The European Media Wrapper Round Table-VI

(*Amsterdam, 2011 Friday September 9th*)

Constructing the predictable interoperability through Semantics modeling & IO-Wickets

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Unfortunately, Frank Casado cannot be present today

I will only introduce the subject and give indications on the technology developed by Memnon issued from the MediaMap project

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Plan of the presentation

1. **Interoperability**
2. **Implementing the InterOperability Wickets**
3. **The IPI®Solutions architecture**
4. **Conclusions**

Plan of the presentation

1. **Interoperability**
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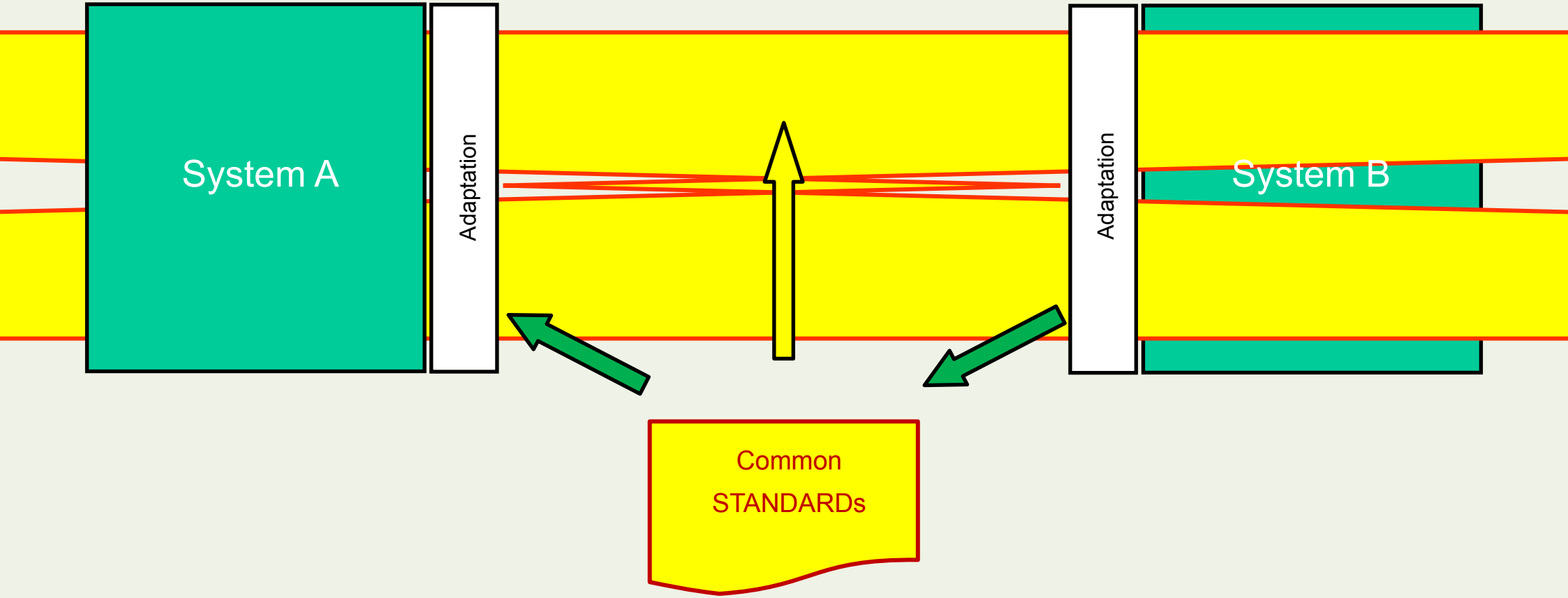
4. Conclusions

The usual & efficient Interoperability construction



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SEMANTIC versus ONTOLOGY

SEMANTIC

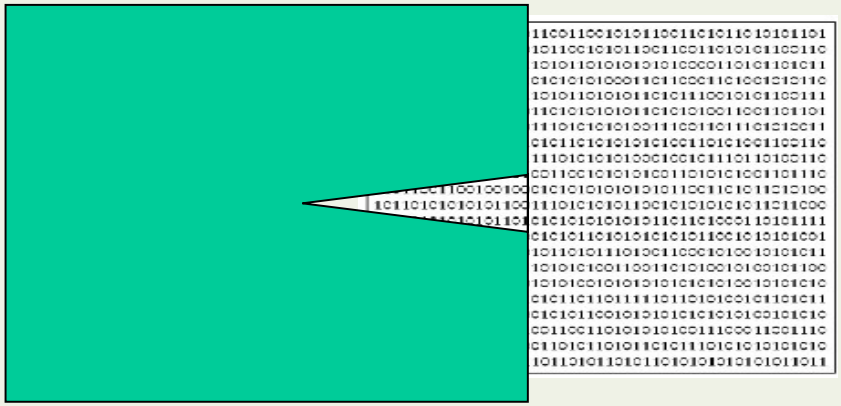
- Gastronomy
- Astronomy
- …
- English
- French
- Chinese
- …

ONTOLOGY

- Gastronomy
- Astronomy
- …
- English
- French
- Chinese
- …

Information

Data



Definitions *(ISO)*

INFORMATION :

The meaning that human assigns to data by means of conventions applied to the data

DATA

A representation of facts, concepts or instructions, in a formalized manner, suitable for communication, interpretation, or processing by human or by automatic means

INTEROPERABILITY in space

ONTOLOGY

…tronomy
…omy

English
French
Chinese
…

ONTOLOGY

Gastronomy
Astronomy
…

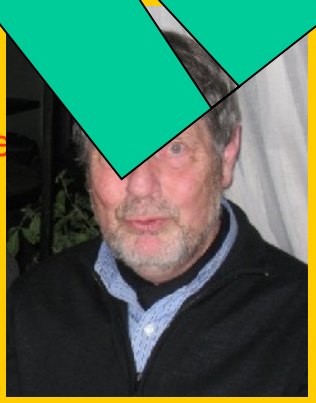
English
French
Chinese
…

SEMANTIC 2010

SEMANTIC 2010

"Human" ↔ "IT" interchange

"IT" interchange



INTEROPERABILITY in time

ONTOLOGY 2009

- Ga…onomy
- A…my
- English
- French
- Chinese
- …

ONTOLOGY 2015

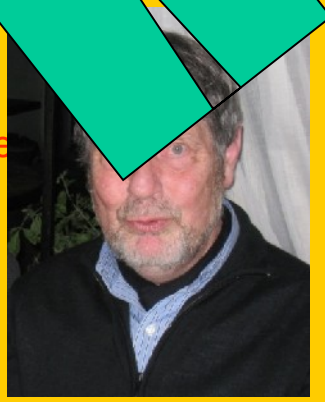
- Gastronomy
- Astronomy
- …
- English
- French
- Chinese
- …

SEMANTIC 2009

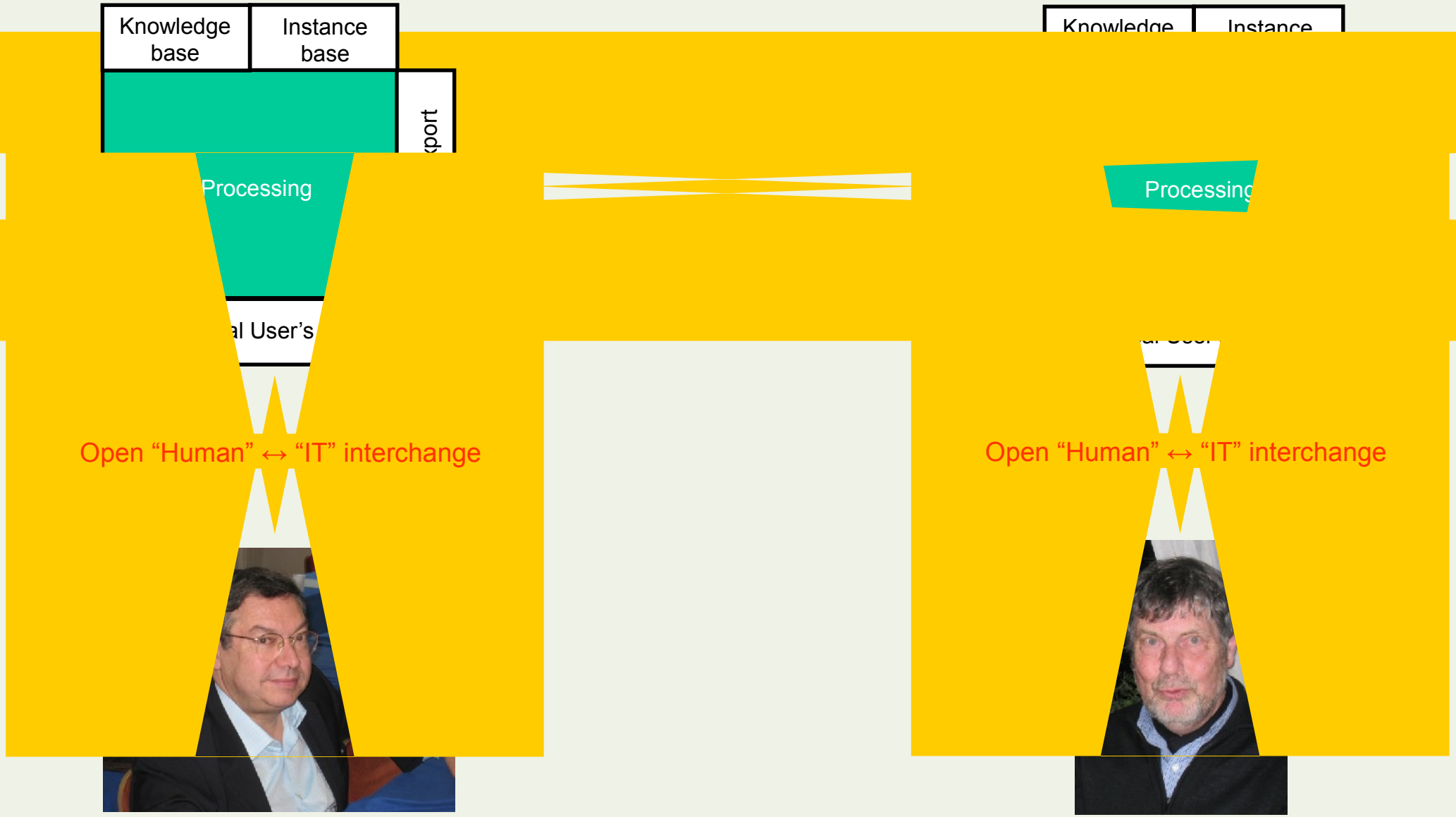
SEMANTIC 2015

“Human” ↔ “IT” interchange

“IT” interchange



The Semantic Interchange [“Human ↔ “IT” ↔ “IT” ↔ Human”]



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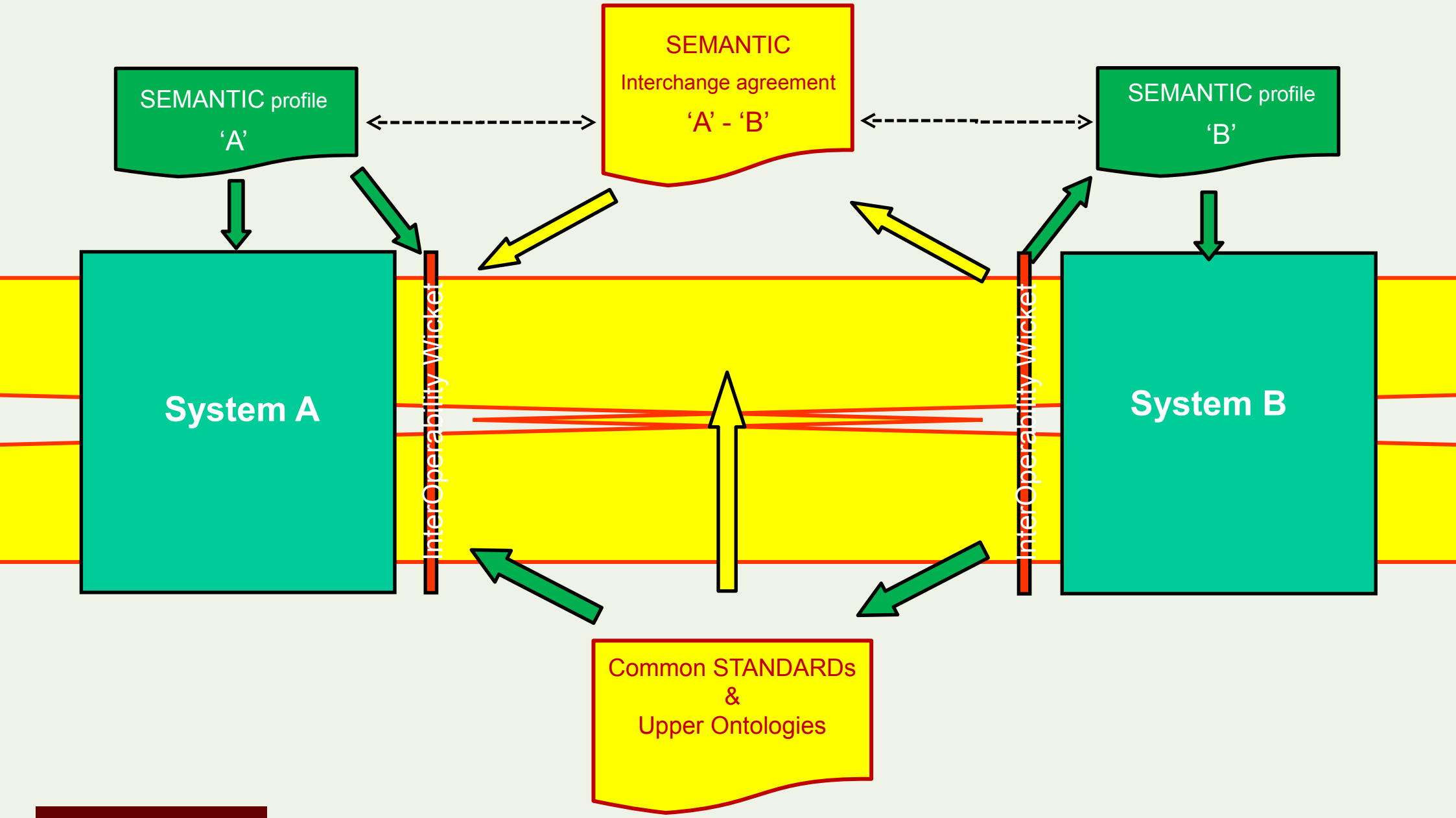
The semantic Interoperability construction



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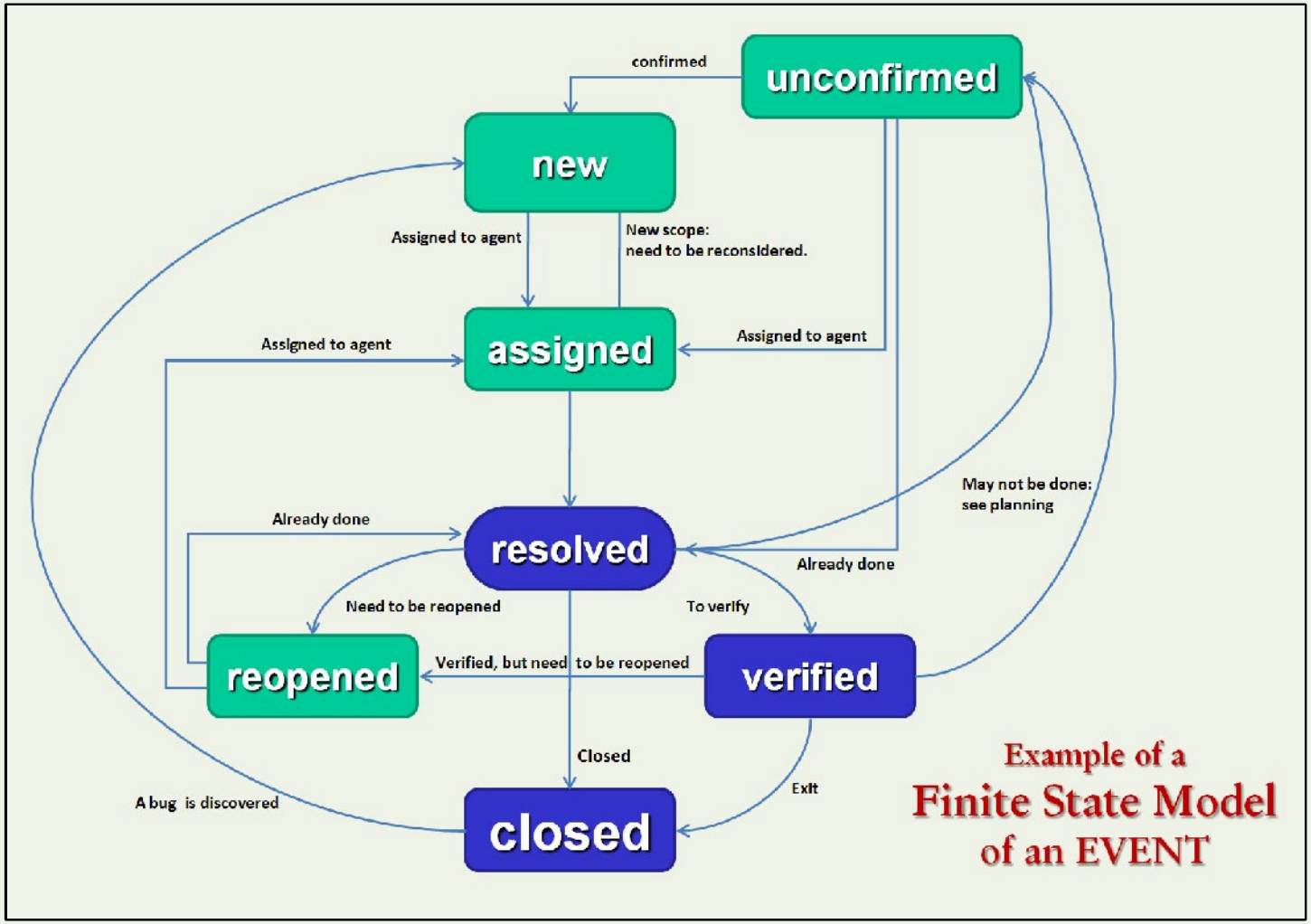
The “InterOperability Wickets” are build as a network of “Finite State Machines” activating and controlling conversion processes and calculation farms.



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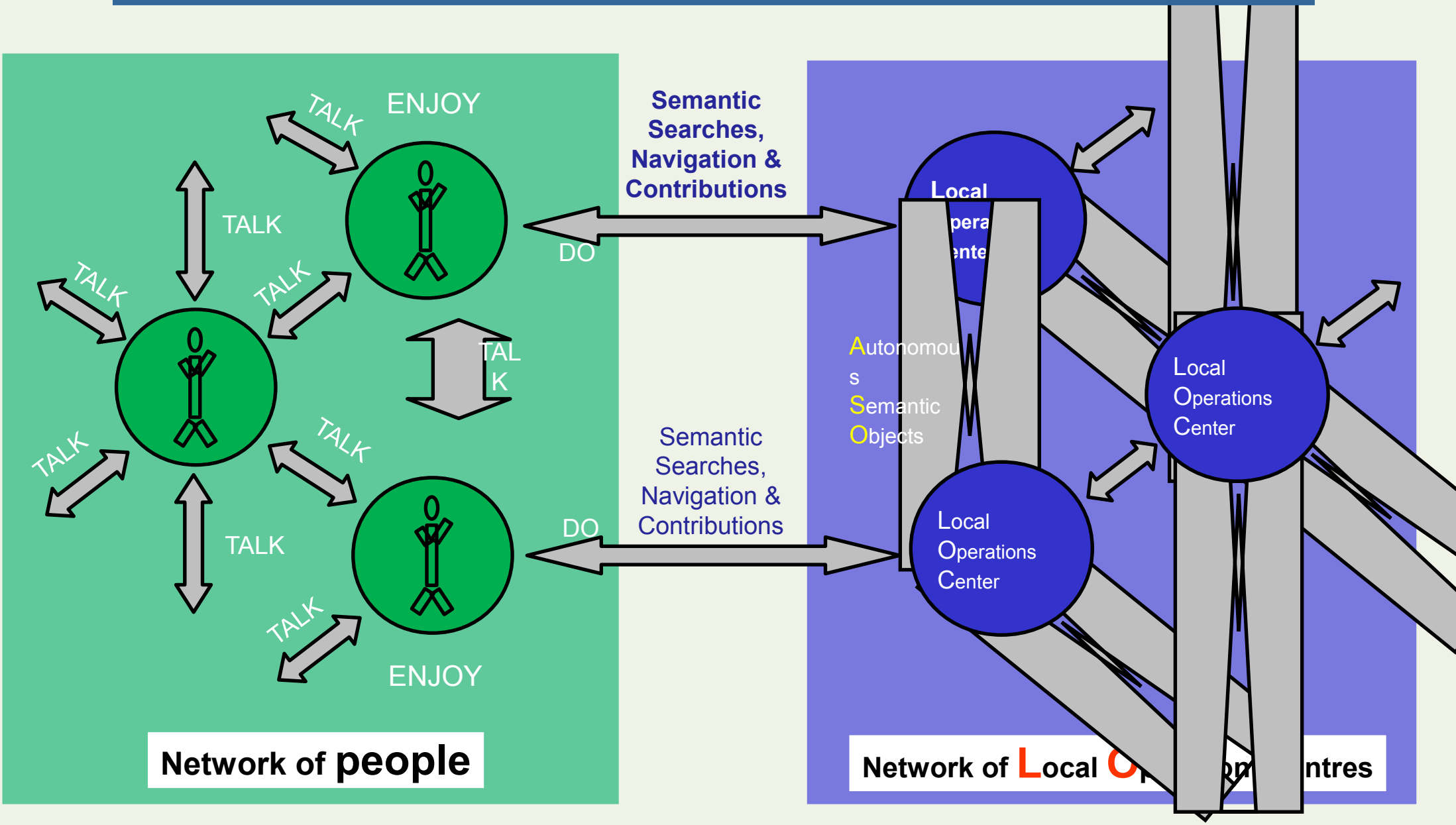
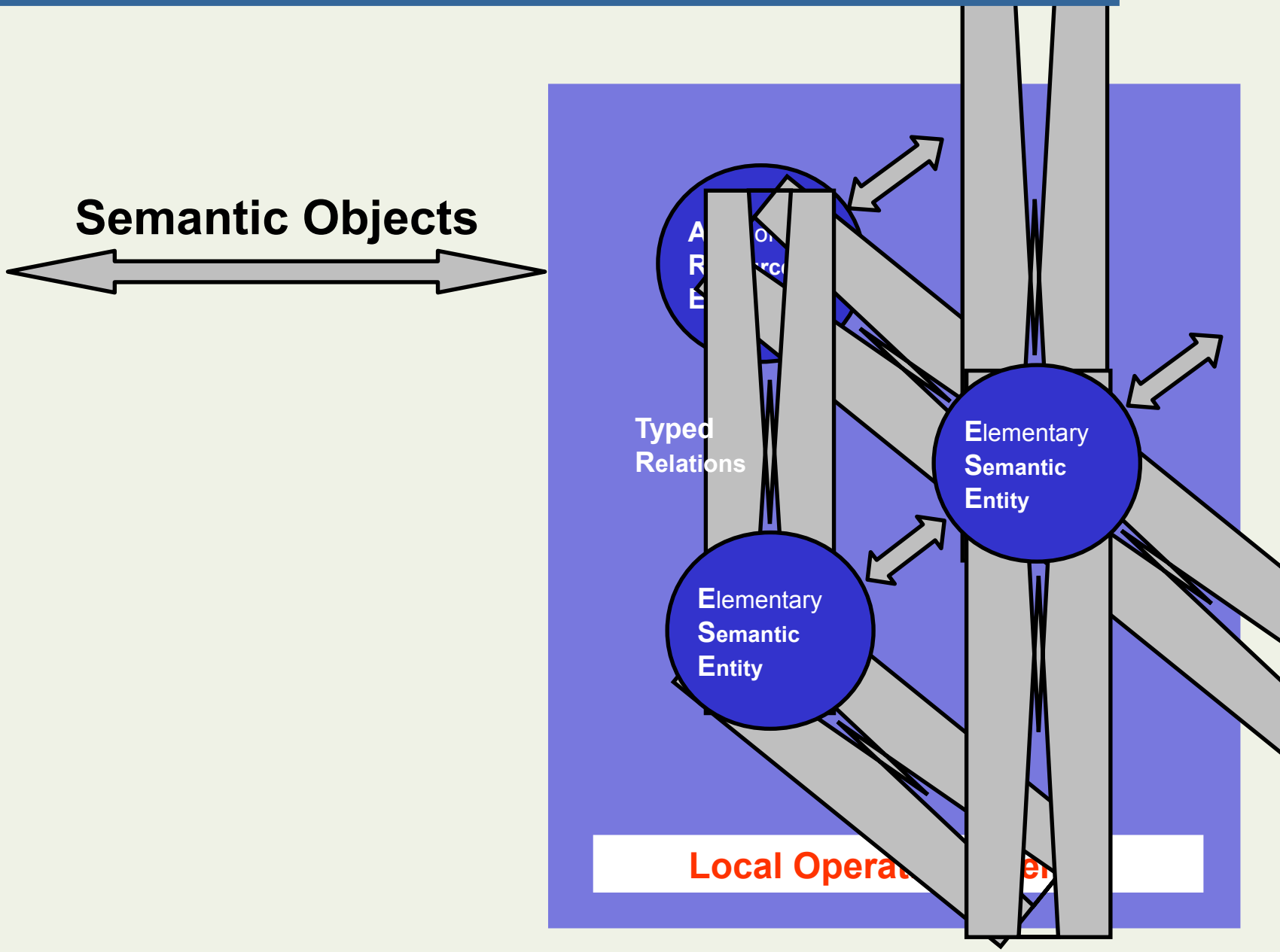
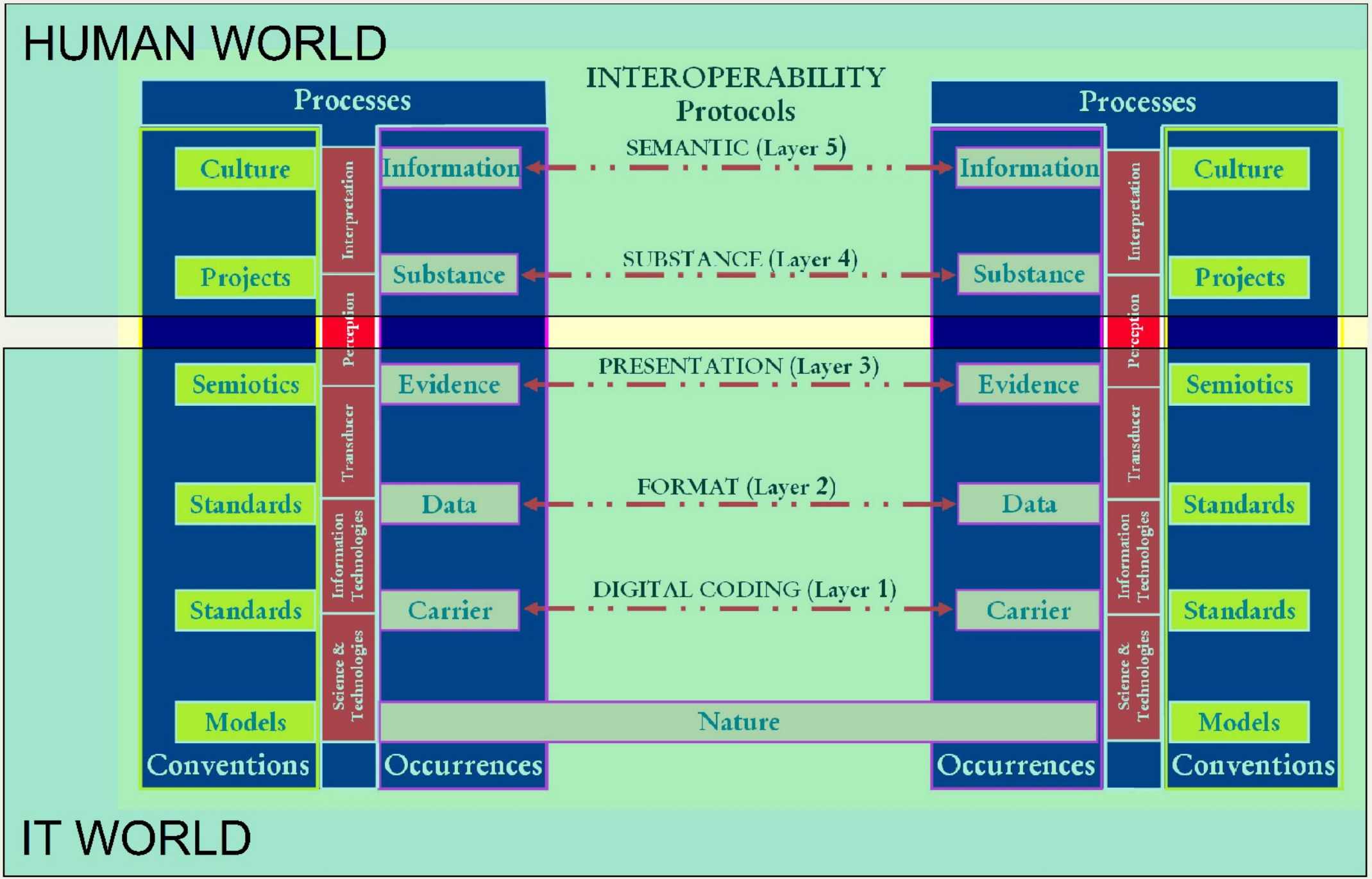
Accessing, Creating, Enriching, Sharing OBJECTS



Accessing, Creating, Enriching, Sharing OBJECTS



INTEROPERABILITY LAYERS



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IPI®Solutions

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Automatic Documentation & Enrichment

Digital Media Files
&
Metadata

Ingest

ISIS

Export

Manual Documentation & Enrichment

Archivists

IPI®Solutions is based on a **Semantic Database**

ISIS (Interoperable & Semantic Information System)

IPI®Solutions

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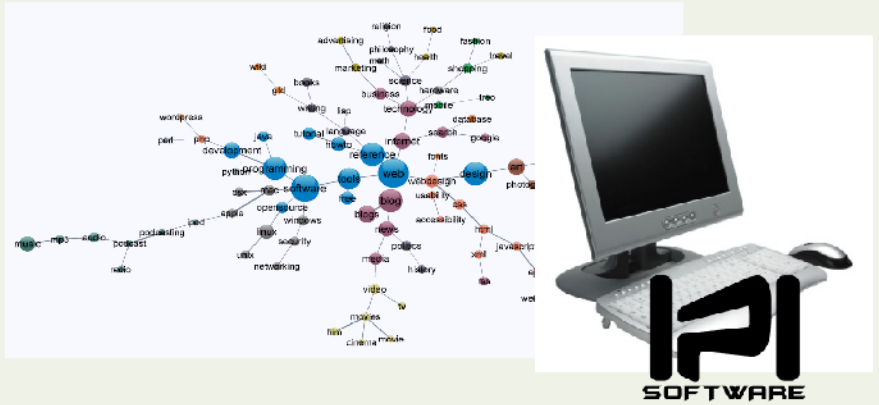

- Stores assets **n-uplet** instead of triplet collection (stores **asset graph** instead of rdf graph)
- Manages **asset states** using final state machine open definitions
- Provides a **type safe API** to ease application development
- Ensures the '**Configuration Management**' of the assets

IPI© Web-Editor

1. Tool Overview
2. Load a repository
3. Browse and edit assets
4. Filter assets
5. Load IPI Edition Context
6. Browse in audiovisual content
7. Associates Segments to Works
8. Edition Workflow
9. Upload and Ingest Media
10. Ingest CSV Metadata
11. Use Semantic Based Interroperability Engine

Typical applications

- Semi-automatic enrichment on **RADIO & TV-News**
- Semi-automatic enrichment of **INTERVIEWS**
- Semi-automatic alignments of **HATS in TV News**
  (*Presented in the next paper*)

General description

IPI Solution is a « Pre-indexation » solution allowing:

- Flexible ingestion of **metadata**
- **Automatic analysis** and indexation of media content
- Manual **web tool** for metadata edition, enrichment and synchronization with media
- Flexible export of metadata to a **DAM / MAM**

IPI®Solution is:

A software and service solution framework:

- **IPI®ISIS**: an Interoperable & Semantic database
- **IPI®Farm**: a Grid computing solution for advanced multimedia analysis and processing
- **IPI®Editor:** a tool to edit and create metadata and visualize them synchronously with the media timeline
- **IPI®SBIE:** a semantic based interoperability engine (I/O engine)
- **IPI®Studio:** to design semantic data models and process flows
- **IPI®Dashboard:** a Web Application to monitor and interact with all the other tools, and to navigate across the semantic data content.

14 Ingest & Export

- **Digital Media Files**:
  - **Many Audio & Video formats supported**
    (WAV, AVI, BWF, MPEG, MXF, Matroska, JPEG-2000 …)
  - **Many Audio & Video Codecs supported**
    (AAC, FLAC, MP3, AC-3, H.263, H.264, MPEG-1, MPEG-2, MPEG-4 Part 2, JPEG-2000, QuickTime, WMV,...)

- **Metadata & Containers:**
  - METS (various profiles)
  - NewsML-G2
  - CSV documents
  - MXF (simple profiles)
  - …

Functionalities already available:

- **(Audio) Acoustic classification**: separation of speech and music signal (also detects telephony vs. microphone speech, studio

3 Manual Documentation & enrichment

Manual Validation/Edition

IPI®Editor

Based on automatic processing results, the **IPI®Editor** allow users to:

- Enrich items metadata
- Create segments in the timeline and associate any metadata nodes to them
- Ease and speed up browsing within the enriched media thanks to automatic segmentation markers.

The **IPI®Editor** allows to start and manage **IPI®Farm** tasks

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CONCLUSIONS

1. **The move to semantics cannot be avoided**
2. **The modeling of the processes by semantics can be made**
3. **It allows the flexible implementation of InterOperability Wickets**