

# the CRM Game: Digital Edition

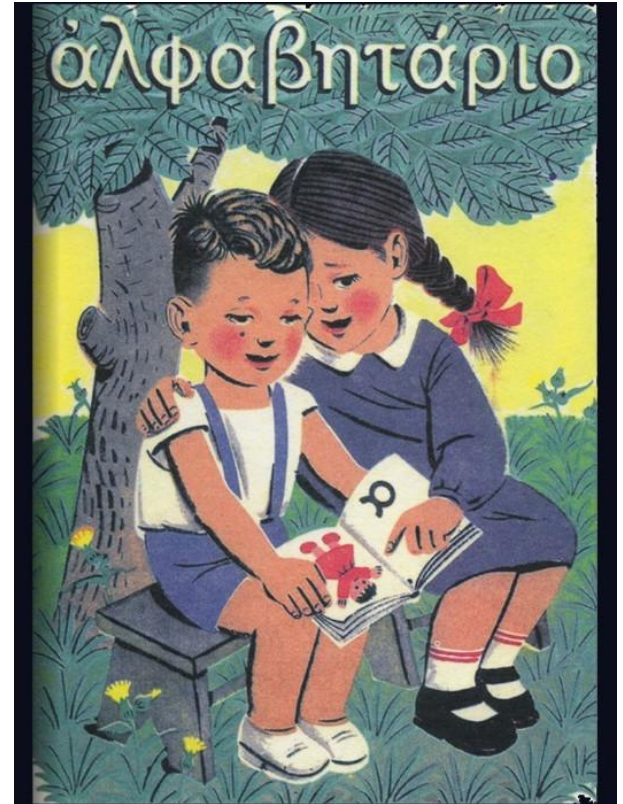
George Bruseker, Anaïs Guillem, Olivier Marlet,  
François-Xavier Talgorn  
CIDOC CRM SIG, 15/10/2021  
Zoom

# Premise: CRM as a Language

- Formal Ontology provides a formal Language
- Learning Language Requires Explanatory Meta-texts
- Learning Language Requires Practice
- Learning Language Requires Connection to the World

Ergo

- Learning Languages Require Learning Tools



# Premise: Learning through a Game



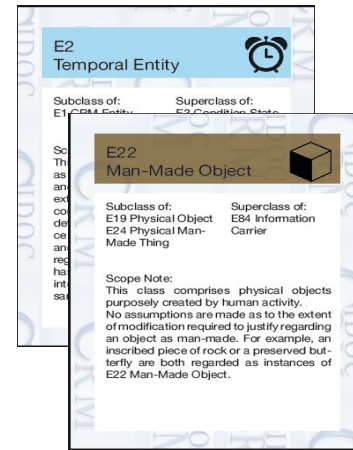
- Learning a Language is Difficult
- Learning a Language Requires Reinforcement
- Learning a Language Requires Encouragement
- Learning a Language Requires Levels

Ergo

- Game approach to teaching can make gap between learners and difficult knowledge smaller

# CRM GAME: Analogue Editions

- Created in 2016 (G. Bruseker and A. Guillem in ITN-DCH)
- Run in Workshops for Different Groups of Scholars, Scientists and Students Around the World since
- Customized data for mapping to match learner's interest and knowledge
- Interactive means to approach the application of CRM ontology to data structuring and ordering





# CRM Game: Digital Edition Round Two



- Inspired by "Interoperable Data for Heritage" Workshop in 2019 organised by the MASA consortium
- MASA Consortium financing and supporting development of digital game
- François Xavier Talgorn (Indytion company), specialist in serious games development organizing and implementing development.
- George Bruseker (Takin.solutions) and Anais Guillem (UC Merced) providing game concept and design.



# CRM Game

Learning through play: the example of  
archaeologists

# OpenArcheo: semantic web platform for archaeologists



Burial found in Site

Where

Site studied by Actor Elisabeth Lorans

EXECUTE QUERY and display results in... Table

```
✓ Query successful! - View/hide SPARQL query

1 SELECT DISTINCT ?this ?thisLabel
2 FROM NAMED <http://openarchaeo.huma-num.fr/federation/sources/arsol>
3 WHERE
4 {
5   ?this a <http://www.cidoc-crm.org/cidoc-crm/E25_Man-Made_Feature> ;
6   <http://www.cidoc-crm.org/cidoc-crm/P2_has_type> <https://ark.frantiq.fr/ark:/26678/pct795b632nkw> .
7   ?this <http://www.ics.forth.gr/is1/CRMsci/019i_was_object_found_by/><http://www.cidoc-crm.org/cidoc-crm/P8_took_place_at/>
8   ?Site1 a <http://www.cidoc-crm.org/cidoc-crm/E27_Site> .
9   ?Site1 <http://www.cidoc-crm.org/cidoc-crm/P8i_witnessed/><http://www.cidoc-crm.org/cidoc-crm/P14_carried_out_by/>
10  OPTIONAL
11  { ?this <http://www.w3.org/2004/02/skos/core#prefLabel> ?thisLabel }
12 }
```

Response Table Pivot Table Geo Google Chart Timeline

Showing 1 to 50 of 722 entries

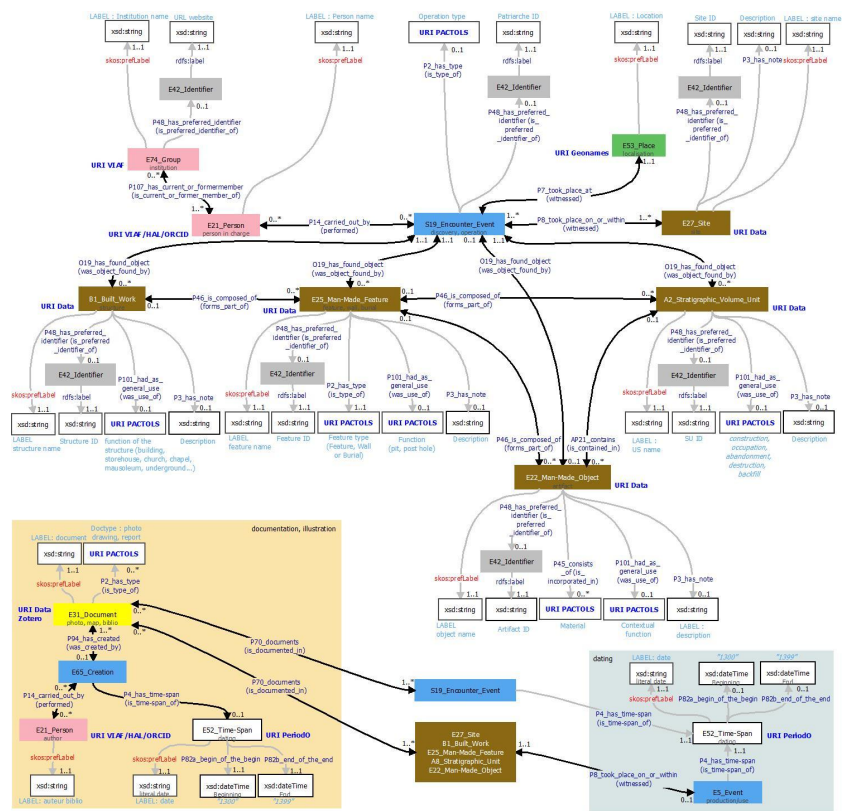
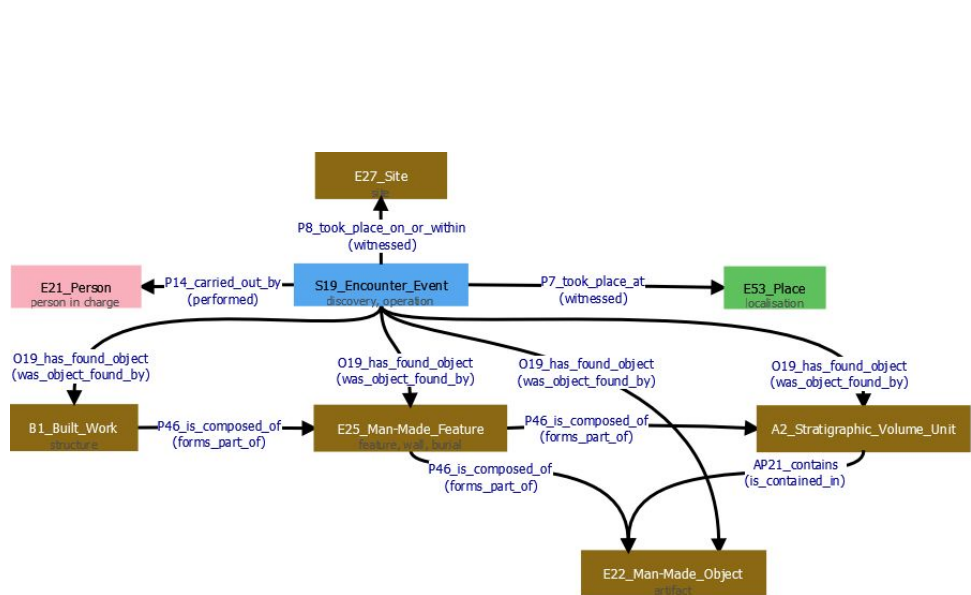
Search: thisLabel Show 50 entries

this	thisLabel
1 <a href="http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000001">http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000001</a>	Sepulture AJ000001
2 <a href="http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000002">http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000002</a>	Sepulture AJ000002
3 <a href="http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000003">http://arsol.univ-tours.fr/4DACTION/WFICHEWEB/isepuAJ000003</a>	Sepulture AJ000003





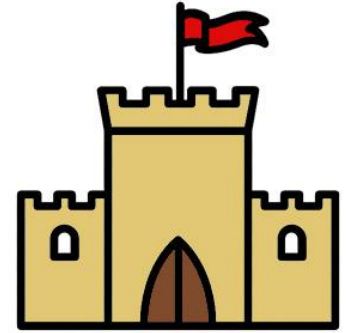
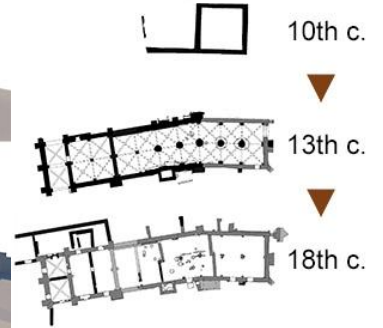
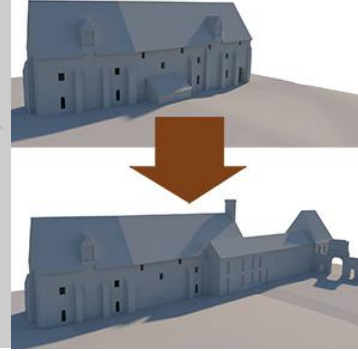
# Using CIDOC for archaeological data



# Training french archaeologists



# Thinking about scenarios : learning CIDOC CRM



# Thinking about scenarios : archaeological mapping

### INSTANCE MODELLING (1)

**CHALLENGE** 1 / 15

Learning about instance ...

Find the good class to represent the archaeologist. Answers the question Who?


25 / 25

**E21**  
Person

**SUPERCLASSES & SUBCLASSES**  
E20. Biological\_Object  
E39\_Actor  
E11\_PERSON

**SCOPE NOTE**  
This class comprises real persons who live or are assumed to have lived.  
Legendary figures that may have existed, such as Ulysses and Kin...  
[Click for full text](#)

**I2**  
MRS LORANS (ARCHAEOLOGIST)  
<http://viaf.org/viaf/100393>



**VALIDATE**

### INSTANCE MODELLING (1)

**CHALLENGE** 2 / 15

Learning about instance ...

Find the good class to represent the location of the excavation. Answers the question Where?


25 / 25

**E53**  
Place

**SUPERCLASSES & SUBCLASSES**  
E1.CRM\_ENTITY  
E53\_PLACE

**SCOPE NOTE**  
This class comprises extents in space, in particular on the surface of the earth, in the pure sense of physics: independent from temporal phenomena and matte...  
[Click for full text](#)

**I4**  
TOURS  
<http://www.genasmas.org/2972191>



**VALIDATE**

### INSTANCE MODELLING (1)

**CHALLENGE** 3 / 15

Learning about instance ...

Find the good class to represent the date of the excavation. Answers the question When?


25 / 25

**E52**  
Time-Span

**SUPERCLASSES & SUBCLASSES**  
E1.CRM\_Entity  
E52\_TIMESPAN

**SCOPE NOTE**  
This class comprises abstract temporal extents, in the sense of Galilean physics, having a beginning, an end and a duration. Time Span has no other semant...  
[Click for full text](#)

**I3**  
PERIODE OF MARMOUTIER EXCAVATION  
2004-2020



**VALIDATE**

### INSTANCE MODELLING (1)

**CHALLENGE** 4 / 15

Learning about instance ...

Find the good class to represent an archaeological site. Answers the question What?


25 / 25

**E27**  
Site

**SUPERCLASSES & SUBCLASSES**  
E26. Physical\_Feature  
E27\_SITE

**SCOPE NOTE**  
This class comprises pieces of land or sea floor.  
In contrast to E53 Place, this class describes constelations of matta...  
[Click for full text](#)

**I1**  
MARMOUTIER GUESTHOUSE



**VALIDATE**

## INSTANCE MODELLING (1)

CHALLENGE

6 / 15

Learning about instance ...

The excavation is an essential concept since all other concepts are linked to this event. It is to the excavation that we associate a date, a place, actors, structures and artefacts found.

Find the good class to represent the excavation.

25 / 25



E7

Activity

### SUPERCLASSES & SUBCLASSES

E9\_Event

E9\_Activity

E8\_Acquisition

E9\_Move

### SCOPE NOTE

This class comprises actions intentionally carried out by instances of E39 Actor that result in changes of state in the cultural, social, or physical systems docu...

[Click for full text](#)



16

EXCAVATION OF THE MARMOUTIER GUESTHOUSE



VALIDATE

## INSTANCE MODELLING (1)

CHALLENGE

7 / 15

Learning about instance ...

Archaeological artefact is made up of objects manufactured or transformed by human, which are found during excavation (a coin, a knife blade, a tile, etc.).

Find the good class to represent an archaeological artefact.

25 / 25



E22

Human-Made Object

### SUPERCLASSES & SUBCLASSES

E19\_Physical\_Object

E24\_Physical\_Human-Made\_Th...

E7\_HUMAN-MADE OBJECT

### SCOPE NOTE

This class comprises physical objects purposely created by human activity.

No assumptions are made as to the extent of modification requir...

[Click for full text](#)



17

SAINT MARTIN DENARIUS A3.J.13



VALIDATE

## INSTANCE MODELLING (1)

CHALLENGE

8 / 15

Learning about instance ...

Some human actions leave traces that the archaeologist can observe in the ground, such as a bell mould pit.

Find the good class to represent archaeological feature (a wall, a burial, a pit).

25 / 25



E25

Human-Made Feature

### SUPERCLASSES & SUBCLASSES

E24\_Physical\_Human-Made\_Th...

E26\_Physical\_Feature

E7\_HUMAN-MADE FEATURE

### SCOPE NOTE

This class comprises physical features that are purposely created by human activity, such as scratches, artificial caves, artificial water channels, etc ...

[Click for full text](#)



18

BELL MOULD PIT F.1270



VALIDATE

# INSTANCE MODELLING (2)

CHALLENGE 14 / 15

Learning about instance ...

The birth of Saint Martin occurred in 316.

Find the good classes and property to represent the link between an event and a dating.

## CIDOC-CRM GAME

SCORE 100 / 300

25 / 25

**E67**  
Birth

**25 / 25**  
**E52**  
Time-Span

**36 / 36**  
**P4**  
has time-span

**150**  
SAINT MARTIN BIRTH

**129**  
YEAR OF SAINT MARTIN BIRTH

316 ac

SuperClasses & SubClasses  
E63\_Beginning\_of\_Existence  
E67\_BIRTH

SuperClasses & SubClasses  
E1\_CRM\_Entity  
E57\_TIME-SPAN

SuperClasses & SubClasses  
P4\_has\_time-span  
P4\_HAS\_TIME-SPAN

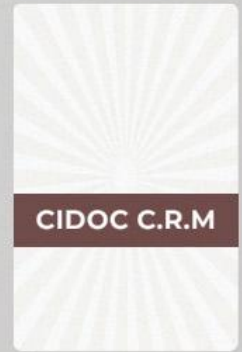
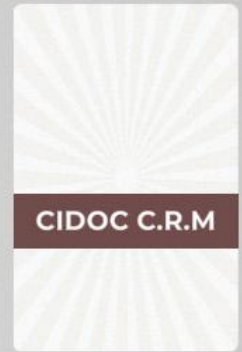
SCOPE NOTE  
This class comprises the births of human beings. E67 Birth is a biological event focussing on the context of people coming into life. (E63 Beginning of Existence com...  
[Click for full text](#)

SCOPE NOTE  
This property describes the ...  
[Click for full text](#)

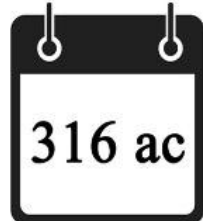
SCOPE NOTE  
This class comprises abstract temporal extents, in the sense of Galilean physics, having a beginning, an end and a duration. Time Span has no other semantic...  
[Click for full text](#)

DOMAIN: E2\_Temporal\_Entity

RANGE: E52\_Time-Span



VALIDATE



# INSTANCE MODELLING (2)

CHALLENGE 13 / 15

Learning about instance ...

The archaeological report deals with the history of the development of the site.

Find the good classes and property to represent the link between the report and its subject.

# CIDOC-CRM GAME

SCORE 80 / 300

25 / 25

**E31**  
Document

**SuperClasses & SubClasses**  
E73\_Information\_Object  
E31\_DOCUMENT  
E32\_Authority\_Document

**SCOPE NOTE**  
.....  
This class comprises identifiable immaterial items that make propositions about reality. These propositions may be expressed in text, graphics, images, or other media.  
[Click for full text](#)

25 / 25

**E89**  
Propositional Object

**SuperClasses & SubClasses**  
E28\_Conceptual\_Object  
E89\_PROPOSITIONAL\_OBJECT  
E30\_Right  
E73\_Information\_Object

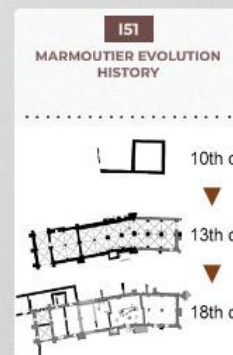
**SCOPE NOTE**  
.....  
This class comprises immaterial items, including but not limited to stories, plots, procedural prescriptions, algorithms, laws of physics or images that are, or represent, information objects.  
[Click for full text](#)

36 / 36

**P129**  
is about

**SuperProperties & SubProperties**  
P67\_refers\_to  
P129 IS ABOUT

**SCOPE NOTE**  
.....  
This property documents the relationship between an information object and the entity it is about.  
[Click for full text](#)



VALIDATE

# INSTANCE MODELLING (3)

CHALLENGE

1 / 15

Learning about instance ...

The site of Marmoutier was excavated by Elisabeth Lorans.

Find classes and properties required to model more complex relationships.

## CIDOC-CRM GAME

SCORE

0 / 300

25 / 25

E27

Site

SUPERCLASSES & SUBCLASSES

E26. Physical\_Feature

E27 SITE

SCOPE NOTE

This class comprises pieces of land or sea floor.

In contrast to the purely geometric notion of E53 Place, this class describes constellations of matter...

[Click for full text](#)

36 / 36

P8j

witnessed

SUPERPROPERTIES & SUBPROPERTIES

P8j WITNESSED

SCOPE NOTE

[Click for full text](#)

25 / 25

E7

Activity

SUPERCLASSES & SUBCLASSES

E5\_Event

E7 ACTIVITY

E8\_Acquisition

E9\_Move

SCOPE NOTE

This class comprises actions intentionally carried out by instances of E39 Actor that result in changes of state in the cultural, social, or physical systems docu...

[Click for full text](#)

36 / 36

P14

carried out by

SUPERPROPERTIES & SUBPROPERTIES

P14 carried out by

P11\_had\_participant

P14\_CARRIED\_OUT\_BY

P22\_transferred\_title\_to

SCOPE NOTE

This property describes the ...

[Click for full text](#)

25 / 25

E21

Person

SUPERCLASSES & SUBCLASSES

E20\_Biological\_Object

E39\_Actor

E21 PERSON

SCOPE NOTE

This class comprises real persons who live or are assumed to have lived.

Legendary figures that may have existed, such as Ulysses and Kin...

[Click for full text](#)

I1

MARMOUTIER GUESTHOUSE



I6

EXCAVATION OF THE MARMOUTIER GUESTHOUSE



I2

MRS LORANS (ARCHAEOLOGIST)

<http://viaf.org/viaf/120393>



VALIDATE



## CHALLENGE 11 / 15

Learning about instance ...

Sulpice Severus wrote the Vita sancti Martini.

Be aware of the importance of "Events" at the core of the modelling system.

25 / 25

**E21**  
Person

SuperClasses & SubClasses  
E20\_Biological\_Object  
E39\_Actor

E21\_PERSON

**SCOPE NOTE**  
.....  
This class comprises real persons who live or are assumed to have lived.  
Legendary figures that may have existed, such as Ulysses and Kin...  
[Click for full text](#)

36 / 36

**P14i**  
performed

Superproperties & Subproperties  
P111\_participated\_in  
P14\_PERFORMED  
P221\_acquired\_title\_through

E7\_Activity

**SCOPE NOTE**  
.....  
[Click for full text](#)

25 / 25

**E65**  
Creation

SuperClasses & SubClasses  
E7\_Activity  
E63\_Beginning\_of\_Existence  
E63\_Type\_Creation

**SCOPE NOTE**  
.....  
This class comprises events that result in the creation of conceptual items or immaterial products, such as legends, poems, texts, music, images, movies, laws, types etc.  
[Click for full text](#)

36 / 36

**P94**  
has created

Superproperties & Subproperties  
P92\_brought\_into\_existence  
P94\_HAS\_CREATED  
P135\_created\_type

E66\_Creation

**SCOPE NOTE**  
.....  
This property allows a conc...  
[Click for full text](#)

25 / 25


**E31**  
Document

SuperClasses & SubClasses  
E73\_Information\_Object  
E31\_DOCUMENT  
E32\_Authority\_Document

**SCOPE NOTE**  
.....  
This class comprises identifiable immaterial items that make propositions about reality.  
These propositions may be expressed in text, graphics, imag...  
[Click for full text](#)

**132**  
SULPICE SEVERUS

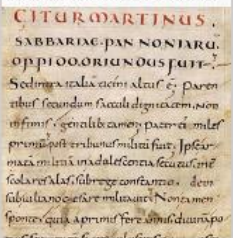
<http://viaf.org/viaf/30332452>



**148**  
WRITING OF THE VITA SANCTI MARTINI



**131**  
VITA SANCTI MARTINI



VALIDATE

# INSTANCE MODELLING (3)

CHALLENGE 15 / 15

Learning about instance ...

The relation with two different types (E55\_Type) can be distinguished using different properties.

How to indicate that the denarius was made to be a coin but was used as a pendant?

# CIDOC-CRM GAME

SCORE 80 / 300

25 / 25

E55

Type

### SUPERCLASSES & SUBCLASSES

E28\_Conceptual\_Object

E55\_Type

E56\_Language

E57\_Material

### SCOPE NOTE

This class comprises concepts denoted by terms from thesauri and controlled vocabularies used to characterize and classify instances of CRM classes. Instance...

[Click for full text](#)

25 / 25

E22

Human-Made Object

### SuperClasses & SubClasses

E19\_Physical\_Object

E24\_Physical\_Human-Made\_Th...

E22\_HUMAN-MADE OBJECT

### SCOPE NOTE

This class comprises physical objects purposely created by human activity. No assumptions are made as to the extent of modification require...

[Click for full text](#)

36 / 36

P103i

was intention of  
SUPERPROPERTIES & SUBPROPERTIES  
P103I WAS INTENTION OF

### SCOPE NOTE

[Click for full text](#)

36 / 36

P101

had as general use  
SUPERPROPERTIES & SUBPROPERTIES  
P101 HAD AS GENERAL USE

### SCOPE NOTE

This property links an instance...

[Click for full text](#)

25 / 25

E55

Type

### SuperClasses & SubClasses

E28\_Conceptual\_Object

E55\_Type

E56\_Language

E57\_Material

### SCOPE NOTE

This class comprises concepts denoted by terms from thesauri and controlled vocabularies used to characterize and classify instances of CRM classes. Instance...

[Click for full text](#)

I13

COIN

<http://vocab.getty.edu/aat/300037222>



I7

SAINT MARTIN DENARIUS  
A3.1.13



I16

PENDANT

<http://vocab.getty.edu/aat/300046002>



VALIDATE

# CRM Game

A HIGHLY CUSTOMIZABLE  
PEDAGOGICAL TOOL

# CRM Game: A game AND a generic tool

The game is designed to be highly customizable.

You can add new, remove or modify:

- Entities & Properties (RDF file)
- Games
- Challenges within a game
- Instances
- Scoring system

**NO CODE REQUIRED**  
**THE GAME ADAPTS DYNAMICALLY**



# HOW DOES IT WORK (1)?

*The game actually is your data*

### INSTANCE MODELLING (3)

**CHALLENGE** 10 / 15

Learning about instance ...

The Marmoutier abbey was founded by Martin of Tours.

Be aware of the importance of "Events" at the core of the modelling system.

**You can write your own challenges and games**

.....

**VALIDATE**

## CIDOC-CRM GAME

Customize score progression

**SCORE** 0 / 300

25 / 25

**E5**  
Event

SuperClasses & SubClasses  
E4\_Period  
E5\_EVENT  
E7\_Activity  
E83\_Beginning\_of\_Existence

**SCOPE NOTE**  
.....  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

[Click for full text](#)

36 / 36

**P1**  
is identified by

SuperClasses & SubClasses  
P48\_has\_preferred\_identifier  
P102\_has\_title

**SCOPE NOTE**  
.....  
This property describes the ...

[Click for full text](#)

25 / 25

**E5**  
Event

SuperClasses & SubClasses  
E4\_Period  
E5\_EVENT  
E7\_Activity  
E83\_Beginning\_of\_Existence

**SCOPE NOTE**  
.....  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

[Click for full text](#)

36 / 36

**P1**  
is identified by

SuperClasses & SubClasses  
P48\_has\_preferred\_identifier  
P102\_has\_title

**SCOPE NOTE**  
.....  
This property describes the ...

[Click for full text](#)

25 / 25

**E5**  
Event

SuperClasses & SubClasses  
E4\_Period  
E5\_EVENT  
E7\_Activity  
E83\_Beginning\_of\_Existence

**SCOPE NOTE**  
.....  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

[Click for full text](#)

**Automatically extracted from RDF file (editable)**

**I24**  
MARMOUTIER ABBEY



**I26**  
FOUNDATION OF MARMOUTIER ABBEY



**I28**  
SAINT MARTIN DE TOURS

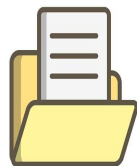
<http://viaf.org/viaf/73825464>



**You can create your own instances (Text & Image)**

# UNDER THE HOOD

Cidoc-Crm RDF



Challenges data



Instances data



**CLEAR, HUMAN READABLE, EDITABLE FILES!**

**THE GAME IS 100% DYNAMIC**

**INSTANCE MODELLING (3)**

**CHALLENGE** 10 / 15

Learning about instance ...

The Marmouster abbey was founded by Martin of Tours.

Be aware of the importance of "Events" at the core of the modelling system.

25 / 25

**E5** Event

Superclasses & subclasses

**E4\_Period**

**E7\_Activity**

**E83\_Registration\_of\_Existence**

**SCOPE NOTE**

25 / 25

**E5** Event

SuperClasses & SubClasses

**E4\_Period**

**E7\_Activity**

**E83\_Registration\_of\_Existence**

**SCOPE NOTE**

36 / 36

**P1** Is Identified by

**SCOPE NOTE**

36 / 36

**P1** Is Identified by

**SCOPE NOTE**

**I24** MARMOUTIER ABBEY

**I26** FOUNDATION OF MARMOUTIER ABBEY

VALIDATE

**HowardCarter's GAME STATS**

Ontology basics	120 / 320	38% of maximum score
CIDOC-CRM Basics	0 / 380	0% of maximum score
Instance modelling (1)	0 / 300	0% of maximum score
Instance modelling (2)	40 / 300	14% of maximum score
Complex relations	0 / 300	0% of maximum score
<b>TOTAL SCORE</b>	<b>160 / 1600</b>	<b>11% of maximum possible</b>

# MAPPING GAME OBJECT <-> FILE DATA

**INSTANCE MODELLING (3)**

**CHALLENGE 10 / 15**

Learning about instance ...

The Marmoutier abbey was founded by Martin of Tours.

Be aware of the importance of "Events" at the core of the modelling system.

**CIDOC-CRM GAME**

**SCORE 0 / 300**

**Actual extract of the 'game4.json' file**

```
{  
  "ChallengeID": 10,  
  "Title": "Learning about instances ...",  
  "Statement": "The Marmoutier's abbey was founded by Martin fo Tours [...]",  
  "Score": 20  
},
```

**VALIDATE**

**MARMOUTIER ABBEY**

**SAINTE MARTIN DE TOURS**

<http://viaf.org/viaf/73825464>

# INITIALIZING THE BOARD: THE 'Init' FIELDS

### INSTANCE MODELLING (3)

**CHALLENGE** 10 / 15

Learning about instance ...

The Marmoutier abbey was founded by Martin of Tours.

Be aware of the importance of "Events" at the core of the modelling system.

.....

**VALIDATE**

## CIDOC-CRM GAME

25 / 25

**E5**  
Event

SuperClasses & SubClasses

E4\_Period  
E7\_Activity  
E63\_Beginning\_of\_Existence

SCOPE NOTE  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

Click for full text

**ELeftInit**

36 / 36

**P1**  
is identified by

SuperProperties & SubProperties

P48\_has\_preferred\_Identifier  
P102\_has\_title

SCOPE NOTE  
This property describes the ...

**PLeftInit**

25 / 25

**E5**  
Event

SuperClasses & SubClasses

E4\_Period  
E7\_Activity  
E63\_Beginning\_of\_Existence

SCOPE NOTE  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

Click for full text

**EMiddleInit**

36 / 36

**P1**  
is identified by

SuperProperties & SubProperties

P48\_has\_preferred\_Identifier  
P102\_has\_title

SCOPE NOTE  
This property describes the ...

Click for full text

**Actual extract of the 'game4.json' file**

```
{
  "ELeftInit": "-E5, E7, E12, [...], E74, E89",
  "EMiddleInit": "-E5, E7, E12, [...], E74, E89",
  [...],
  "PLeftInit": "-P1, P1i, P2, [...], P108, P108i, P129, P129i",
  [...],
  "IRightInit": "-I28"
},
```

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**E5**  
Event

SuperClasses & SubClasses


E4\_Period  
E7\_Activity  
E63\_Beginning\_of\_Existence

SCOPE NOTE  
This class comprises changes of states in cultural, social or physical systems, regardless of scale, brought about by a series or group of coherent physical, cultural, tec...

Click for full text

**I28**  
SAINT MARTIN DE TOURS

http://viaf.org/viaf/73825464



SCORE 0 / 300



# DEFINING EXPECTED ANSWERS: 'Answer' FIELDS

The screenshot shows the 'CIDOC-CRM GAME' interface. At the top, it displays 'INSTANCE MODELLING (3)', 'CHALLENGE 10 / 15', and 'SCORE 0 / 300'. The challenge title is 'Learning about instance ...'. The description reads: 'The Marmoutier abbey was founded by Martin of Tours. Be aware of the importance of "Events" at the core of the modelling system.' A 'VALIDATE' button is at the bottom left. The main area shows three cards for 'Event' (E5) and 'SuperClasses & SubClasses' (P1). A central code block contains the following JSON:

```
{  
  "ELeftAnswer": "-E27",  
  "PLeftAnswer": "-P70",  
  "EMiddleAnswer": "-E31",  
  [...]  
  "PRightAnswer": "[Blue];[Pink]",  
  "ERightAnswer": "**",  
}
```

The interface also features images of the Marmoutier Abbey and a medieval manuscript illustration of Martin of Tours.

# BEYOND CIDOC-CRM ONTOLOGY

- This game version is based on the Cidoc-Crm ontology (RDF)
- It is fully customizable within this context
- It is possible to use any other ontology with some additional effort
  - Develop ontology specific parser (read and analyse RDF file)
  - Update the decks' management system (data structure, initialization)
  - Update color system, if any
- It is possible to create new cards' *structure* with some additional effort
  - Design and graphic production
  - Update the code to display the cards
  - Update the code for the interaction with the cards (buttons, actions), if any

# Next Steps for CRM Game

- Use in Teaching Contexts
- Expansion of Game Decks
- Development of Editions for Different Extensions
- Expansion of Functionality beyond Games