CIDOC-CRM in a nutshell

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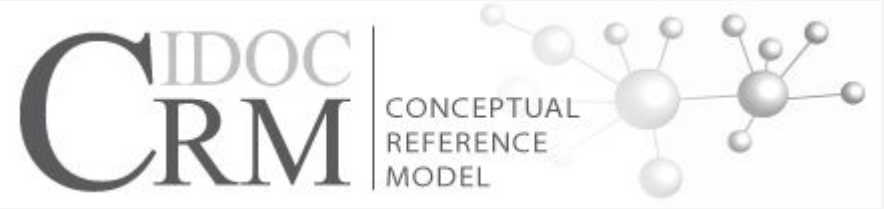
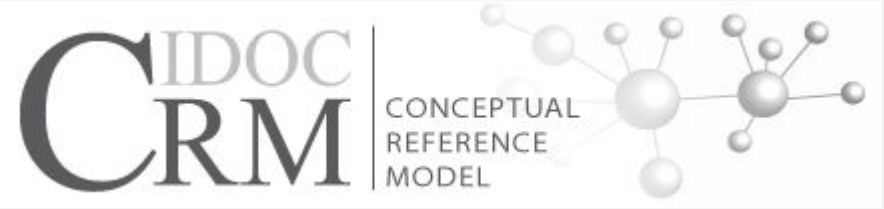
History of CIDOC-CRM



- Started by *Comité international pour la Documentation* (CIDOC) of *International Council of Museums* (ICOM)
- *CIDOC Information Categories* published in 1995
- *CIDOC relational data model* (Entity-Relationship Model)
- Switched to Object-Oriented Model, developed as *CIDOC-CRM* 1996-1999 (Version 2.0)
- ISO standardization 2000-2006, resulting in ISO 21127:2006/2014

- Compare: Dublin Core 1995, XML 1996-1998, RDF 1997-1999

What is CIDOC-CRM?



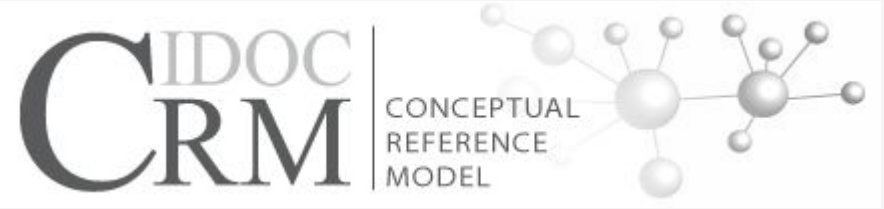
"a **high-level ontology** to enable **information integration** for **cultural heritage data**"

— Martin Doerr (2003)

Not a data format!

But encodings of CIDOC-CRM exist in XML and in RDF (RDFS)

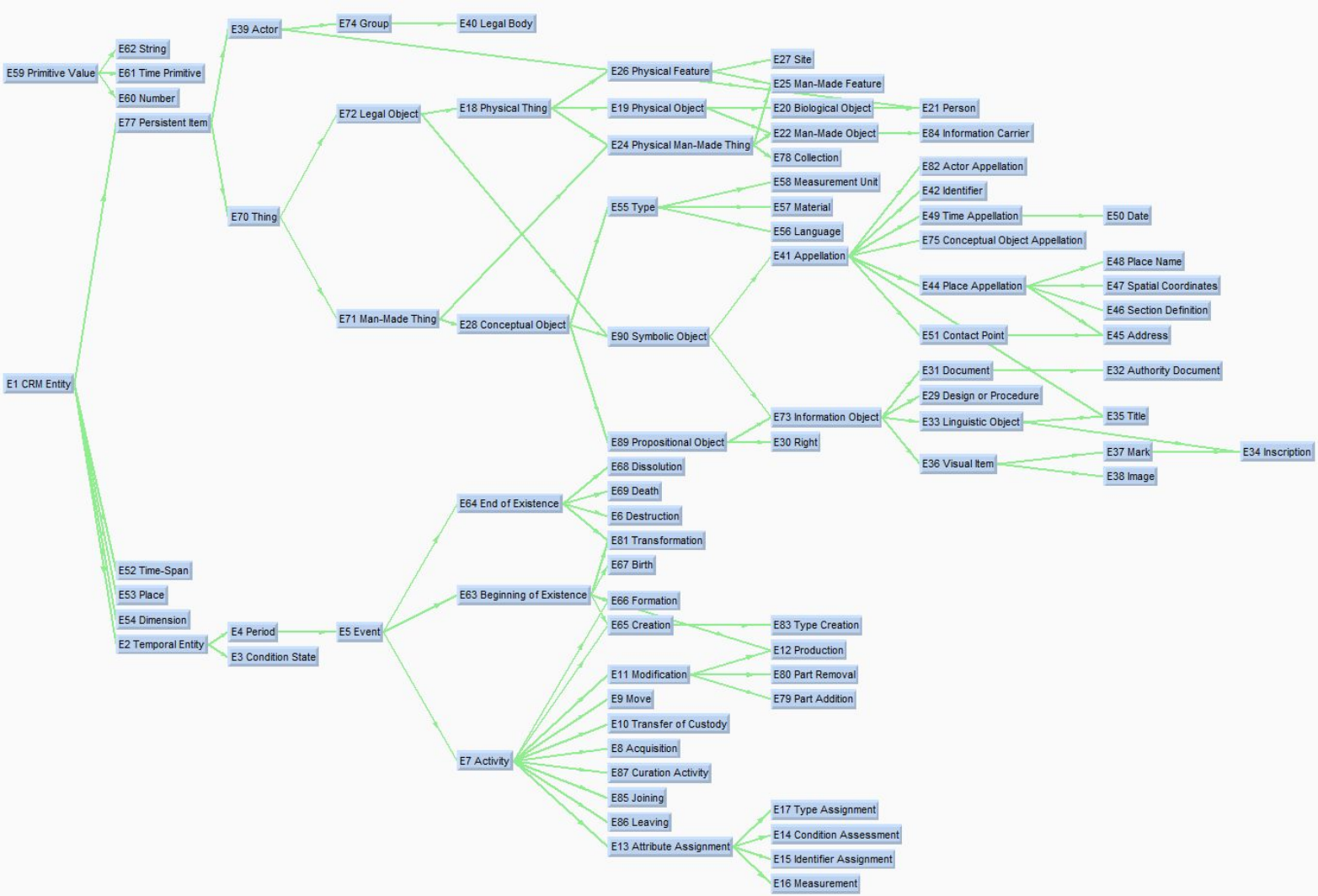
Scope of CIDOC-CRM (v7.1.2)



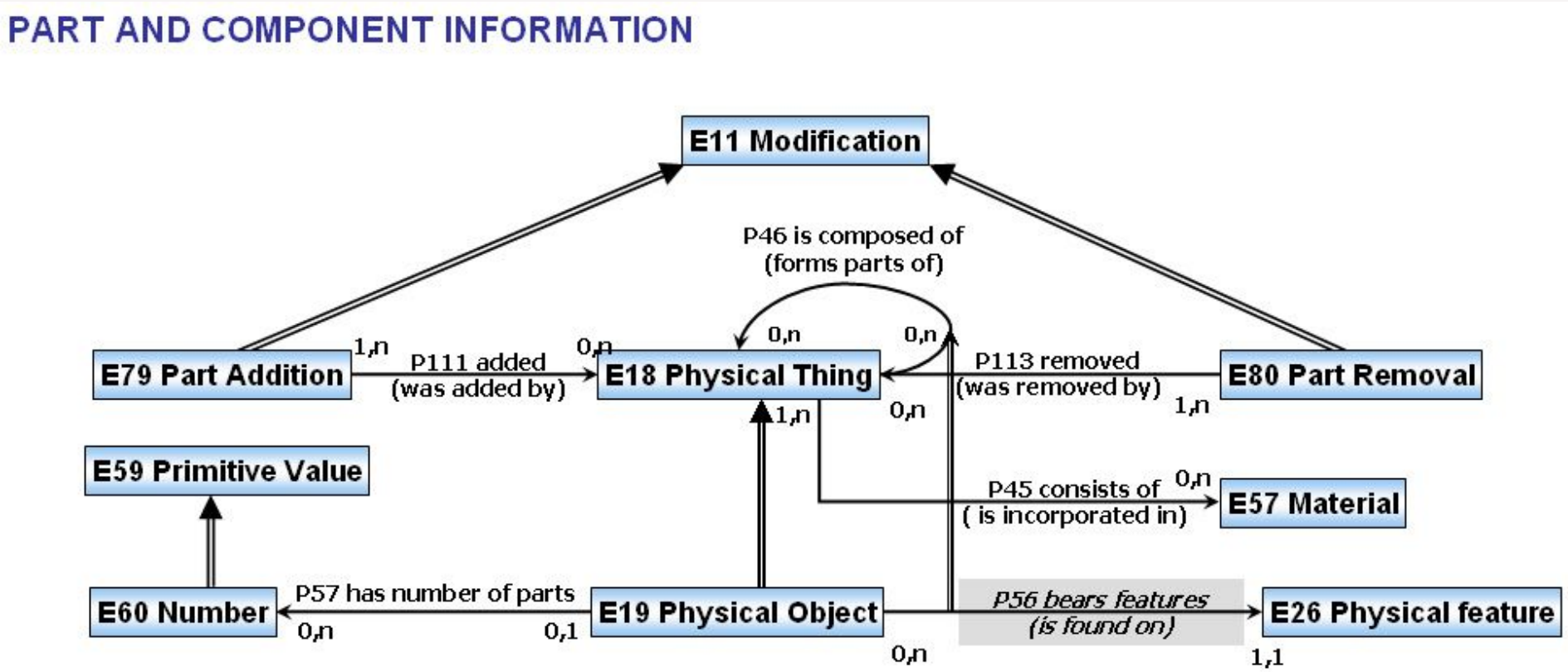
- Mainly used for data modeling
  in and around museums
- 26 use cases listed at https://www.cidoc-crm.org/useCasesPage for instance
  the Social Sciences and Humanities Open Cloud (SSHOC),
  part of the European Open Science Cloud (EOSC)

- 81 classes, such as **E5** Event, **E18** Physical Thing, …
- 160 properties, such as **P4** has time-span
- 11 official domain-specific extensions, such as **CRMsci** Scientific Observation Model

CRM Entities



Entities, Properties and Constraints



Full Example

E11 Modification (show all properties)

Navigate to a section [X]

SubClass Of:

E7 Activity

SuperClass Of:

E12 Production
E79 Part Addition
E80 Part Removal

Scope Note:

This class comprises instances of E7 Activity that are undertaken to create, alter or change instances of E24 Physical Human-Made Thing.

This class includes the production of an item from raw materials and other so far undocumented objects. It also includes the conservation treatment of an object.

Since the distinction between modification and production is not always clear, modification is regarded as the more generally applicable concept. This implies that some items may be consumed or destroyed in an instance of E11 Modification, and that others may be produced as a result of it. An event should also be documented using an instance of E81 Transformation if it results in the destruction of one or more objects and the simultaneous production of others using parts or material from the originals. In this case, the new items have separate identities.

An activity undertaken on an object which was designed to alter it, but which, in fact, it did not in any seemingly significant way (such as the application of a solvent during conservation which failed to dissolve any part of the object), is still considered as an instance of E11 Modification. Typically, any such activity will leave at least forensic traces of evidence on the object.

If the instance of E29 Design or Procedure utilized for the modification prescribes the use of specific materials, they should be documented using property *P68 foresees use of (use foreseen by)*: E57 Material of E29 Design or Procedure, rather than via *P126 employed (was employed in)*: E57 Material.

Examples:

- the construction of the SS Great Britain (E12) (Gregor, 1971)
- the impregnation of the Vasa warship in Stockholm for preservation after 1956 (Håfors, 2010)
- the transformation of the Enola Gay into a museum exhibit by the National Air and Space Museum in Washington DC between 1993 and 1995 (E12, E81) (Yakel, 2000)
- the last renewal of the gold coating of the Toshogu shrine in Nikko, Japan (Cali and Dougil, 2012)

In First Order Logic:

- E11(x) ⇒ E7(x)

Properties:

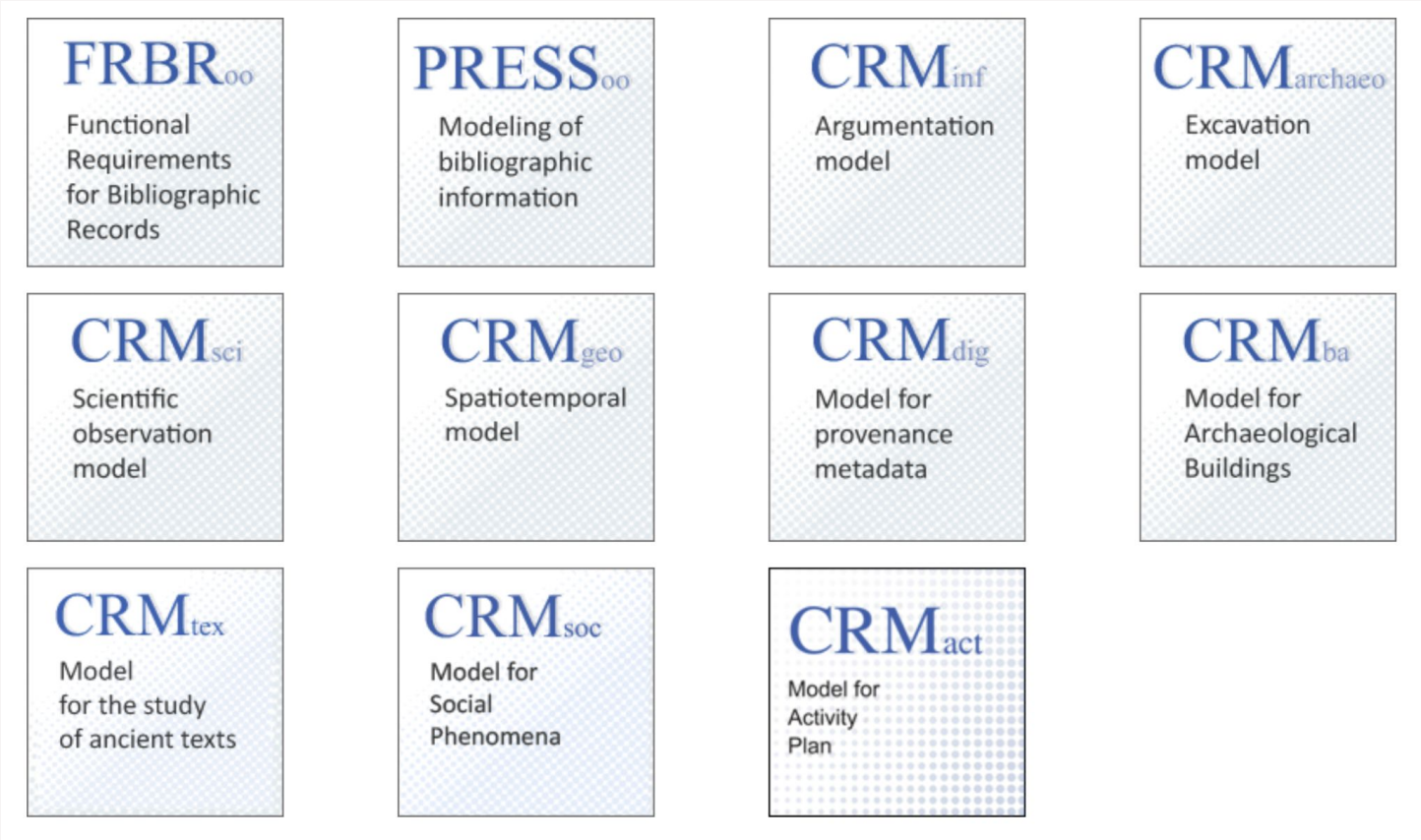
P31 has modified (was modified by): E18 Physical Thing
P126 employed (was employed in): E57 Material

https://cidoc-crm.org/html/cidoc_crm_v7.1.2_with_translations.html#E11

Example application: LIDO

- Aggregation of cultural heritage data (harvesting format)
- Based on CIDOC-CRM and previous formats
- Defined by an XML Schema
- Adjusted by application profiles

Extensions



https://cidoc-crm.org/collaborations

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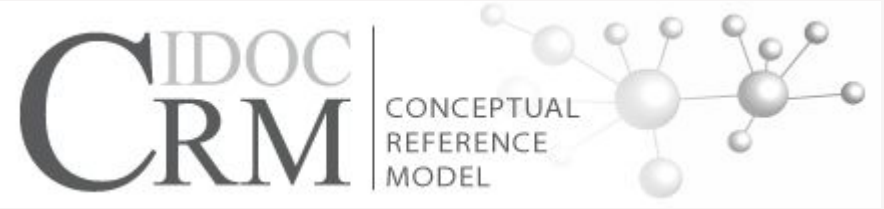
Summary & Questions



- Upper ontology with domain-specific focus on cultural heritage data and event-based
- Long history of three decades
- Documented well at https://www.cidoc-crm.org/
- Abstract data model, expressible in XML, RDF, SQL…
- Rarely use alone but reused by formats and ontologies

- Alignment with other upper ontologies?
- Possible use cases for NFDI?