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Mapping ICCD Archaeological Data to CIDOC-CRM: the RA Schema

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ARIADNE Project

- ARIADNE (Advanced Research Infrastructure for Archaeological Dataset Networking in Europe)
- FP7-INFRASTRUCTURES-2012-1 EU project (Grant agreement no: 313193)
- Primary goals
 - To integrate existing archaeological research infrastructures
 - To enable the use of distributed datasets and services
 - To develop new and powerful technologies as an integral component of the archaeological research methodology

ARIADNE Project

- CIDOC-CRM chosen to implement integration
- Mapping activities already started within the project
- To convert data and try to build integrated scenarios
- ARIADNE Year 1:
 - Content providers supported by FORTH Crete, PIN and CNR
 - MiBAC, the Italian Ministry of Cultural Heritage and Tourism
- Mapping the **Italian national standards** for the encoding of archaeological information (developed and maintained by **ICCD**) to CIDOC-CRM

ICCD and the Italian CH Documentation

- Central Institute for Catalogue and Documentation
- One of the 7 central institutes of the Italian Ministry of Cultural Heritage (MiBAC)
- Main goal: to create a **centralized national catalogue** of the Italian cultural heritage
 - Research and development of **tools, methods** and **standards** for **knowledge, protection** and **enhancement** of the Italian cultural and artistic heritage
 - Management of the national general catalogue of **archaeological, architectural, historical, artistic** and **ethno-anthropological** heritage
 - Realization of the **integration** between **databases** of MiBAC and the ones of the **local institutions** distributed on the territory

ICCD *Corpus* of Cataloguing Standards (v. 3.00)

- *Regulations for cataloguing*, describing the data models and the Authority files, to be used for cataloguing activities
- *Catalogue schemas*: descriptive **models** and **forms** for collecting information in a structured way, according to a “path of knowledge”
- *Authority files*, a complete control system to guarantee uniformity in the use of information concerning key concepts used throughout the whole system
 - ICCD created and maintains 3 authority files for **archaeology**: “**AUT**” (Authors), “**DSC**” (Archaeological Excavations), “**RCG**” (Archaeological Surveys)
- *Support and control tools*: **thesauri** and **terminological tools** developed to perform data acquisition operation in a uniform way

ICCD Models for Archaeology

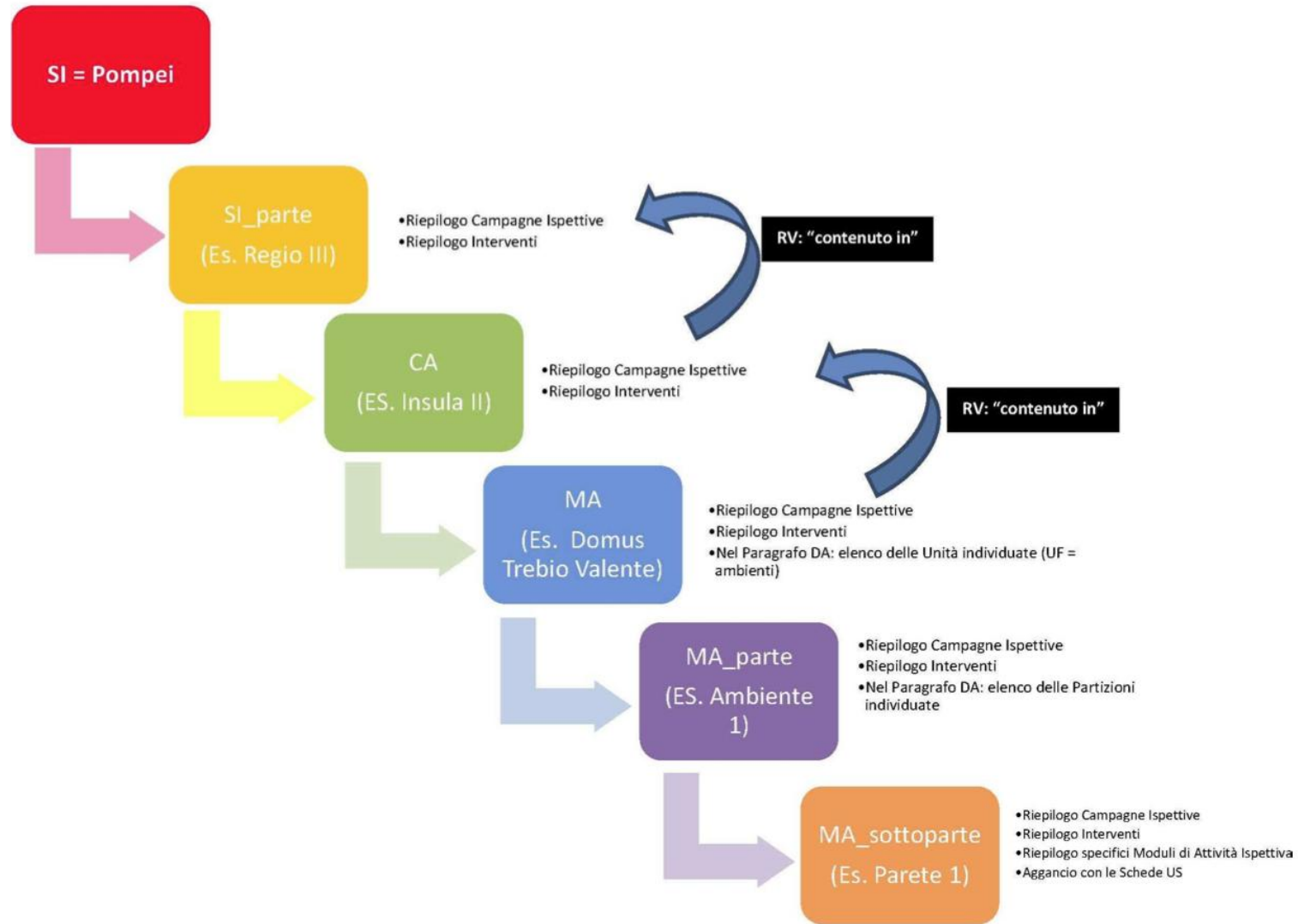
- Data Models for the cataloguing of **movable** and **immovable properties**
 - Paper forms
 - Digital Archives (SIGEC, SIGECWeb)
- *SI Schema - Archaeological Sites*: to document archaeological sites, intended as a “portion of land that preserves evidence of human activities”
- *SAS Schema - Stratigraphic Surveys*: to document stratigraphic sequences found in contexts of archaeological excavations
- *CA Schema - Archaeological Complexes*, to document archaeological properties having a functional architecture easily identifiable, composed of various building units
- *MA Schema - Archaeological Monuments*: to document archaeological properties consisting of a single identifiable building unit identified and organized on functional basis



ICCD Models for Archaeology

- ***RA Schema - Archaeological Finds***: to document movable objects
 - Most used and well established standard for Italian archaeology
 - Very high number of artefacts, already available and continually increasing as a result of archaeological activities throughout the national territory
- ***NU Schema - Numismatics***: to document of all the objects mainly having a monetary relevance
- ***TMA Schema - Archaeological Materials***: to record large collections of materials without significant characteristics
- ***AT Schema - Anthropological Finds***: to document biological evidences in close relation with archaeological and paleontological, historical and cultural contexts
- ***EP Schema - Epigraphic Documents***: to record the various aspects of the epigraphic documentation

ICCD Models for Archaeology



ICCD RA Mapping to CIDOC-CRM

- The **RA schema: "Reperto Archeologico"** (*Archaeological Artifact*)
- Physical objects purposely created by human activity
- Provides huge amount of information for the description of archaeological objects, (ca. 300 fields and subfields; ca. 20 sections)
- Different object **types** (Vocabularies)
- **Relationships**: internal and with other archaeological entities
- The "**cross-sections**", also present in other schemas: a good base for the prosecution of the mapping activities
- Mapped on CIDOC-CRM ***E22 Man-made Object***

ICCD RA Model

Scheda



CD - CODICI

TSK - Tipo Scheda	RA
LIR - Livello ricerca	I
NCT - CODICE UNIVOCO	
NCTR - Codice regione	08
NCTN - Numero catalogo generale	00487640
ESC - Ente schedatore	S06
ECP - Ente competente	S06

OG - OGGETTO

OGT - OGGETTO	
OGTD - Definizione	olpe
CLS - Classe e produzione	STRUMENTI, UTENSILI E OGGETTI D'USO/CONTENITORI E RECIPIENTI

LC - LOCALIZZAZIONE GEOGRAFICO-AMMINISTRATIVA

PVC - LOCALIZZAZIONE GEOGRAFICO-AMMINISTRATIVA ATTUALE	
PVCS - Stato	ITALIA
PVCR - Regione	Emilia Romagna
PVCP - Provincia	BO
PVCC - Comune	Marzabotto

LDC - COLLOCAZIONE SPECIFICA

LDCT - Tipologia	museo nazionale
LDCN - Denominazione	Museo Nazionale Etrusco "Pompeo Aria"
LDCU - Denominazione spazio viabilistico	Via Porrettana Sud, 13
LDCS - Specifiche	Sala IV, vetrina 16

UB - DATI PATRIMONIALI

INV - INVENTARIO DI MUSEO O SOPRINTENDENZA	
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INVN - Numero	1437
INVD - Data	1969
STI - STIMA	
STIS - Stima	L. 200000
STID - Data stima	1969
RE - MODALITA' DI REPERIMENTO	
DSC - DATI DI SCAVO	
SCAN - Denominazione dello scavo	Sasso Marconi, Via Porrettana 252/3
DSCF - Ente responsabile	SBA-ERO
DSCA - Responsabile scientifico	G. V. Gentili
DSCT - Motivo	opere private
DSCD - Data	1969
DSCS - Numero tomba	T1
DSCN - Specifiche	G. V. Gentili, "La recente scoperta di due tombe etrusche a Sasso Marconi (Bologna)", in Studi Etruschi XXXVIII (1970), pp. 241-249.
DT - CRONOLOGIA	
DTZ - CRONOLOGIA GENERICA	
DTZG - Fascia cronologica di riferimento	sec. V a.C.
DTZS - Frazione cronologica	terzo quarto
DTM - Motivazione cronologia	contesto
DTM - Motivazione cronologia	analisi tipologica
MT - DATI TECNICI	
MTC - Materia e tecnica	bronzo, laminatura, fusione
MIS - MISURE	
MISU - Unita'	cm
MISA - Altezza	18,4
MISD - Diametro	8,8
MISS - Spessore	0,3
DA - DATI ANALITICI	
DES - DESCRIZIONE	
DESO - Indicazioni sull'oggetto	Bocca rotonda, labbro estroflesso, brevissimo collo troncoconico, corpo globulare senza soluzione di continuit� con il fondo convesso, ansa sormontante con attacco a motivo vegetale stilizzato, impostata dal ventre all'interno dell'orlo, a sez. rettangolare.
CO - CONSERVAZIONE	
STC - STATO DI CONSERVAZIONE	



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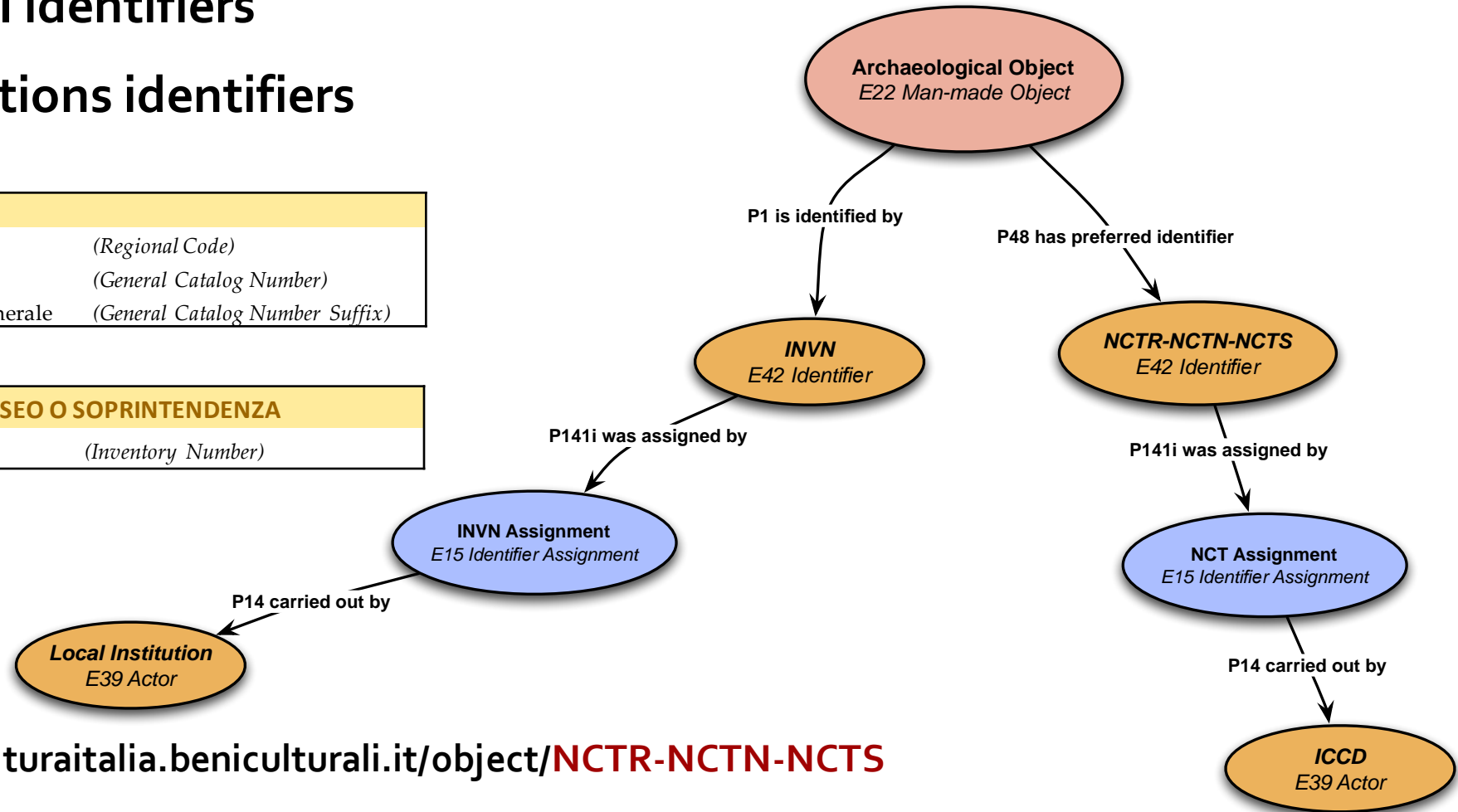
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RA Model: The "Codes" Section (CD)

- ICCD general identifiers
- Local institutions identifiers

CD CODICI		
NCTR	Codice regione	(Regional Code)
NCTN	Numero catalogo generale	(General Catalog Number)
NCTS	Suffisso numero catalogo generale	(General Catalog Number Suffix)

INV INVENTARIO DI MUSEO O SOPRINTENDENZA		
INVN	Numero Inventario	(Inventory Number)

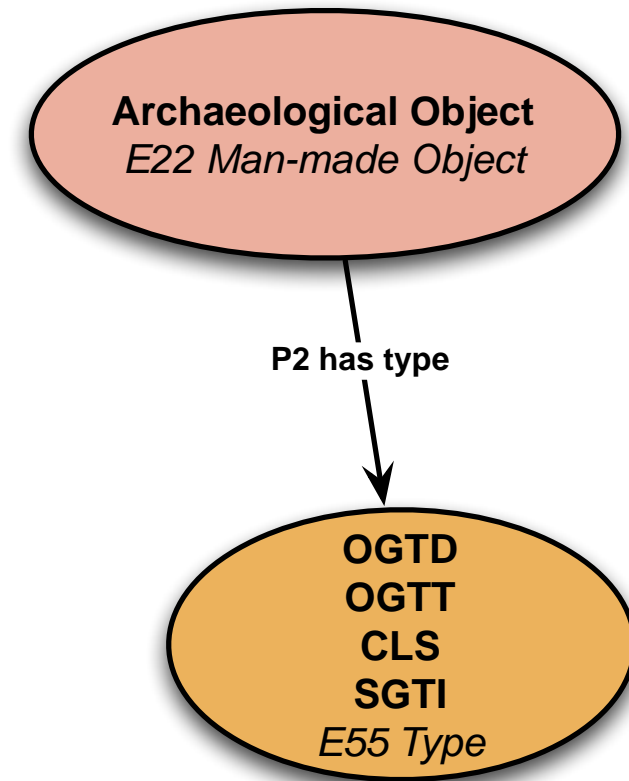


URI: <http://www.culturaitalia.beniculturali.it/object/NCTR-NCTN-NCTS>

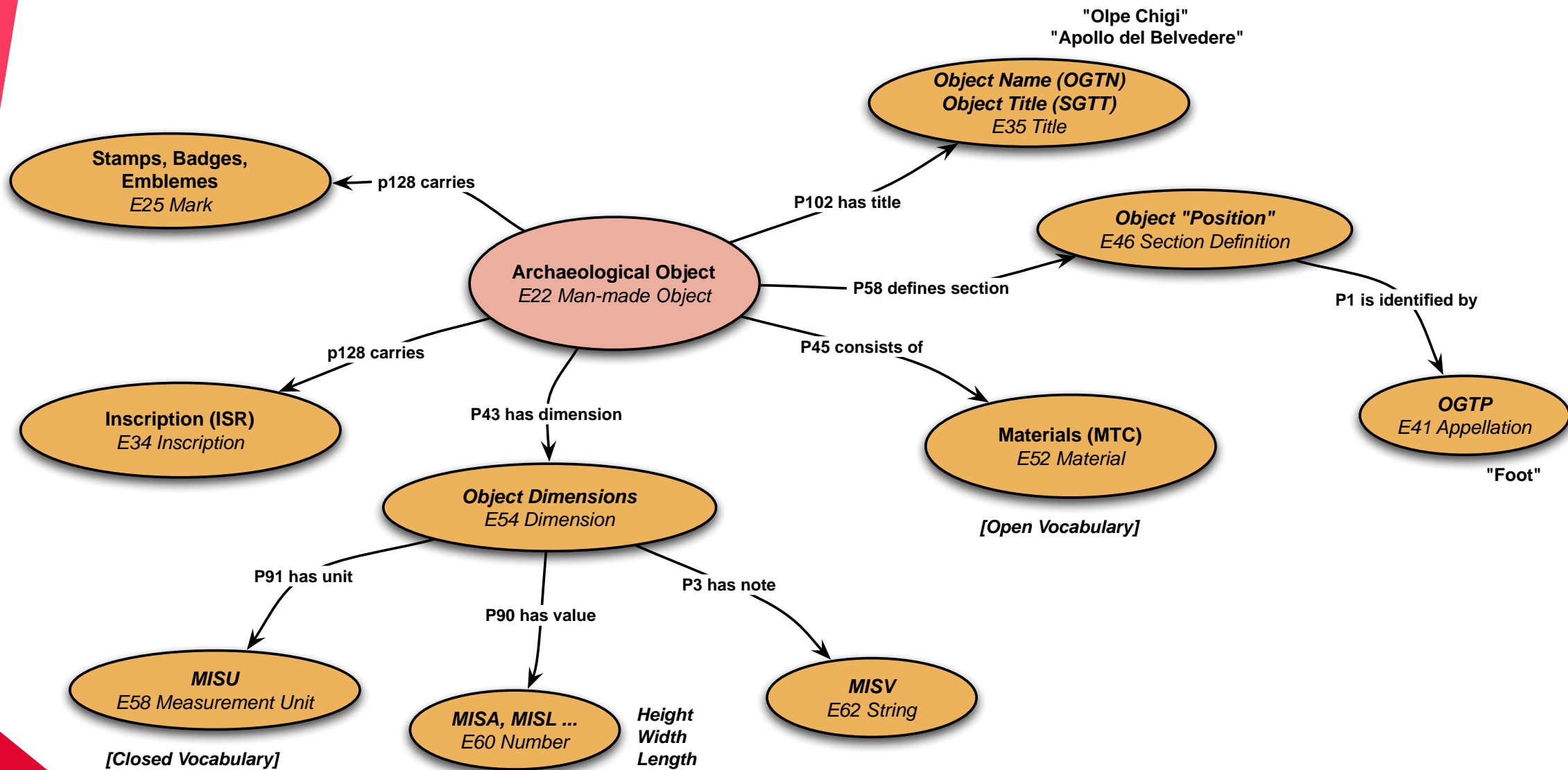
Es: <http://www.culturaitalia.beniculturali.it/object/o8-00487640-0200>

RA Model: Object Features (OG, SGT)

- *Object Definition (OGTD)*: functional and morphological aspect expressed according to the tradition of the studies
- *Specific Object Typology (OGTT)*: specific class to which the object pertains
- *Production Class (CLS)*: category, class or type of production to which the object belongs
- *Object Subject (SGTI)*: the subject or scene represented by the object (only for objects that represent themselves an iconographic subject) [
- **ICCD specific vocabularies**



RA Model: Object Features (OG, SGT, MT, DA)



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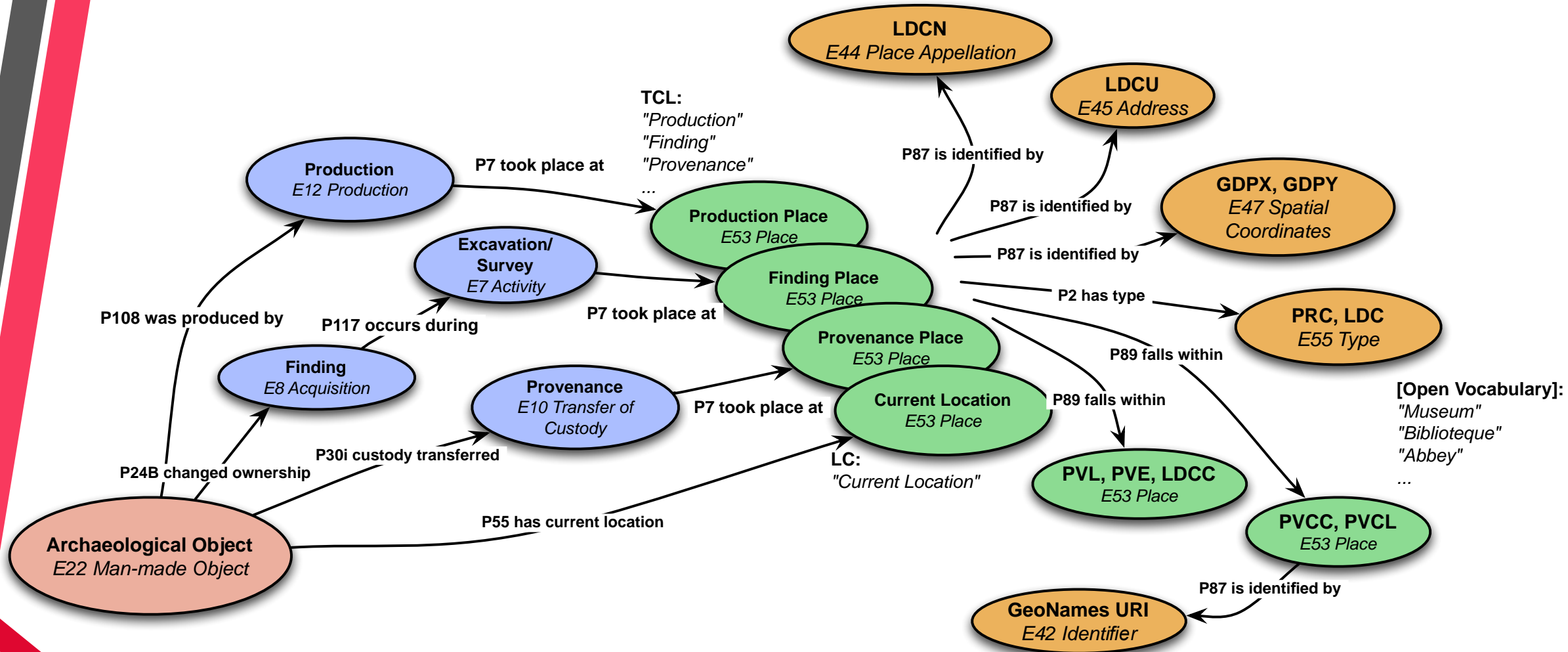
RA Model: Locations and Places (LC, LA)

- **Specific sections** (LC and LA) for the description of the various locations related with the recorded object
- Terminology for location definition
 - UNI-ISO 3166-1 standard (alphabetical list of country names)
 - Standard lists of terms for the Italian administrative areas provided by ISTAT (the Italian Institute for Statistics)
- GeoNames URIs to unique identification and to enhance interoperability
- *Section LC: Current location*, a set of fields providing identification of the geographic and administrative where the artefact was located at the moment of the ICCD record creation

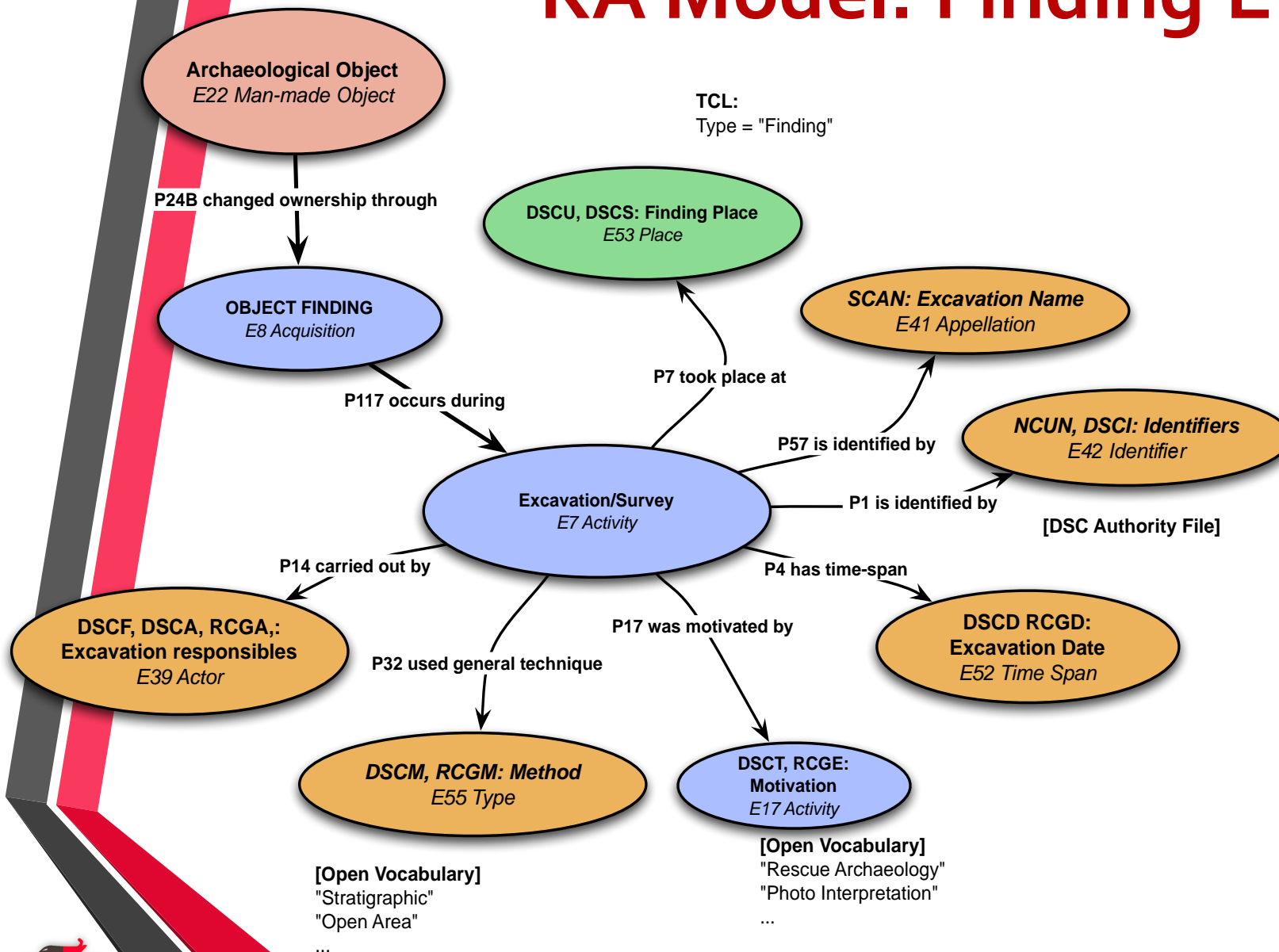
RA Model: Locations and Places (LC, LA)

- **Section LA:** *Other locations* (i.e. different from the *Current Location*)
- **TCL field** (*Location Type*)
 - 3 values (*Provenance, Finding, Production*)
 - Determines the meaning of the fields in the LA section and the mapping to be followed
- **Provenance places**
 - Provides information on the object's **previous places of conservation**
 - **Repeatable fields:** reconstruction of the object's location history, i.e. the sequence of all the places in which it was present through time
- **Production place:** set of fields describing the place (if known) where the object was created
- **Finding place:** place where the artifact was found, typically during an archaeological excavation or a survey

RA Model: Locations and Places

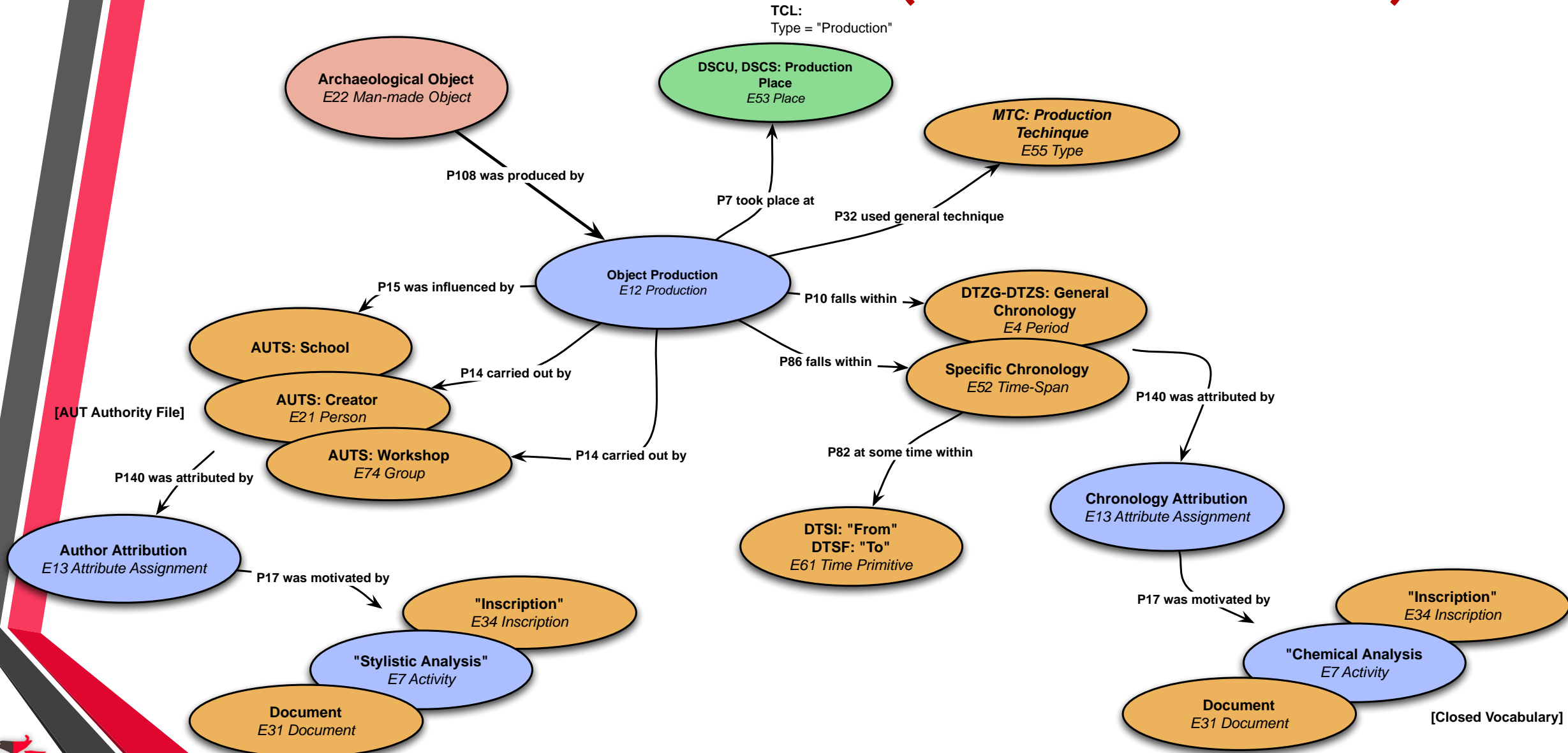


RA Model: Finding Event (RE)



RE	MODALITA' DI REPERIMENTO
RCG	RICOGNIZIONI
NCUN	Codice univoco ICCD
RCGA	Responsabile scientifico
RCGE	Motivo
RCGM	Metodo
RCGD	Data
DSC	DATI DI SCAVO
NCUN	Codice univoco ICCD
SCAN	Denominazione dello scavo
DSCF	Ente responsabile
DSCA	Responsabile scientifico
D SCT	Motivo
DSCM	Metodo
DSCD	Data
DSCU	Unità Stratigrafica
DSCS	Numero tomba
DSCI	Numero inventario di scavo

RA Model: Production (Various sections)



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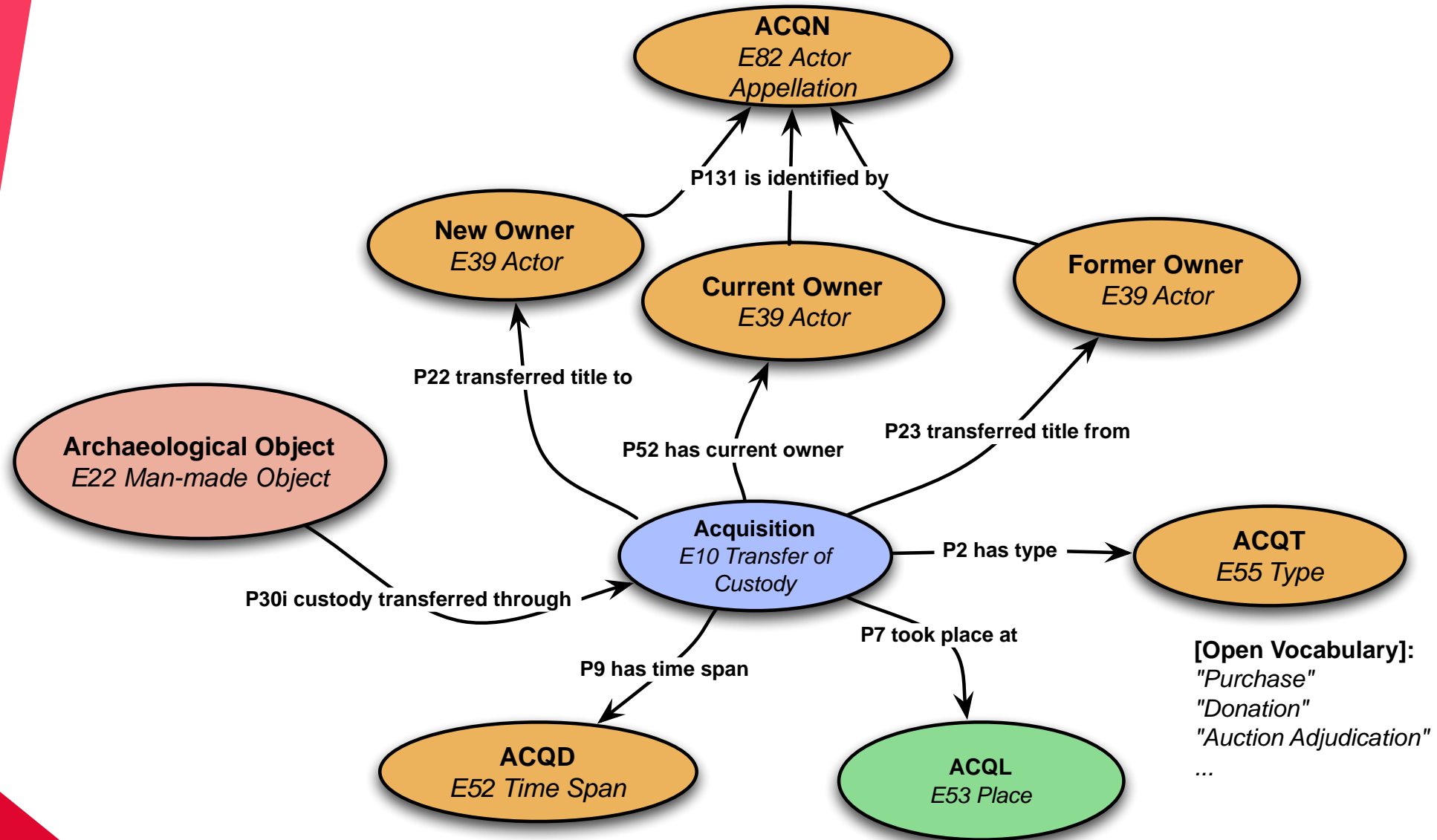
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[Closed Vocabulary]

RA Model: Acquisition (ACQ)



RA Model: Other sections

- Visual documentation
 - *Images, Videos, Sketches*
 - *E38 Image, E36 Visual Item*
- Bibliography (*P70 is documented in -> E31 Document*)
- Data rights and accessibility conditions (*E30 Rights held by E39 Actor*)
- Other notes and comments (*P3 has note - > E62 String*)
- Administrative information (Record creator, Record creation date etc.) -> not considered for the mapping
- Conservation and restoration information -> to be addressed ...



Data Conversion and Publication

- Early stage: conceptual mapping
- Conversion of data encoded with the RA model in a CIDOC-CRM RDF format
- Performed in various ways, (mapping and exporting tools)
- Exporting features provided by SIGECWeb
 - Able to export information concerning entities, cross-references and internal relationships, in various ways (XML, Excel)
 - ICCD “exporting package”: a set of directories containing textual data descriptions and multimedia files; very easy to convert into RDF
- New facilities SIGECWeb for the direct CIDOC-CRM RDF exporting and the direct publication of semantic information as Linked Open Data
- MiBAC online infrastructure:
 - RDF frameworks for hosting and management of semantic information
 - SKOS and Linked Open Data facilities for the semantic web implementation



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Conclusions

- **Mapping of RA model:** the beginning of a wide activity that will be carried out within the ARIADNE project
- Mapping work has demonstrate an extremely **high compatibility** of RA with CIDOC-CRM
- Mapping of other ICCD models (**MA model** for archaeological monuments – PIN + MiBAC)
- ICCD is releasing version 4.00 of *Corpus*: more rational (event based)
- CIDOC-CRM **archaeological extension**: in progress (ARIADNE project)
- Other mapping experiences within ARIADNE: English Heritage, ADS, DANS, FASTI Online
- **ARIADNE Infrastructure** for integration and interoperability: triple store and LOD framework



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Questions ...

ARIADNE is a project funded by the European Commission under the Community's Seventh Framework Programme, contract no. FP7-INFRASTRUCTURES-2012-1-313193.

The views and opinions expressed in this presentation are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.



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