MediãMāp-core

an ontology for audiovisual production

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Goals and Approach

Contributive production and fragment-based repurposing

Acquisition : commission and search

Delivery : indexing and repurposing

Semantic is the way to go

Semantic modeling : what kind of ontology are we building ?

Semantic Asset Management : manage each component of an asset

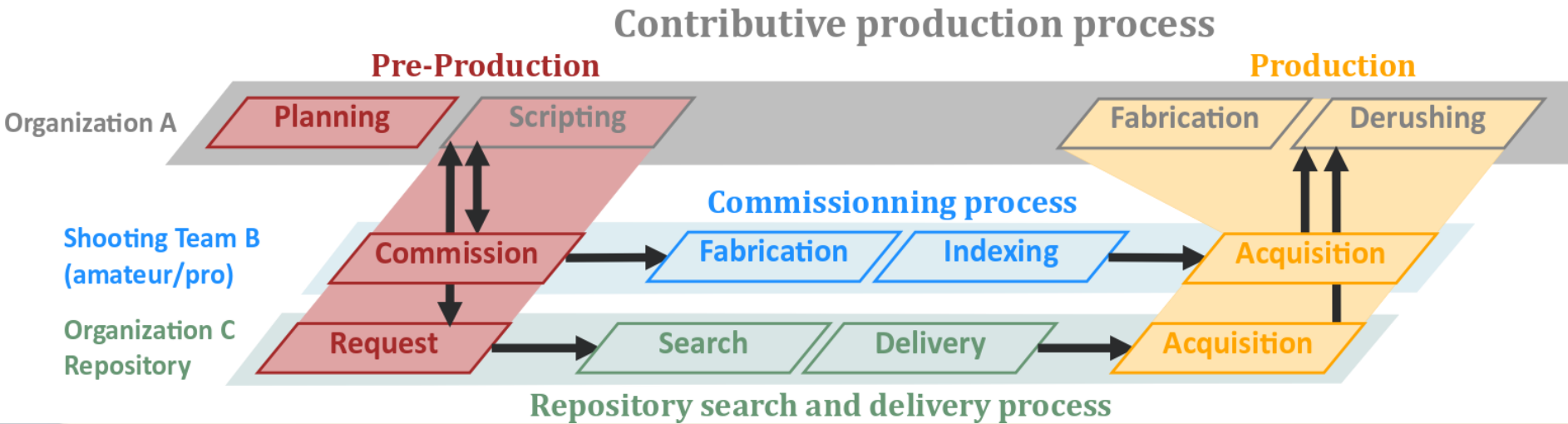
Semantic description : professionnal and production-centered indexing

Semantic process : knowledge gathering throughout the chain

Contributive production process

Mutli-source fragment acquisition

+ **Scripting** : prescription of fragments needed in post-production
+ **Commissionning** : content is shot externally and indexed before delivery
+ **Search** : content and description are transformed in the desired format
+ **Acquisition** : fragment semantic indexing + production knowledge update + shooting script update



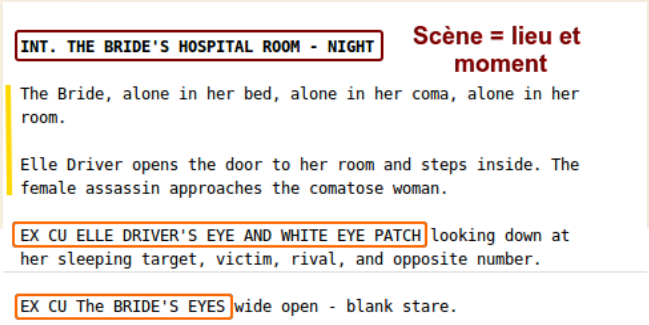
Amateur/professionnal production

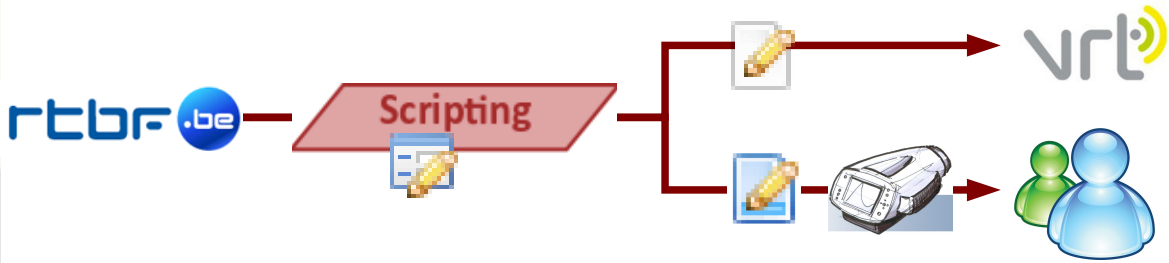
How to leverage amateur production quality ?

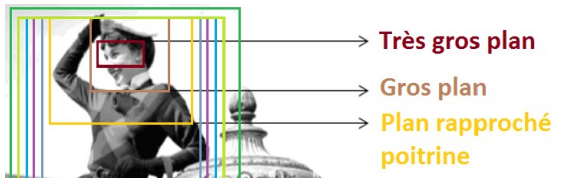
+ **Scripting** (Script)
  framing and composition shot by shot

+ **Shooting** (Script + Camera + Software)
  shooting process guidance
  detailed instructions and illustrations for amateur
  live feedbacks during shooting
  shot annnotation (people, location, etc.)

+ **Acquisition** (Script + Shot + Annotation)
  preindexing of each shot + annotation







Semantic modeling

Asset = fragment + indexing
Content = structured set of assets

+ What kind of content and indexing do you need ?
+ Models focused on media file and distribution don't represent intermediary fragments or production knowledge
+ Only a production model can cope with the challenge of contributive production and fragment repurposing

Asset description is only a mean to an end

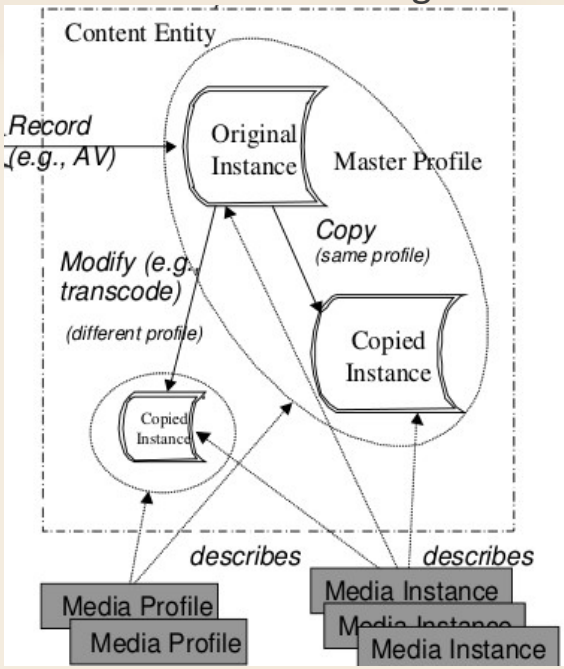
+ There are as many ways to describe an asset as there are users and goals
+ Shooting script description is a good way to commission or search for fragments

Exogenous/Endogenous approaches

File/Asset management

+ **Exogenous models** represent only the final result of the production (media file)
+ Abstraction levels are used to manage all the files having technical similarities or for information factoring but disregards editorial aspects or consequences

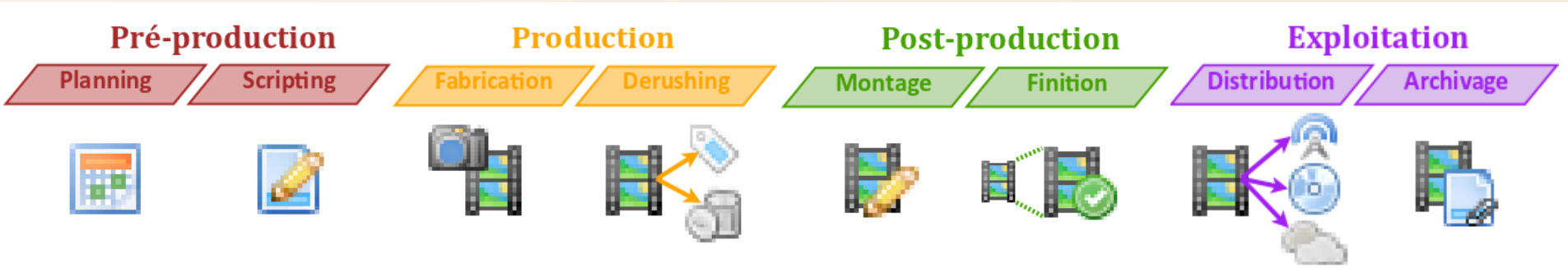
MPEG-7 Content Management



+ **Endogenous models** follow the dynamic of the production process to represent the fragment to-be-produced and its (multiple) manifestation(s)
+ An Asset is the combination of multiple components (editorial, sequence, file), each of which is representing an intermediary result of the production, making it possible to manage each component independently

Knowledge and Assets in the production process

+ **Planning** : commission order, etc.
+ **Shooting Script** : editorial structure (shot, scene, etc.), framing, composition
+ **Fabrication** : multiple takes for one shot
+ **Derushing** : production report, takes selection/segmentation, etc.
+ **Editing** : take re-segmentation, editorial restructuration, multiple edits
+ **Distribution** : multiple releases (web, broadcast, etc.)
+ **Archive** : high-quality release + indexing



Exogenous/Endogenous approaches

File/Asset description

+ **Exogenous models** use signal processing to build up information after production
  - mostly *technical* and *morphological*
  - also *descriptive* but with the semantic gap as a serious obstacle

+ Other models are used to associate *administrative* (production related) or *domain*/*task*-specific information to the file

+ **Endogenous models** collect knowledge as it is expressed/updated by contributors during production, thus facilitating
  - exchange information between contributors
  - custom-tailored knowledge selection and presentation
  - asset archiving and repurposing

MediãMāp approach

endogenous during production
exogenous for exploitation

Associate any kind of knowledge to an asset
Whenever needed in the process
Whatever the methods used to create/collect it

Semantic Asset Management architecture

Asset and knowledge gathering throughout the chain

+ Capture the domain knowledge contained in the production documents to build a descriptive Knowledge Base (KB) associated to AV fragments
  (commission order, shooting script, production report, etc.)

+ Model the production process in a KB to provide a custom-tailored view on commission order to each contributor depending on its role, skill, mission

+ Search and reuse intermediary fragments of the chain from a repository
  (shot, scene, take, edit, broadcast release, web release, archive, etc.)

Semantic DB project (contributor, process, commission, deliverable, etc.)

Semantic DB fragment (components, struture, description, etc.)

Asset repository (media file, edit file, etc.)

Semantic modeling

What kind of ontology are we building ?

+ Multimedia ontology are heterogeneous and mostly exogenous
  (MPEG-7 based, EBU-core, W3C Media annotation, etc.)

+ Heavyweight upper ontology are quite difficult to use for professionnal users
  (Dolce, ABC, SmartSUMO, etc.)

+ Lightweight ontologies are not built using ontological methodology
  (XML transformation, UML modelling)
  or lacks important formal features
  (disjointness, inverse relations, distinctive traits between sibling, etc.)

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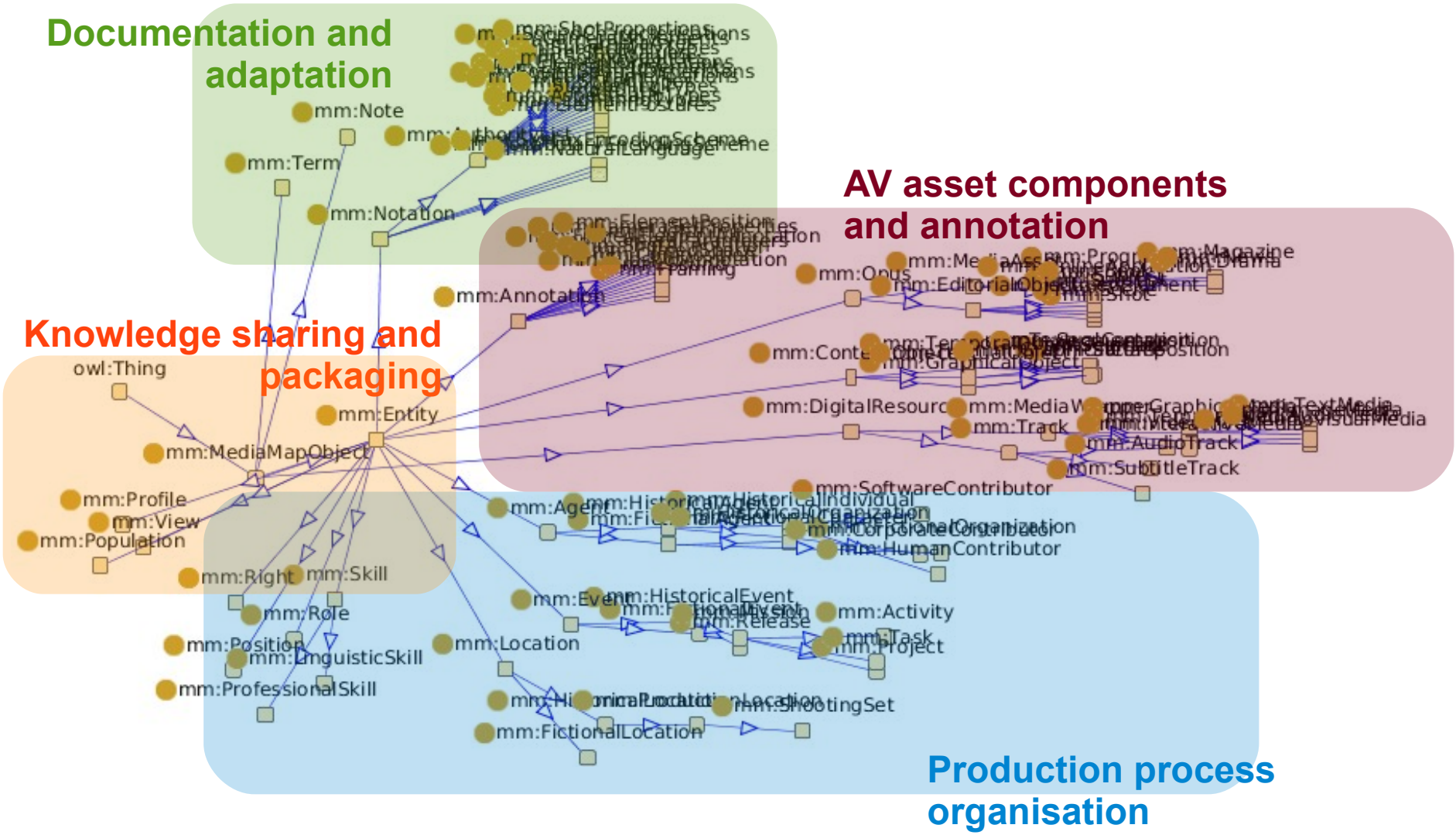
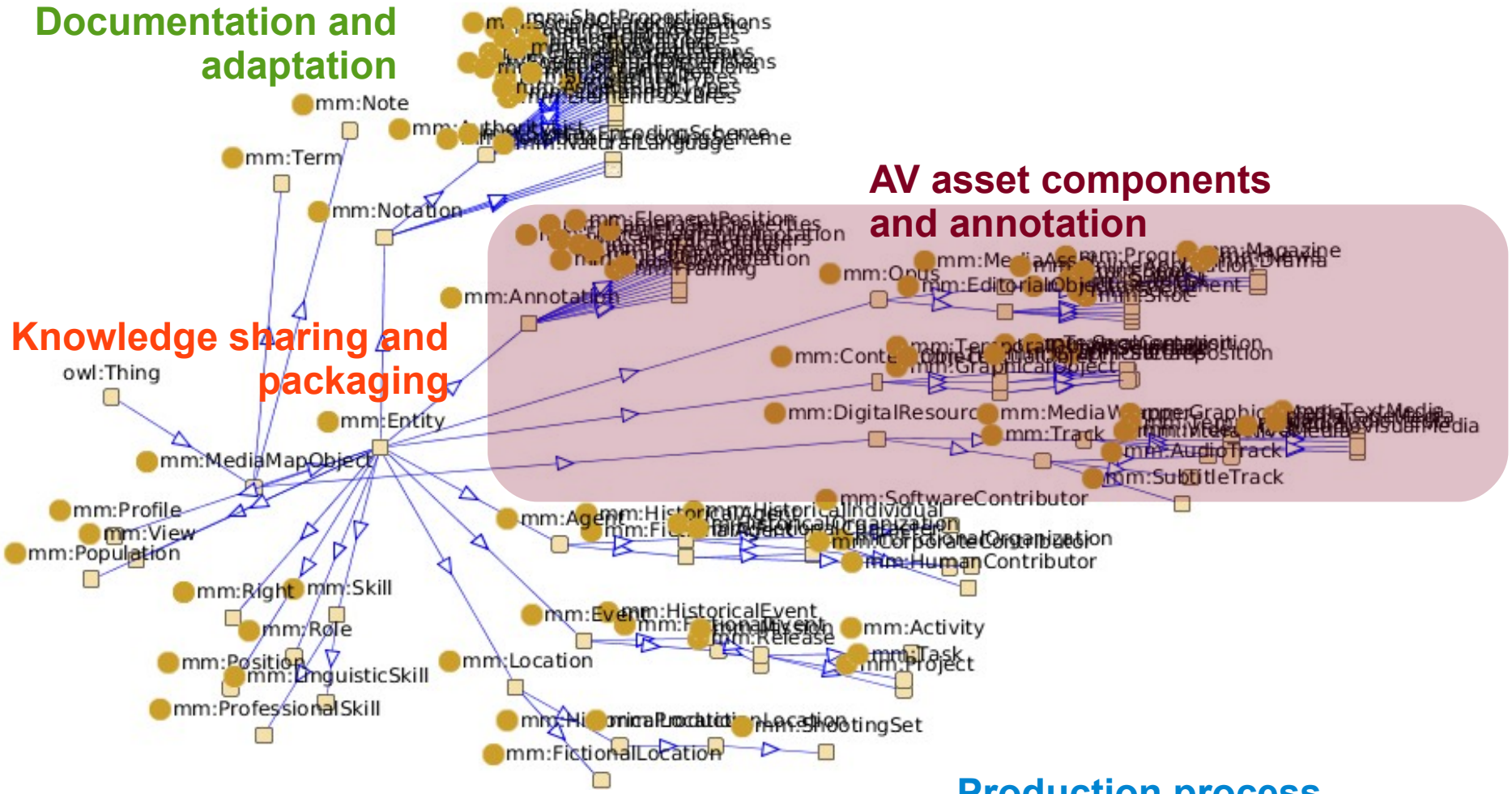
There is a need for a middle way : a **core ontology**
- easy to understand because focused on one domain
- formally built to maximize inference and alignment

MediãMāp-core patterns



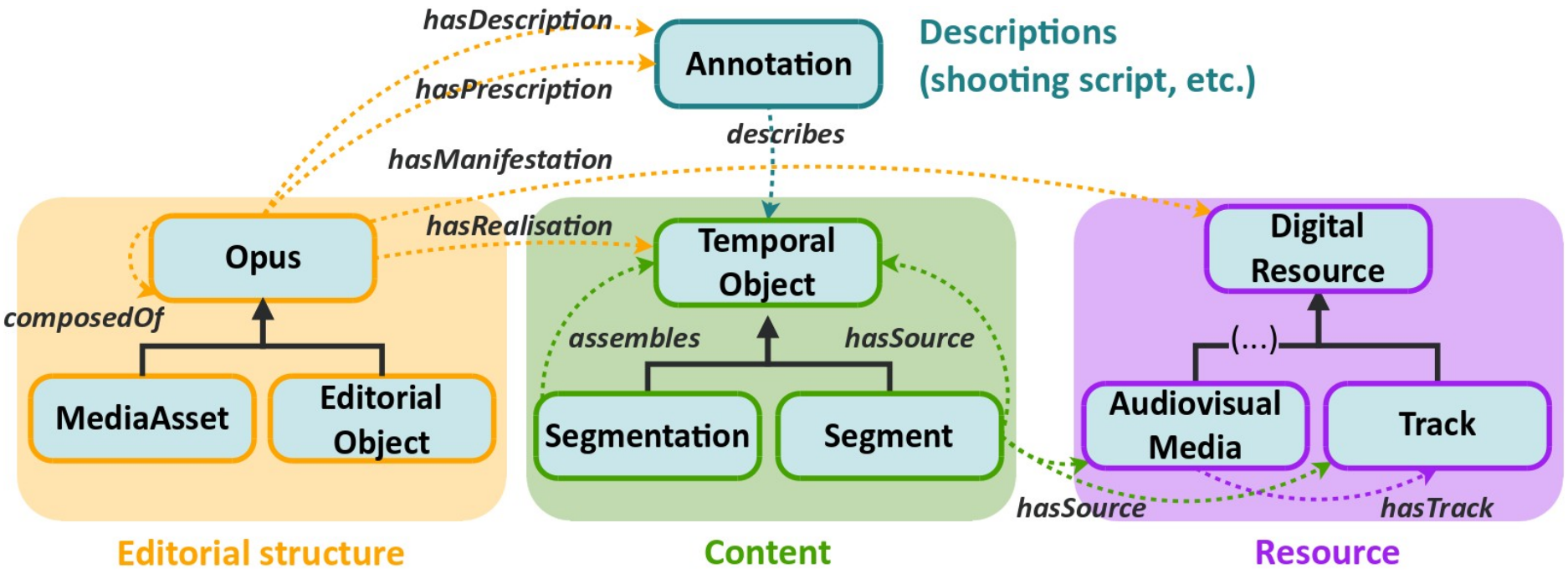
Semantic Asset Management



Semantic Asset Management

Basic components

Editorial : a piece of work, with its inner structure and upper grouping
Content : a timecoded segment/edit on a file, usually related to an editorial object
Resource : a sequence of digit (file or track)



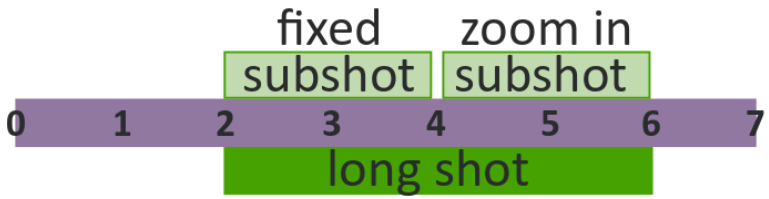
Semantic Asset Management

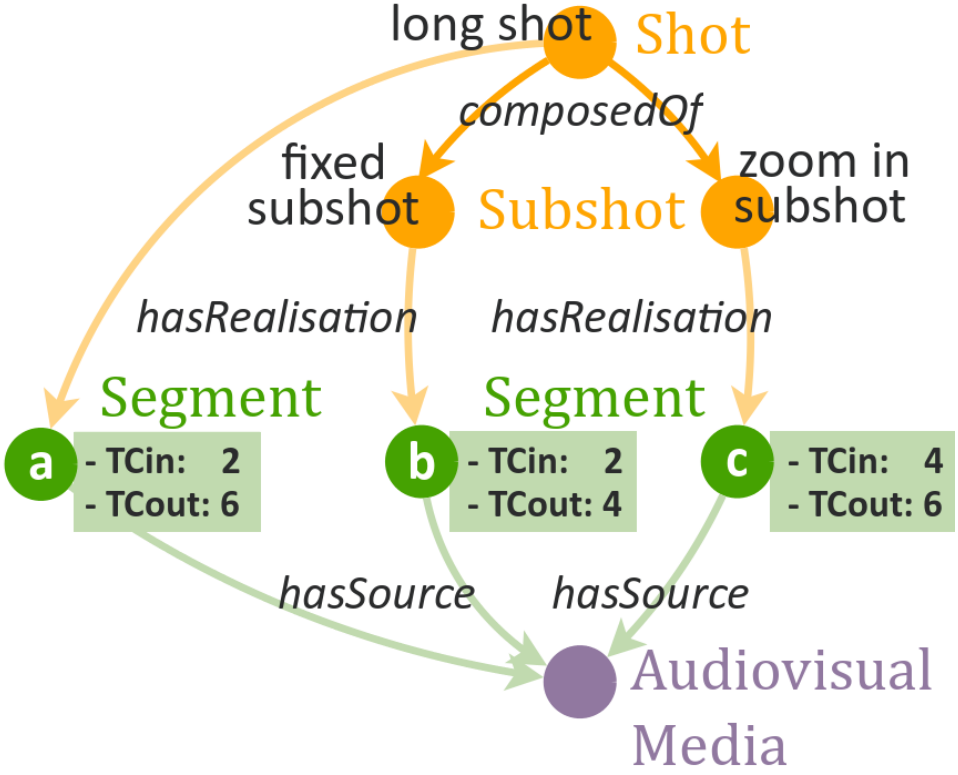
Basic example

Editorial Object :
1 shot divided into
2 subshots (fixed, zoom in)

Segment :
1 for the shot, 2 for the subshots

Digital Resource :
1 media file





Semantic Asset Management

Combining the components (traditional chain)

PreProd	**Shot / Scene** =	Editorial Object + Annotation
Production	**Rush** =	AV Media + Segment
	Rush report =	AV Media + Segment + Annotation
PostProd	**Edit** =	AV Media + Segment + Segmentation
Exploitation	**Release** =	AV Media
	Archive =	AV Media + Annotation

Loss of information along the way (editorial structure and annotation)

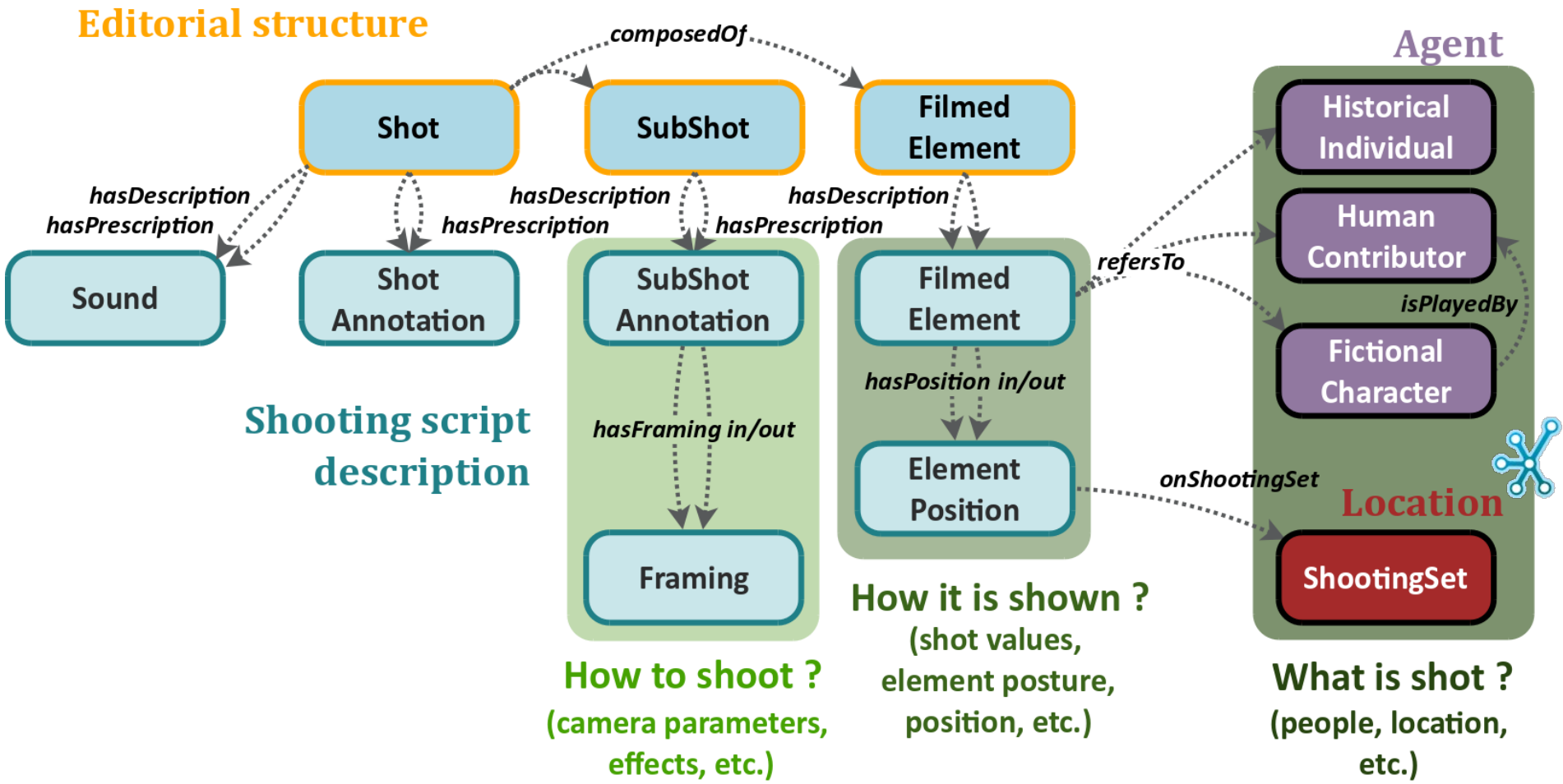
Semantic Asset Management

Combining the components (MM approach)

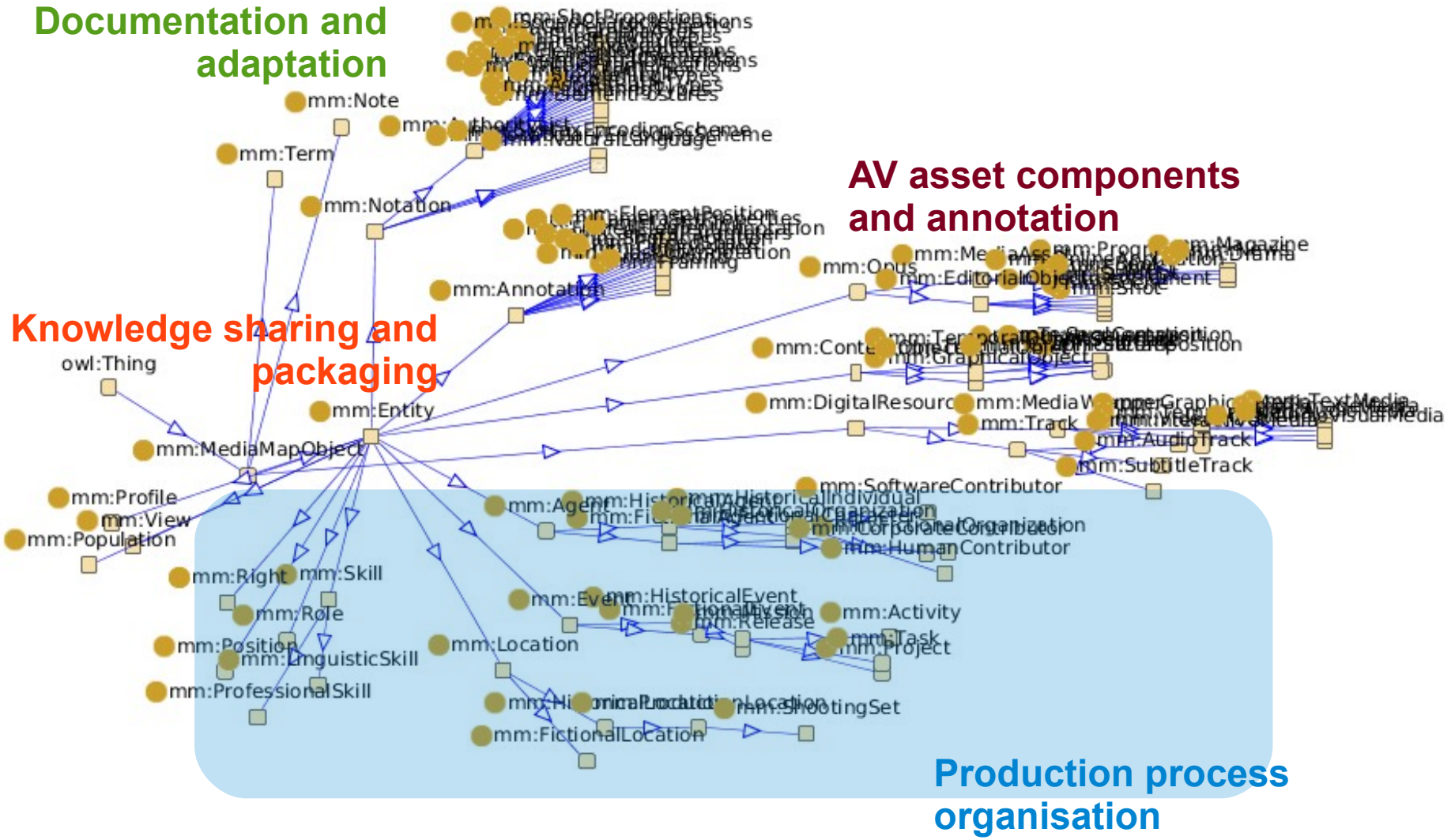
PreProd	**Shot / Scene** =	Editorial Object + Annotation
Production	**Rush** =	AV Media + Segment + Editorial Object
	Rush report =	AV Media + Segment + Editorial Object + Annotation
PostProd	**Edit** =	AV Media + Segment + Segmentation + Editorial Object + Annotation
Exploitation	~~**Release**~~ =	~~AV Media~~
	~~**Archive**~~ =	~~AV Media + Annotation~~
	Asset =	AV Media + AV Media + Segment + Segmentation + Annotation + Editorial Object

Semantic description

Editorial Object, Annotation, People and Location

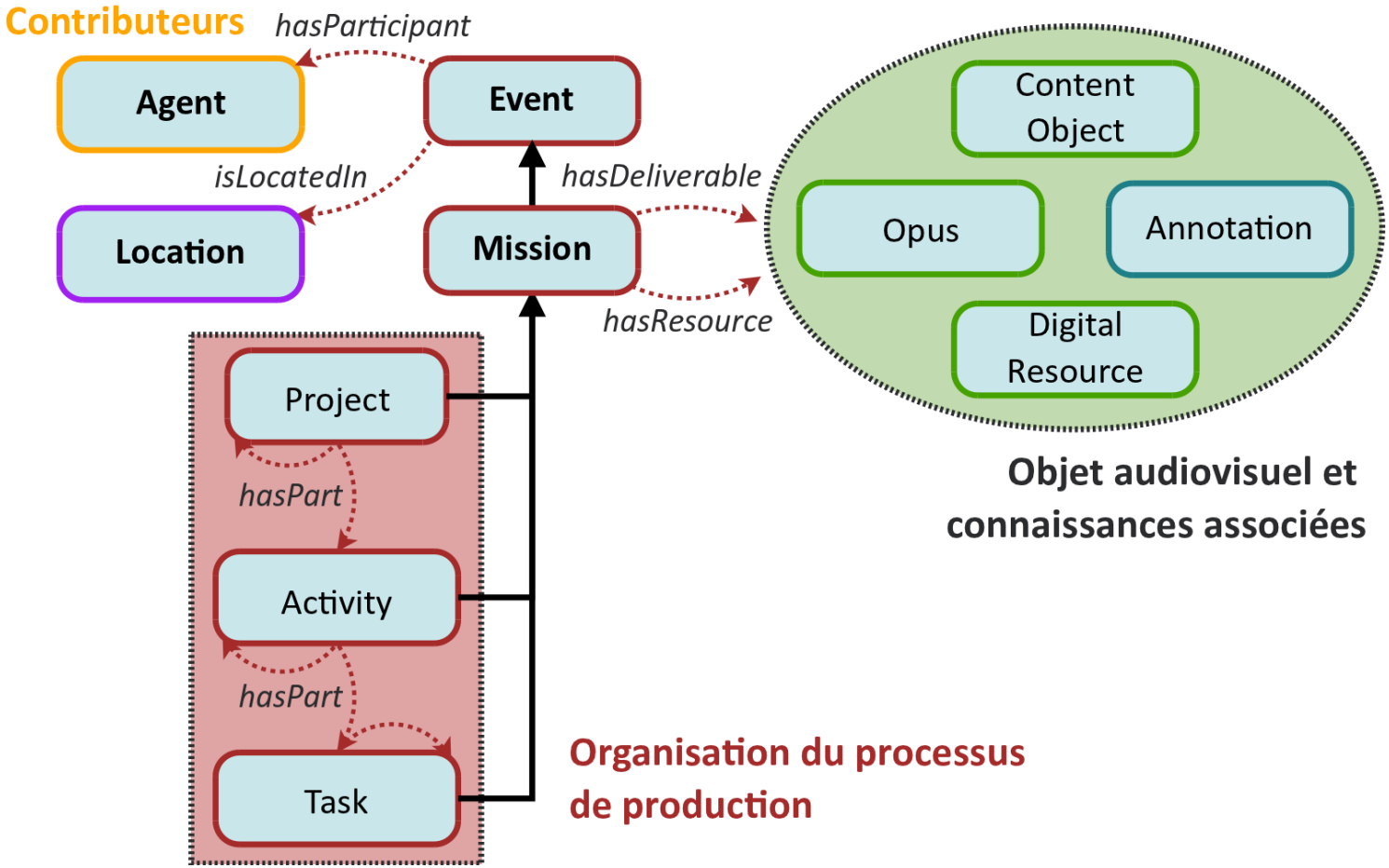


Semantic process modeling



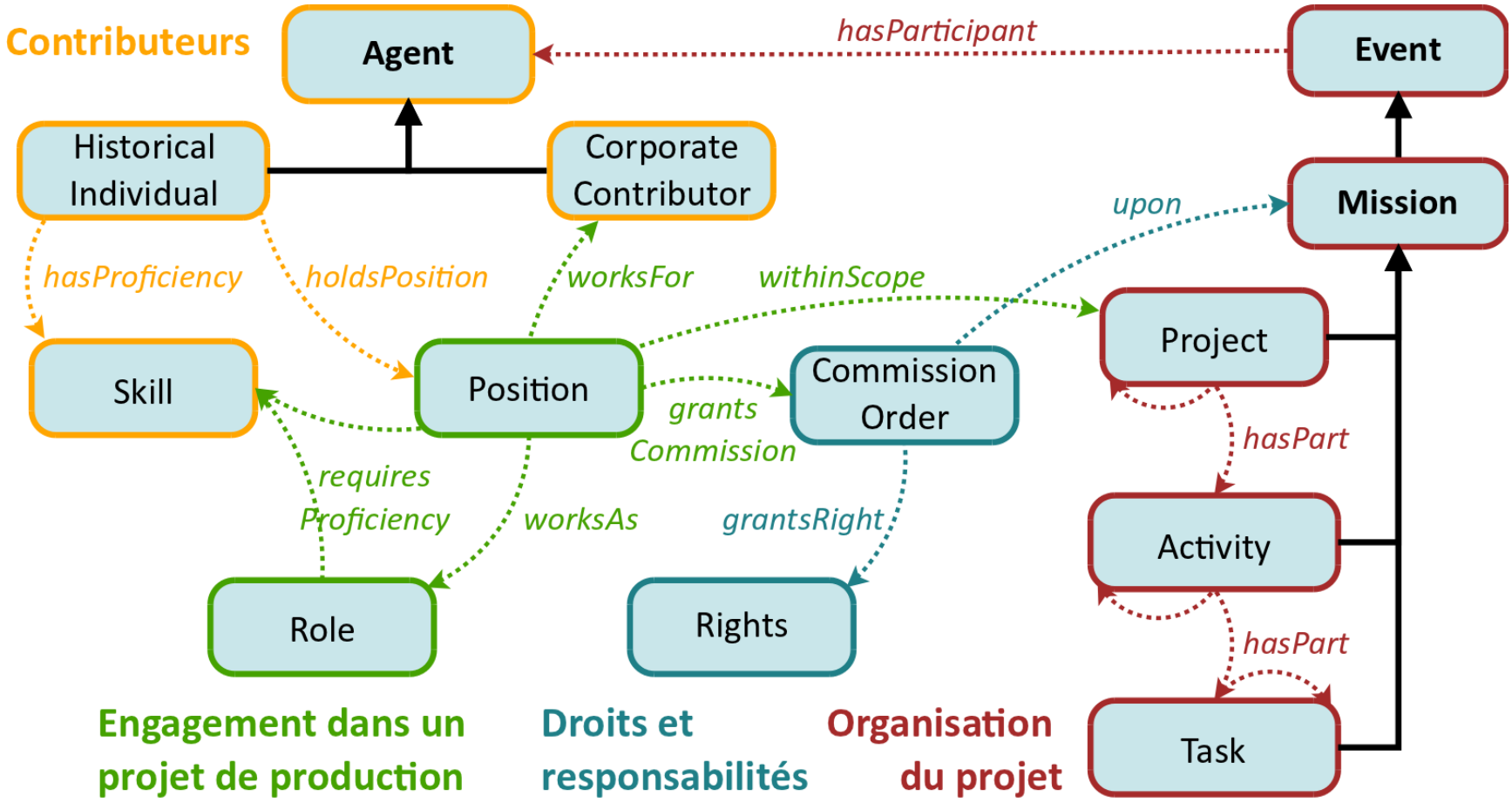
Semantic process modeling

Contributors, mission, deliverable and asset components



Semantic process modeling

Contributors and their commitment in the production



MediãMāp-core

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Release of the conceptual model planned on the TITAN website

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