

# Developing a data model for Textile Heritage in CIDOC CRM

Producing accessible and reusable digital data with the  
SILKNOW ontology

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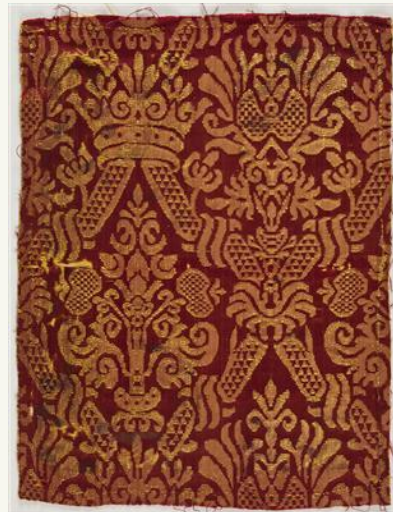
This project has received funding from the European Union's  
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agreement No 769504

## Textile Heritage on the Web

- Many Cultural Heritage Institutions (CHIs) in Europe, and more widely throughout the world, preserve textile artefacts
- Give access to heritage collections with new information and communication technologies (Web) => new problems :
  - Small CHIs : rich digital data describing their collections, but lack of means to put these data online
  - But the use of online catalogues also raises new problems

## Textile Heritage on the Web

**Centre de  
Documentació i Museu  
Tèxtil - CDMT**



Espanya / Itàlia  
segle 16 / segle 17  
domàs / teixit llavorat

**Musée des tissus**



Lyon  
commandé en l'an X (1802),  
livré entre 1805 et 1806  
Damas, base satin de 5 [...]

**Victoria & Albert  
Museum**



Spitalfields (probably, made)  
ca. 1710 (made)  
Silk damask



Elsa Schiaparelli



Valérie Belin



Garry Fabian Miller



Curtis Moffat

# EXPLORE THE COLLECTIONS

SPACES

PERIODS AND STYLES

PEOPLE

FEATURED

MATERIALS AND TECHNIQUES

PLACES



# Textile Heritage on the Web

## Damas, Damask... Damasko ?

Bienvenido al Centre de Documentació i Museu Tèxtil. [acceso administrador](#)

**IMATEX**

Inicio  
Búsqueda sencilla  
Búsqueda avanzada  
Favoritos

**Búsqueda avanzada**

BÚSQUEDA SENCILLA

NÚM.REGISTRO

CLASIFICACIÓN GENÉRICA

DENOMINACIÓN

DISEÑADOR

FABRICANTE

AUTOR

CRONOLOGIA

DECORACIÓN

USUARIOS

ESTILO

MATERIA

TÉCNICA

ORIGEN

...crespón  
...crespón marrocaín  
...crespón setí  
...crepolina  
...velo crespón  
...diaspré  
...doble cara  
...doble tela  
...damasco  
...pañó  
...pañó de arista  
...efectos por urdimbre  
...efecto de bucle por urdimbre  
...efecto de bastas por urdimbre  
...efecto de perdido por urdimbre  
...efecto por urdimbre suplementaria  
...urdimbre à liage repris""  
...urdimbre a disposició  
...efectos por trama  
...efecto de "nido de abeja" por trama  
...efecto de "point rentré" o "berclé"  
...efecto de bucle  
...efceto de bastas por trama

Buscar

Català / Español / English

Flexible - Versió 19.01.31

# Textile Heritage on the Web

MT Damas vert pour rideaux et portières de la Salle de la Bibliothèque du Premier Consul au Palais de Saint-Cloud



29 Les fastes de l'Empire [Situer sur le plan du musée](#)

Notice	Description	Bibliographie
Camille Pernon (Lyon, 2 novembre 1753 - Sainte-Foy-lès-Lyon, 14 décembre 1808) (fabricant)		
Damas vert pour rideaux et portières de la Salle de la Bibliothèque du Premier Consul au Palais de Saint-Cloud		
Damas, base satin de 5 (fond en satin de 5, chaîne, décochement 3, et décor en satin de 5, trame, décochement 2), 2 lats de broché à liage repris en sergé de 4 lie 1, Soie.		
H. 152 cm , l. 74 cm (laize)		
Lyon , commandé en l'an X (1802), livré entre 1805 et 1806		
MT 24818 Achar Tassinari et Chatel , 1889		
Oeuvre exposée , Musée des Tissus		
© Nom (Prénom), « titre de la notice », in Lyon, MTMAD, www.mtmad.fr (en ligne), mise en ligne en 2014. Consulté le jj/mm/aaaa. URL de la notice		

visuel 1 / 2

© Lyon, MTMAD, Pierre Verrier

Is he the person who made the fabric?

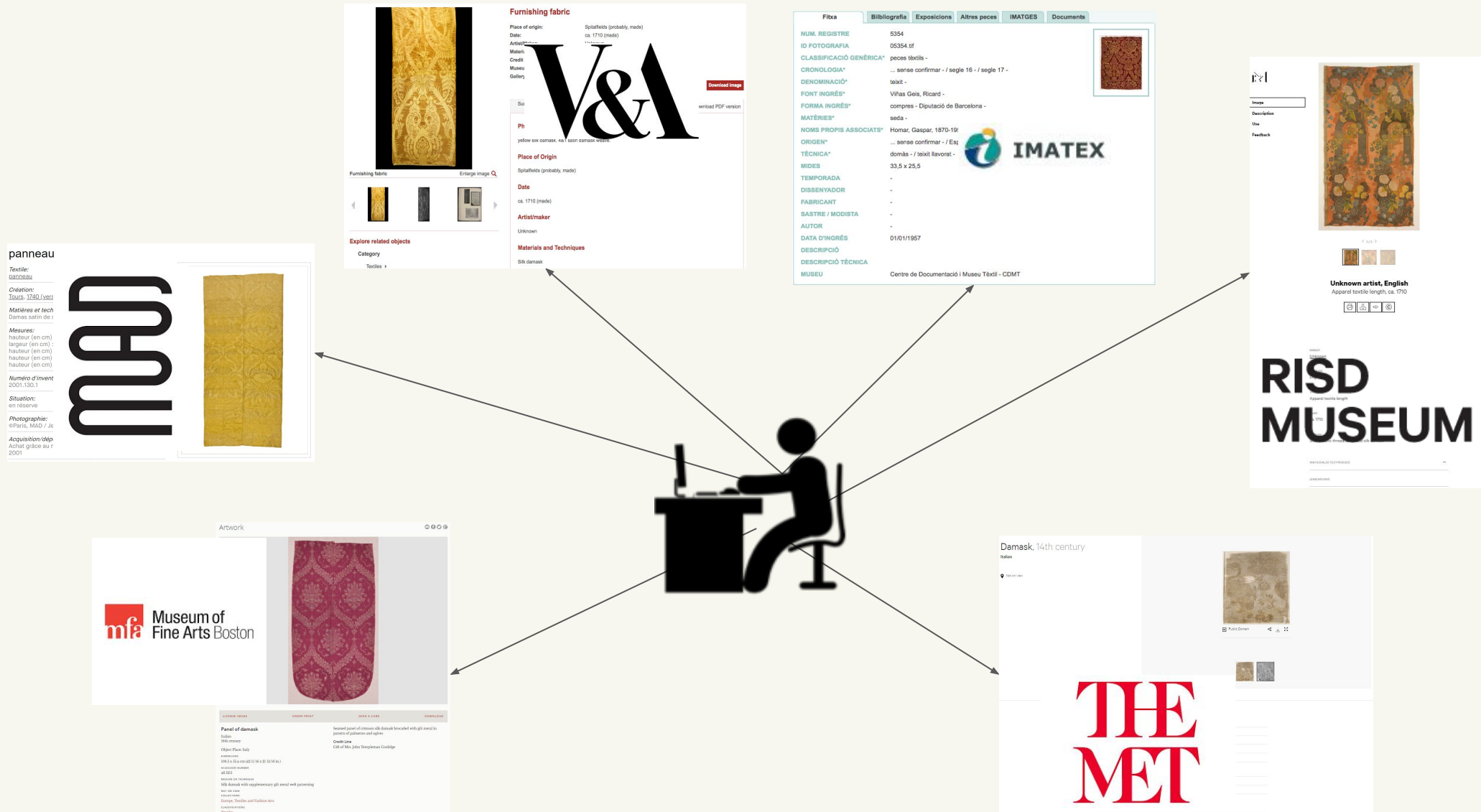
Is this the title of the object?

We have the technic used to make the fabric....

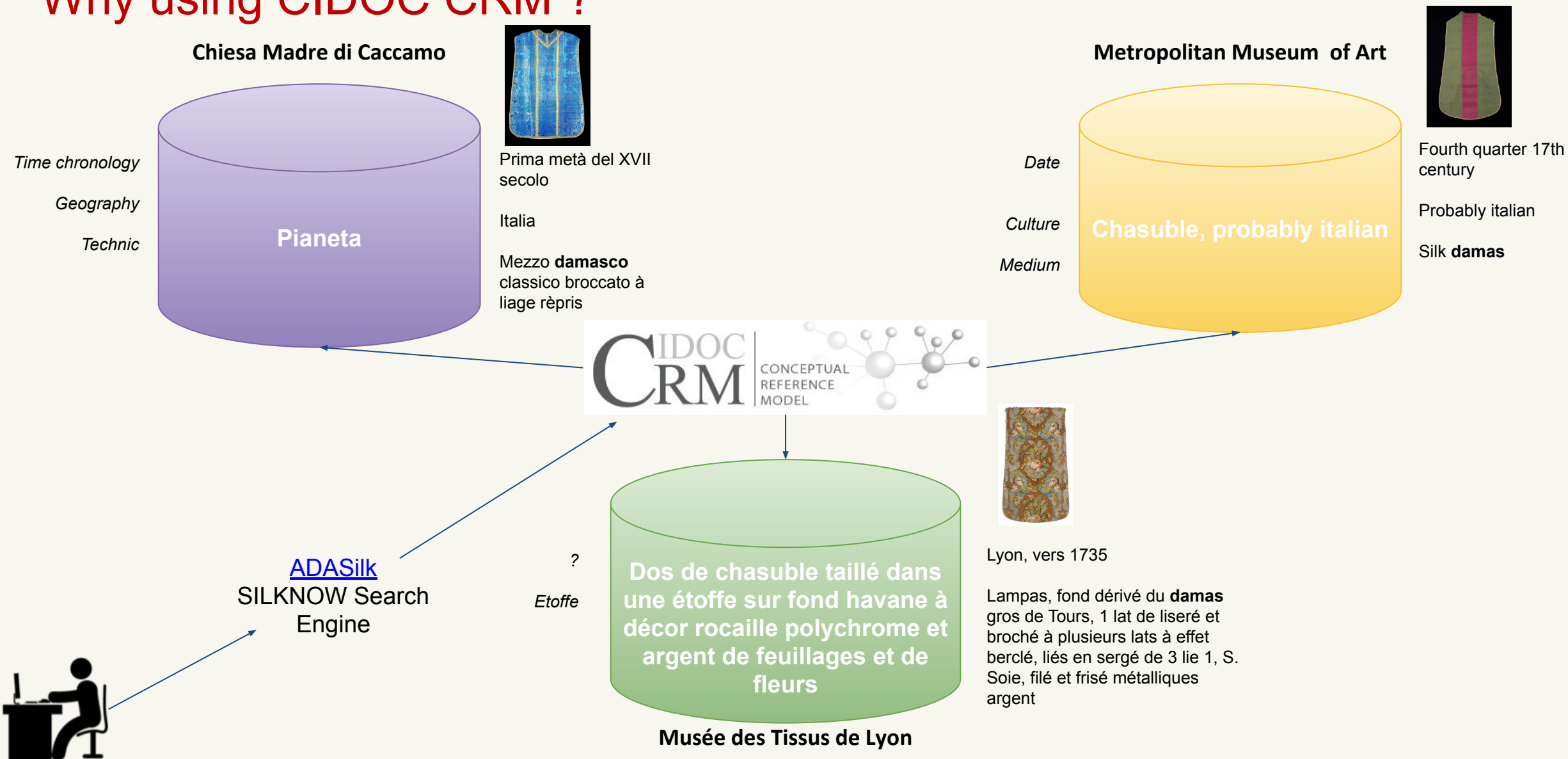
... And the material is also here!

What does this mean?

# Textile Heritage on the Web



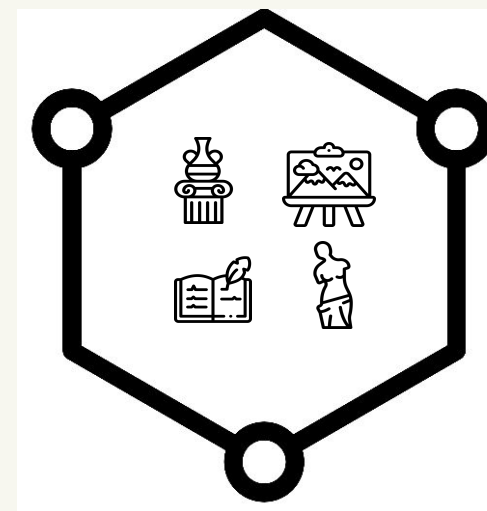
# Why using CIDOC CRM ?



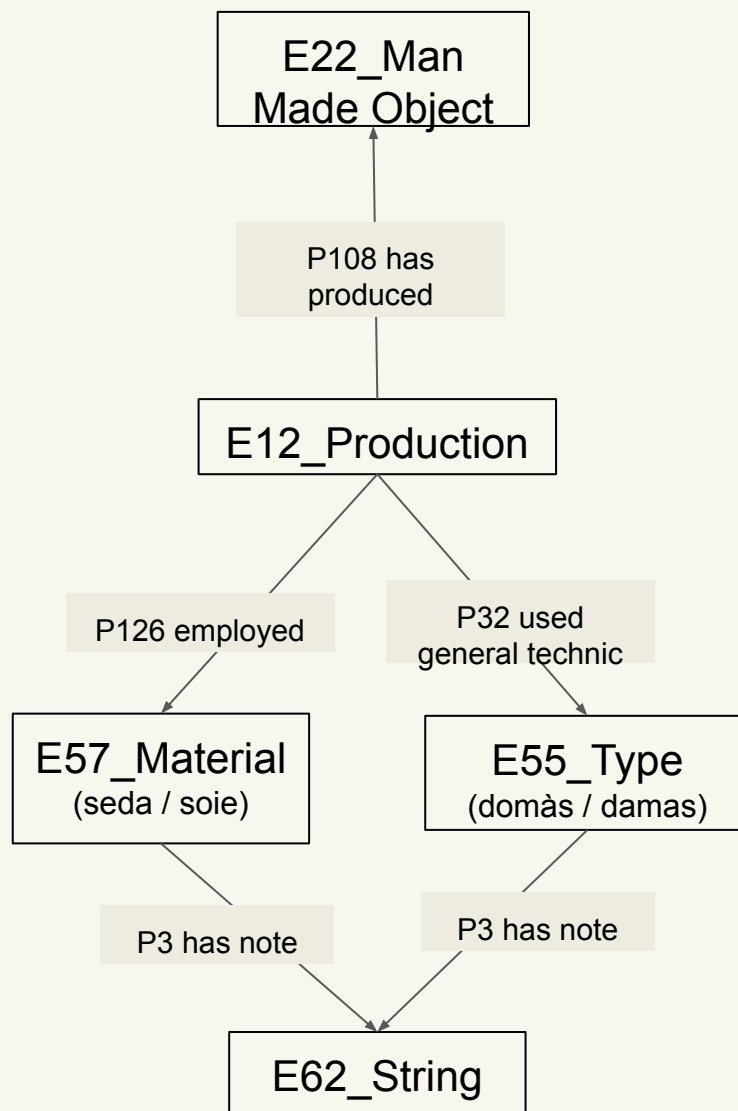
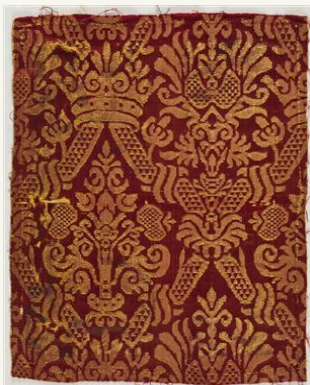


## Why using CIDOC CRM ?

- International standard developed by ICOM and recognized as an ISO norm ([ISO 21127:2014](#))
  - Currently using the last living version of the model ([version 6.2](#))
- Used in other projects dealing with CH data
  - **Common language** allowing to harmonize data by explaining their underlying semantics
  - Integrate CH information in a **single environment**
- Generally implemented in **RDF** (framework of semantic Web and linked data)



# Express the underlying semantics of CH data

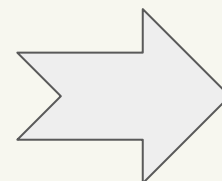


NUM. REGISTRE	5354
ID FOTOGRAFIA	05354.tif
CLASSIFICACIÓ GENÈRICA*	peces tèxtils -
CRONOLOGIA*	... sense confirmar - / segle 16 - / segle 17 -
DENOMINACIÓ*	teixit -
FONT INGRÉS*	Viñas Geis, Ricard -
FORMA INGRÉS*	compres - Diputació de Barcelona -
<b>MATÈRIES*</b>	seda -
NOMS PROPIS ASSOCIATS*	Homar, Gaspar, 1870-1955 -
ORIGEN*	... sense confirmar - / Espanya - / Itàlia -
<b>TÈCNICA*</b>	domàs - / teixit llavorat -
MIDES	33,5 x 25,5

## Furnishing fabric

Place of origin:	Spitalfields (probably, made)
Date:	ca. 1710 (made)
Artist/Maker:	Unknown
Materials and Techniques:	<b>Silk damask</b>
Credit Line:	Given by Miss Eleonora Armitage
Museum number:	T.58-1937
Gallery location:	In Storage

## The SILKNOW data model



The  
SILKNOW  
Data  
Model

## The SILKNOW data model

### Challenges :

- Various metadata structures and appellations
- Content in free text
- More than one type of information
- The meaning given to some descriptive fields may have changed over time

### Methodology :

1. Study the structure of various CH catalogs and databases
2. Reading the contents of the fields and assessing their consistency over time
3. Select the relevant descriptive fields
4. **Select the useful CRM classes and properties** to express these informations

# The SILKNOW data model


The screenshot shows the 'Profiles' page for the 'Silknow' project in the OntoME interface. The navigation bar includes 'Data for History Consortium', 'Home', 'Classes', 'Properties', 'Namespaces', 'Projects', 'Profiles', and 'User guide'. The 'Profiles' section is active, and the 'Classes' sub-tab is selected. Below the 'Associated classes' heading, there is a 'Show 25 entries' dropdown and a search box. A table lists the following classes and their association types:

Class	Association type	Namespace
<a href="#">Acquisition – E8</a>	selected	CIDOC CRM version 6.2
<a href="#">Activity – E7</a>	selected	CIDOC CRM version 6.2
<a href="#">Actor Appellation – E82</a>	inferred	CIDOC CRM version 6.2
<a href="#">Actor – E39</a>	selected	CIDOC CRM version 6.2
<a href="#">Address – E45</a>	selected	CIDOC CRM version 6.2
<a href="#">Appellation – E41</a>	selected	CIDOC CRM version 6.2
<a href="#">Attribute Assignment – E13</a>	selected	CIDOC CRM version 6.2

SILKNOW project profile in OntoME (CRM classes and properties) : <http://ontologies.dataforhistory.org/profile/7>

## The SILKNOW data model

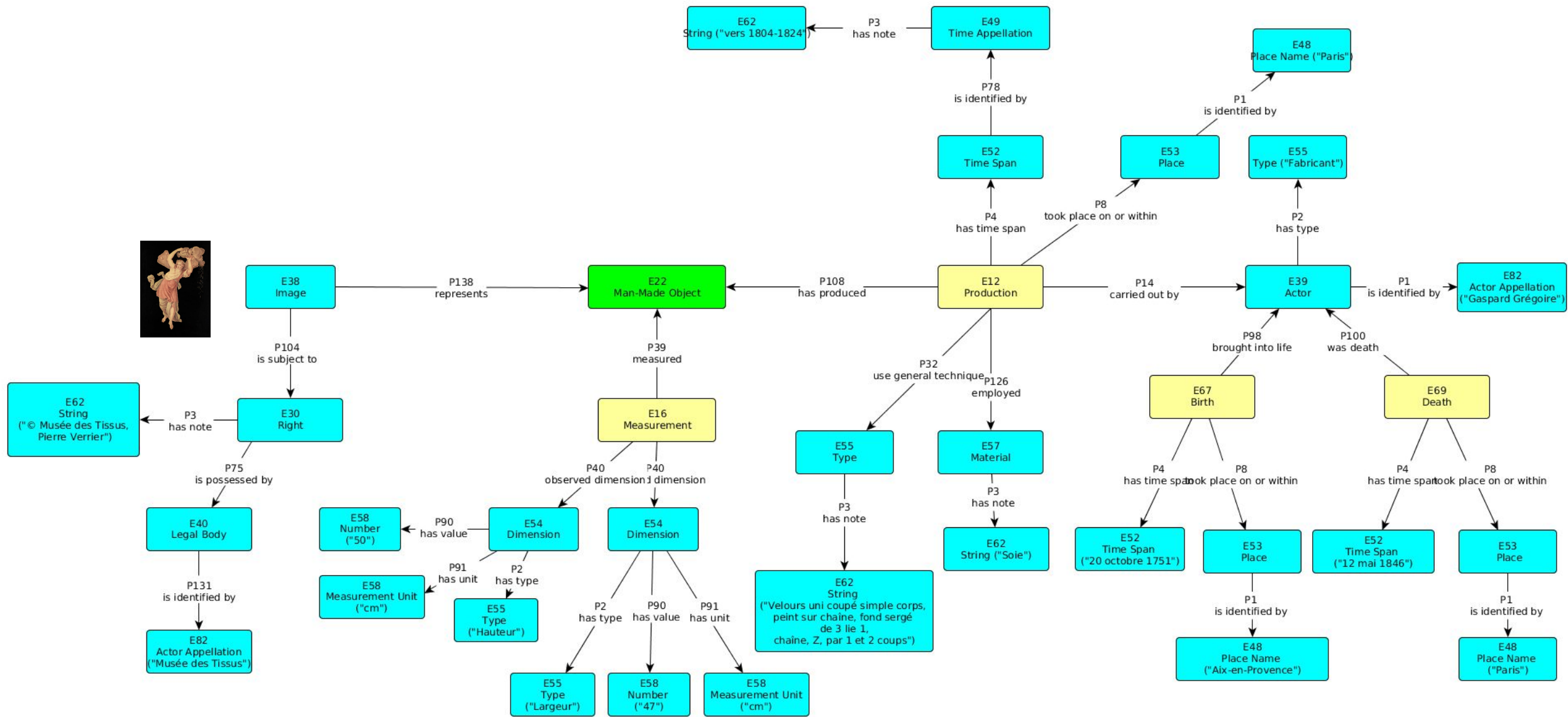
- Defining the **mapping rules** for each dataset
- Dataset example: *La Cinquième Heure de La Nuit*, Gaspard Grégoire, vers 1804-1824, Museum of Textiles, Lyon



Q +

Notice ▾	Description ▾	Bibliographie ▾
Gaspard Grégoire (Aix-en-Provence, 20 octobre 1751 - Paris, 12 mai 1846) (fabricant)		
<i>La Cinquième Heure de la Nuit</i> (Les Heures d'après Raphaël)		
Velours uni coupé simple corps, peint sur chaîne, fond sergé de 3 lie 1, chaîne, Z, par 1 et 2 coups. Soie.		
H. 50 cm , l. 47 cm (avec cadre)		
Paris , vers 1804-1824		
MT 1144. Achat Reybaud , 1862		
© Nom (Prénom), « titre de la notice », in Lyon, MTMAD, www.mtmad.fr (en ligne), mise en ligne en 2014. Consulté le jj/mm/aaaa. URL de la notice		

Q



RDF graph generated using the SILKNOW ontology for one representative record (Museum of textiles, Lyon)

## Information extraction and disambiguation

- Very rich metadata in free text
- Extract and disambiguate information on the structure and decoration of the fabrics

La laize, qui a conservé un chef de pièce en satin (de 8) en partie inférieure, présente un fond de couleur ciel, en damas, dans lequel tous les fils produisent un satin (de 8), chaîne, avec un coup de fond, et un gros de Tours de deux fils avec deux coups de fond. Le décor lui-même est exécuté par un effet de chaque lat de broché à liage repris (en sergé de 3 lie 1, S, par un sixième des fils), reposant sur le satin du fond produit par les fils de chaîne et chaque coup de fond. Il dessine un élégant bouquet noué par un ruban rose, composé de roses, d'œillets et de branches de fraisier, en fleurs et en fruits. Un liseron est pris dans les tiges du bouquet, en dessous du ruban; [...]

Description - MTMAD catalog  
*Very rich description with technical  
and historical information*

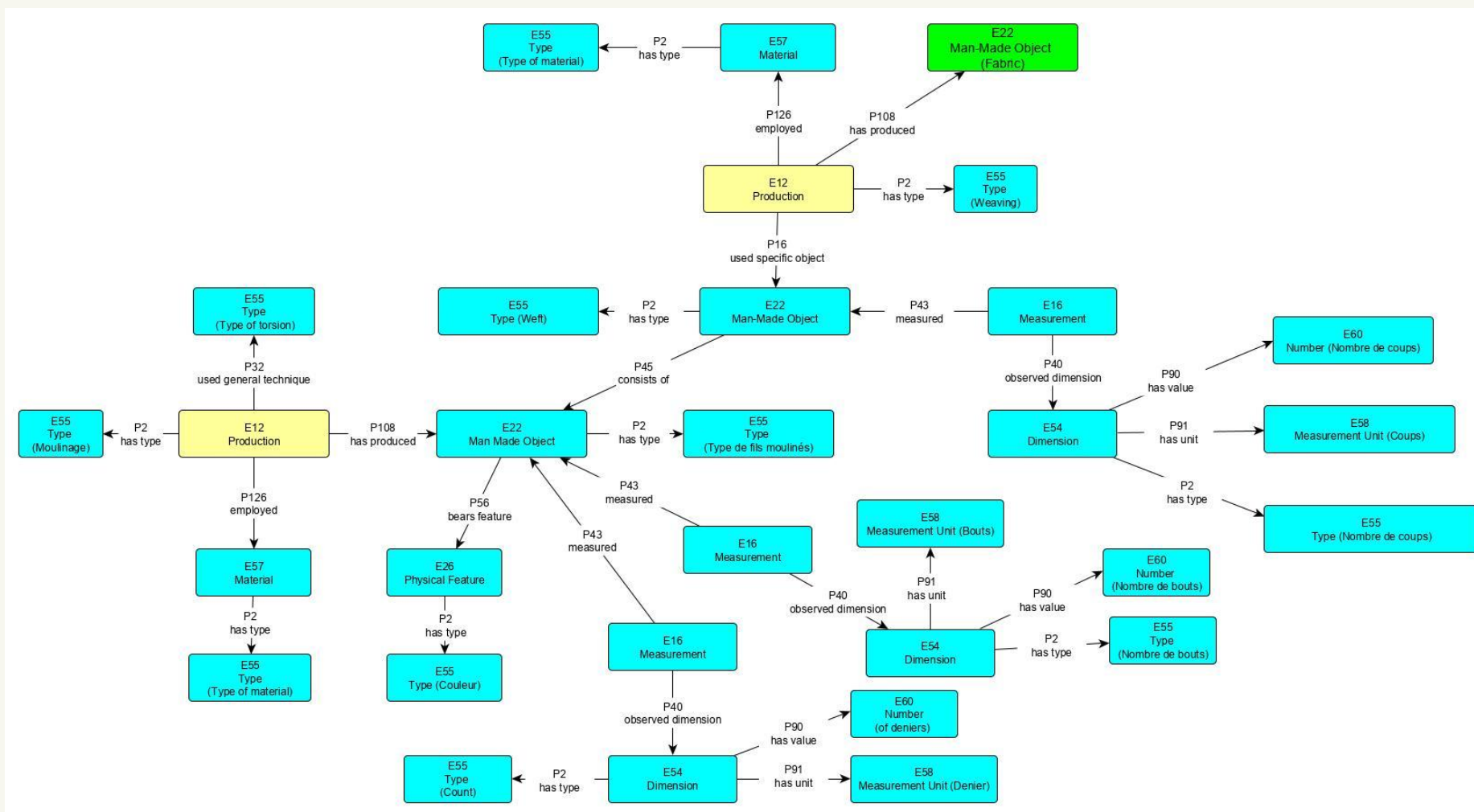
Mapped as a “note” on the object

Mapping in CIDOC  
*The mapping is not as rich as the  
original information.*

Philippe de La Salle, “Laize à décor de bouquet noué de roses”, Museum of Textiles, Lyon (MT24591.2)

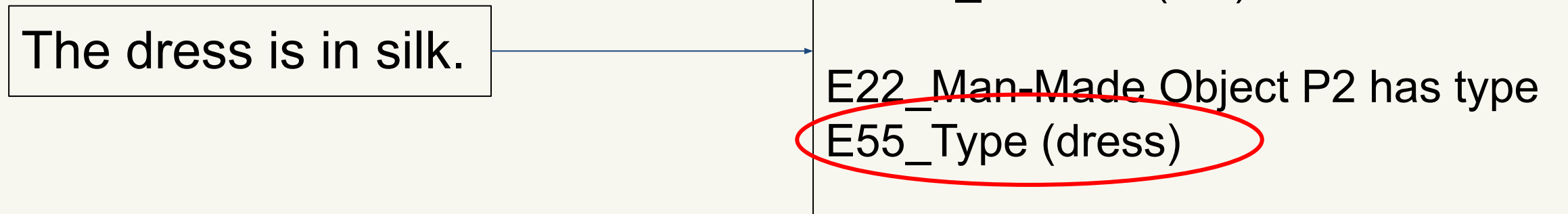


# The production of silk textile artefacts expressed in CIDOC CRM



*RDF graph generated using the SILKNOW ontology to describe the weft of a silk woven fabric*

## Extend the SILKNOW namespace with new CIDOC CRM classes and properties



CIDOC CRM : a flexible and extensible data model

- We won't use a type for each object created by humans...
- But possible to create new CRM classes and properties to describe a specific part of human knowledge

=> Define a **CIDOC CRM extension for dealing with the production of textile artefacts**

## Extend the **SILKNOW** namespace with new CIDOC CRM classes and properties

By creating such an extension, it will allow users to :

- exploit the results of textual analysis. Extraction of information about:
  - Motifs
  - Weaving techniques
  - Weaves
  - Styles
- access this information

## Extend the SILKNOW namespace with new CIDOC CRM classes and properties

- Available via OntoMe (Ontology Management Environment, maintained by the LARHRA)
  - [SILKNOW namespace](#) : 23 classes and 12 properties
  - For an overview of the CIDOC CRM classes and properties used by SILKNOW : [SILKNOW working profile](#)
- We assessed these new classes and properties by using them to map examples in various languages (French, Spanish and Italian)

<sup>1</sup> For technical reasons, they are “deprecated” cf. Ontome. They will be deleted soon.

# Express information about the weaving process

New two classes to express the weaving process

**T1 Weaving**

Subclass of: [E12 Production](#)

Superclass of: [T8 Part Weaving](#)

Scope note: This class comprises the production process of a fabric. It consist in interlacing ends) at right angles. The fabric is generally woven on a loom.

Examples: Weaving of the damask used for

In First Order Logic:  $T1(x) \supset E12(x)$

Outgoing properties:

- [L10 used yarn](#) → [T15 Yarn](#)
- [L14 used specific weaving technique](#) → [T25 Weaving Technique](#)
- [L7 used warp](#) → [T16 Warp](#)
- [L8 used weave](#) → [T21 Weave](#)
- [L9 used weft](#) → [T17 Weft](#)

P108 has produced

**Fabric – T7**

Summary Identification Definition Properties Names

**T7 Fabric**

Subclass of: [E22 Man-Made Object](#)

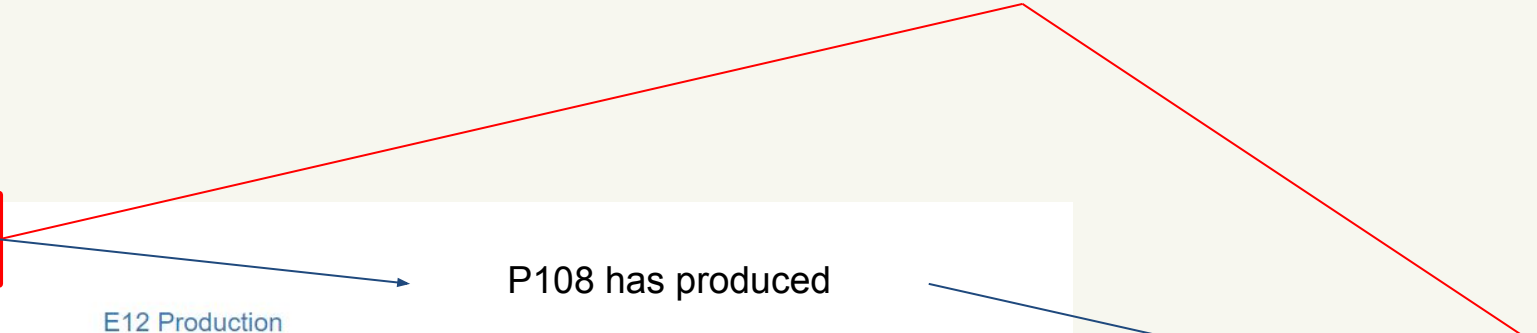
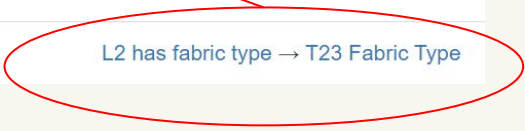
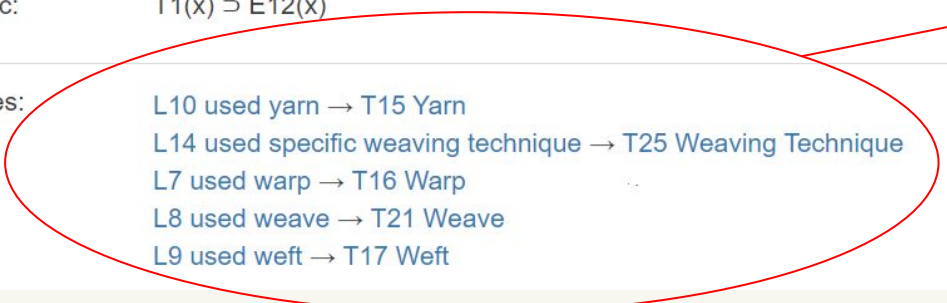
Scope note: This class comprises general term to r

Examples: *No example yet.*

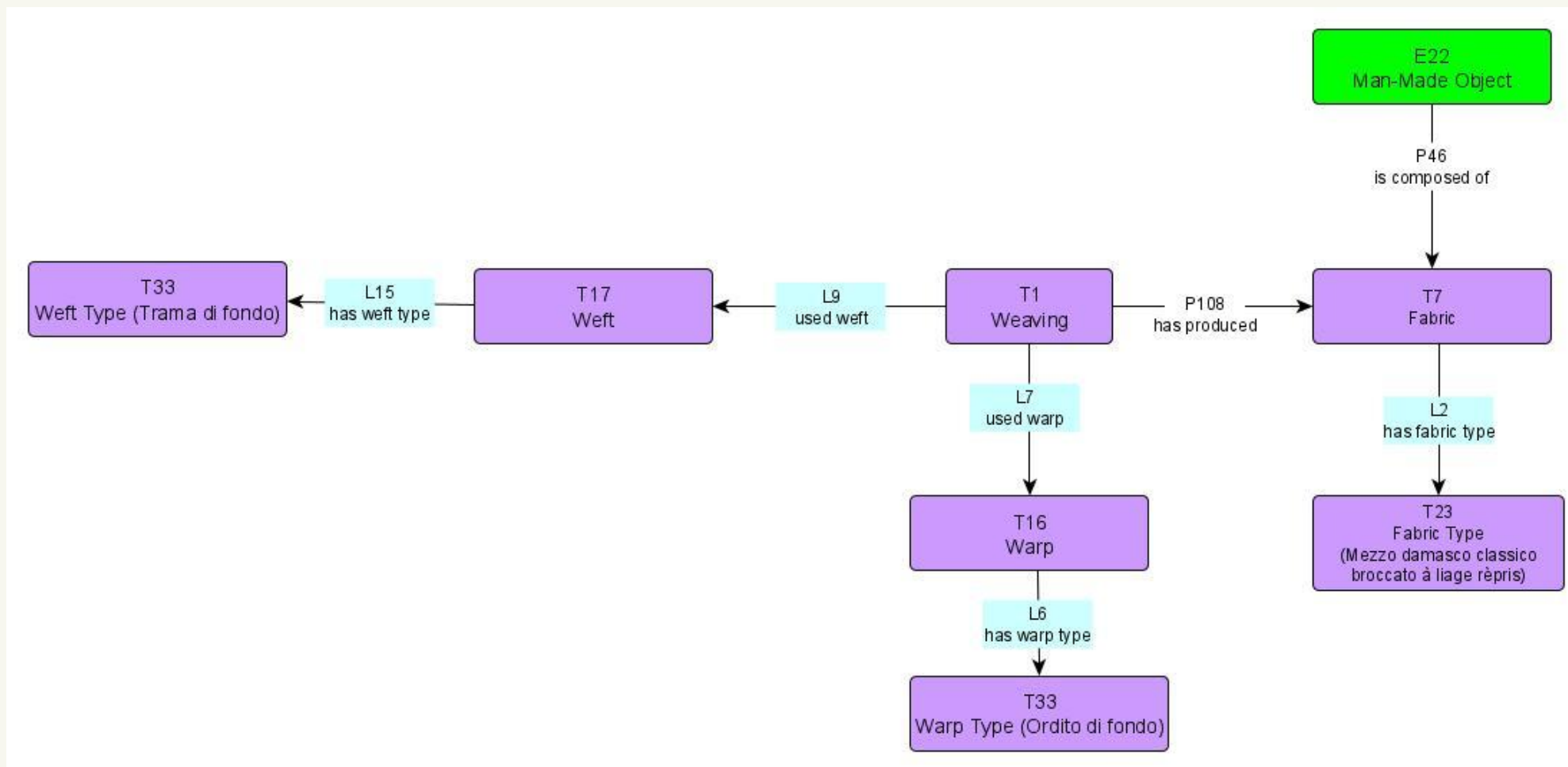
In First Order Logic:  $T7(x) \supset E22(x)$

Outgoing properties: [L2 has fabric type](#) → [T23 Fabric Type](#)

New classes and properties to express the weaving process



## Express information about the weaving process



# Express information about the yarns

**Yarn – T15**

Summary Identification Definition Properties Namespaces Hierarchy

**T15 Yarn**

Subclass of: **E22 Man-Made Object**

Scope note: **This class comprises thread prepared for weaving or knitting.**

Examples: *No example yet.*

In First Order Logic:  $T15(x) \supset E22(x)$

Outgoing properties: **L3 has yarn type → T28 Yarn Type**

Incoming properties: **T1 Weaving → L10 used yarn**

Class T15 : [Yarn](#)

New properties using the class “Yarn”

Parent class

Definition from the SILKNOW thesaurus : “[Yarn](#)”

**used yarn – L10**

Summary Identification Definition Namespaces Hierarchy Relations Profiles Comments 0

**L10 used yarn**

Domain: [T1 Weaving](#)

Range: [T15 Yarn](#)

Subproperty of: **E7 Activity → P16 used specific object → E70 Thing**

Quantification: *No quantifiers yet.*

Scope note: **This property is used to associate E12\_Production with an instance of E22\_Man-Made Object, T15\_Yarn.**

Parent property

Property L10 : [used yarn](#)

Definition

## Create links between the ontology and the thesaurus

Example : type of yarns

Yarn Type – T28

Summary Identification Definition Properties Namespaces Hierarchy

T28 Yarn Type

Subclass of: E55 Type

Scope note: This property is used to denote a specific type of yarn.

Examples: Chenille  
Tasar  
Crêpe

Defined in the thesaurus :

- [Chiné \(Yarn\)](#) (ID 255)
- [Frisé](#) (ID 233)
- [Spiral thread](#) (ID 283)
- [Plied yarn](#) (ID 501)
- etc.



## Create links between the ontology and the thesaurus

Available types :

- [Fabric Type – T23](#)
- [Loom Type – T26](#)
- [Motif Type – T34](#)
- [Style – T11](#)
- [Twist Type – T29](#)
- [Warp Type – T30](#)
- [Weave Type – T32](#)
- [Weft Type – T33](#)
- [Yarn Type – T28](#)

## More new classes and properties

Information from the textual description	Expressed in CIDOC CRM
<p>organzino di seta, 2 capi, S, colore celeste</p>	<p>T1_Weaving <b>L10_used yarn</b> T15_Yarn</p> <p>T15_Yarn P45 consists of E57_Material (Seta)</p> <p>T15_Yarn <b>L3_has yarn type</b> T28_Yarn Type (Organzino)</p> <p>T15_Yarn P43 has dimension E54_Dimension</p> <p>E54_Dimension P91 has unit E58_Measurement unit</p> <p>E54_Dimension P90 has value E60_Number</p> <p>E54_Dimension P2 has type E55_Type (numero di capi)</p> <p>T15_Yarn P56 bears feature T20_Twist</p> <p>T20_Twist <b>L5_has twist type</b> T29_Twist Type (Torsione a S)</p> <p>T15_Yarn P56 bears feature E26_Physical Feature</p> <p>E26_Physical Feature P2 has type E55_Type (colore celeste)</p>

New classes

New properties

Defined in the thesaurus :  
[“Organzino \(filo\)”](#) and  
[“Torsione a S”](#)

## A first step towards a CRM extension for Textile Heritage ?

- “Bottom up” approach : CRM extension based on data collected by the *SILKNOW* project
  - Silk Heritage
  - From the 15th to the 19th Century
  - In Europe
- In need of a more significant extension designed to describe Textile heritage data

Thank you for your attention!  
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<http://silknow.eu/>



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