties (both tangible and intangible heritage) and their attributes. Related time, location, events, agents, and other aspects. Designed to comprehensively capture various aspects of Italian cultural heritage and related management and descriptive information | CulturalProperty CatalogueRecord CulturalEvent CulturalEntity TechnicalStatus TimeIndexedTypedLocation CulturalEvent Agent | Wide coverage, including various types of cultural properties. Consistent with existing standards (e.g., CIDOC-CRM, EDM). Rich metadata and contextual information | Primarily focused on Italian cultural heritage, may not be suitable for other cultural or regions. Lack fine-grained description of visual content. Lack of modeling for emotional and subjective interpretation of artworks |
| EDM | Provide a common data model for European cultural heritage institutions. Facilitate the integration and interoperability of cultural heritage data from different sources and formats. Support semantic enrichment and linked data publication of cultural heritage resources | Metadata description of cultural objects. Representation information of digital resources. Contextual information (e.g., time, place, subject). Copyright and access rights information | ProvidedCHO (Cultural Heritage Object). Event. Place. TimeSpan. Agent. Concept | Wide coverage, adaptable to different types of cultural heritage resources. Supports multilingual data. Reuses multiple existing standards and vocabularies, promoting interoperability | Primarily focused on the management and cataloging of artworks. Not detailed enough in expressing visual content of artworks. |
| VRA CORE | Provide a standardized metadata description framework for visual resources (such as artworks, architecture, artifacts) to facilitate their management, cataloging, and retrieval | Basic information, physical characteristics, creative background, and subject content of visual resources | Work- agent- date- location | Provides a widely accepted standard for describing visual resources. Applicable to various types of visual resources | Lacks detailed description of the visual content of artworks. Limited coverage of historical and cultural background information. Does not include emotional or subjective interpretation |
| Linked | Create a standardized data model for artwork and cultural heritage information. Promote data interoperability and | Basic information of artworks (e.g., title, creation date, materials). Provenance and Exhibition history. | HumanMadeObject- VisualItem- Person- Group- | Supports modeling of complex relationships and events- Promotes | Lacks detailed description of the visual content of artworks. Does not |

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| Art | information sharing between cultural institutions. Support detailed description and management of artworks. | Related events and activities. Time and Location information | Place- Period- Event- Activity- Set | standardization of data in the art domain, facilitating cross-institutional data exchange | support the emotional or subjective interpretations |
| ICON | Provide a framework for artwork content and interpretation. Model the art interpretation based on Panofsky's three-level interpretation theory (pre-iconography, iconography, iconology) | Pre-iconographical level: Describes the identifiable visual elements in the artwork, such as objects, figures, and actions. Iconographical level: Identifies specific stories, symbolism, or allegories. Describes the connections between the image and specific themes or concepts. Iconological level: Expresses the intrinsic meaning and cultural phenomena of the artwork. | Recognition- ArtisticMotif- Composition- Character- Event- Place- Symbol- Image- Invenzione- IntrinsicMeaning- CulturalPhenomenon- InterpretationDescription | Focuses on the description of image content, allowing for the representation of subjectivity and diversity of interpretations. Aligned with multiple existing ontologies (e.g., CIDOC-CRM, DOLCE), enhancing interoperability | Lack of metadata such as artist, creation time, and artistic movement. The events here are mainly for visual elements that has symbolism |
| VIR | Provide a standardized framework for visual representation and iconographic analysis research, supporting the identification, annotation, and interconnection of visual elements in artworks, as well as their documentation and retrieval | Identification and description of visual elements. Relationships between visual objects. Symbolic meanings. | IC9_Representation- IC10_Attribute- IC1_Iconographical_Atom- IC16_Character- IC11_Personification- IC12_Visual_Recognition- IC19_Recto and IC20_Verso- IC21_Similarity_Statement | Provides a detailed framework for visual analysis. Supports iconographic research. Includes concepts of symbolic meanings. Based on CIDOC-CRM, ensuring interoperability | Lacks contextual information about artworks (e.g., artist background, creation period). Don't include emotional and subjective interpretation. Insufficient time and location background information. Lacks concepts to describe relationships between artworks |