TERMINOLOGY STANDARDIZATION AND TRANSLATION STANDARDS

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ISO/TC 37
Terminology and other language and content resources

Terminology standardization

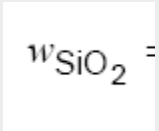
- **Standardization of terminologies**
- **Standardization of terminological principles and methods**
- **Standardization of methododological and technical aspects of terminology applications**
- **Related standards of all sorts**
- **ISO/CDB – Concept DataBase**

Translators should know about

- **standardization in general** (a bit)
- **pertinent standardization and certification**
- **standard-compliant technology** (quite a bit)

ISO/TC 37 (1) – *from ISO/TC 37 BP*

Terminology is knowledge representation

- **Terminology as a type of language resource is a set of terms that represent concepts of a specific knowledge domain**
- **Terminologies also include non-linguistic concept representations such as graphical symbols, formulae, etc.** 
- **Terminologies are compiled according to terminographical methods and presented as dictionaries, databases, etc.**

ISO/TC 37 (2) – *from ISO/TC 37 BP*

Terminologies

- **are means of domain communication**
  play a crucial role in education and all situations of professional and scholarly communication (incl. translation and interpretation)
- **are means of access to other kinds of information (objects)**
  indispensable for information/content management, archiving, etc.

Terminology standardization

- **Standardization of terminologies**
  - **Terminological data**
    - **Linguistic and non-linguistic representations**
      - **Designation(s):** terms, abbreviations, graphic symbols, formulas, acoustic symbols, etc.
      - **Description(s):** definitions, explanations, non-linguistic [descriptive] representations, etc.
    - **Source-related data** & copyright info
    - **Data management related data (field, record, holding)**
    - **Classification (multiple)**
  - **Terminology-related data: names, phraseology, ...**
- **Standardization of terminological principles and methods**

➔ **generic for many types of other items of structured content**

Complex content items

Increasingly terminological information and other kinds of structured content
(at the level of lexical semantics)

- **are combined with each other**
- **embedded in each other**

often forming complex content items
(still at the level of lexical semantics)

Structured content: Traffic informatics

Way to the airport – turn right in 5 km

Way to the train station – down to the right

ZONE = verbal
red ring = (morphology) prohibition sign
30 = micro-proposition: max speed 30km/h

➔variable message sign boards
communicating with car-driver system

Structured content: Product catalogues

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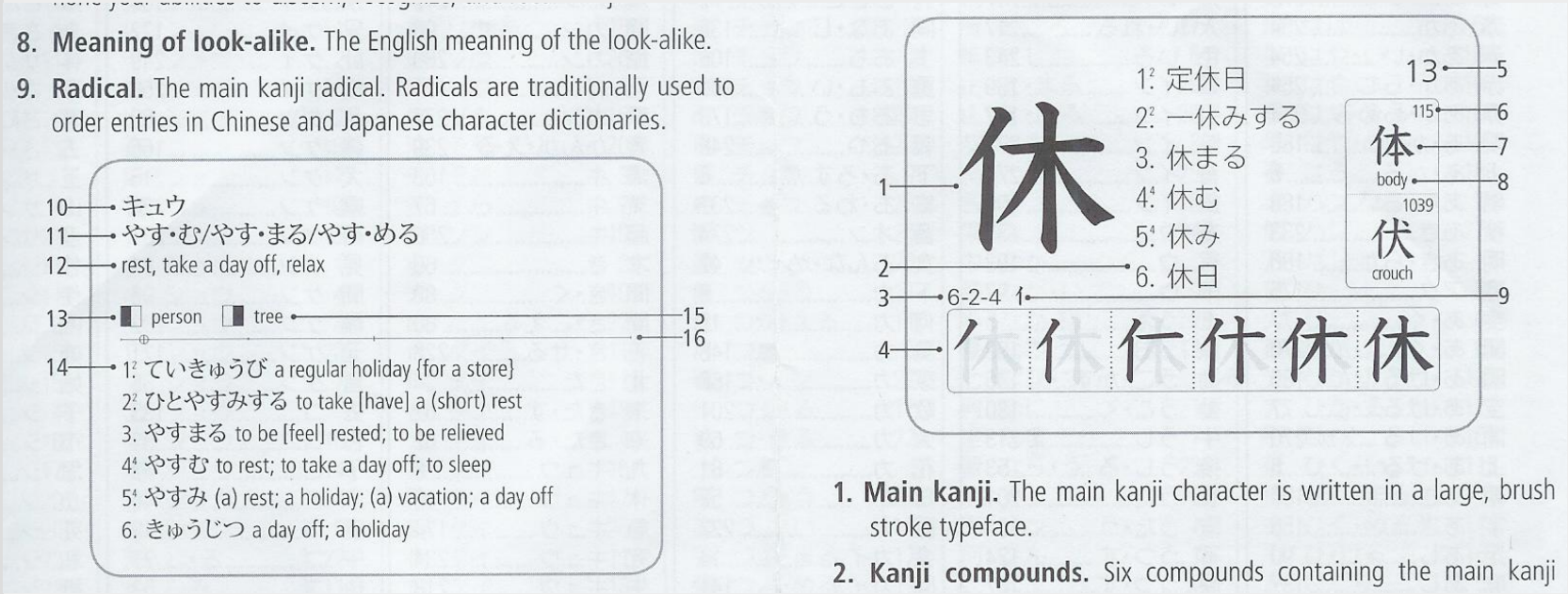
e.g. complex entry in a product catalogue

- **Name of company** *(® enterprise)*
- **Name of product** (model) *(™ enterprise)*
- **Generic name of product** *(e.g. © HS)*
- **Class (name under which the product falls)** *(e.g. © eCl@ss)*
- **Verbal/textual description** *(© enterprise)*
- **Picture** *(© enterprise)*
- **Technical data**
  - (unified) branch properties *(e.g. © OAGi)*
  - Standardized characteristics *(e.g. © DIN)*
  - Enterprise product specific data *(e.g. for collaborative business)*
  - Enterprise internal data *(maybe confidential/secret)*

Structured content: Kanji Flashcard 休



8. **Meaning of look-alike.** The English meaning of the look-alike.
9. **Radical.** The main kanji radical. Radicals are traditionally used to order entries in Chinese and Japanese character dictionaries.

10 キュウ
11 やす・む/やす・まる/やす・める
12 rest, take a day off, relax
13 person tree 15 16
14
1. ていきゅうび a regular holiday {for a store}
2. ひとやすみする to take [have] a (short) rest
3. やすまる to be [feel] rested; to be relieved
4. やすむ to rest; to take a day off; to sleep
5. やすみ (a) rest; a holiday; (a) vacation; a day off
6. きゅうじつ a day off; a holiday

1 休
2
3 6-2-4 1
4
1. 定休日
2. 一休みする
3. 休まる
4. 休む
5. 休み
6. 休日

13 5
115 6
体 7
body 8
1039
伏
crouch
9

1. **Main kanji.** The main kanji character is written in a large, brush stroke typeface.
2. **Kanji compounds.** Six compounds containing the main kanji

ISO/TC 37 (3) – *from ISO/TC 37 BP*

Language resources

- **Standardization is also needed for other language resources (mono- and multilingual), e.g. speech data, written (full) text corpora, lexical (general language) corpora and their processing methods**
- **Relevant research areas are computational linguistics and computational lexicography, language engineering, etc., which have provided industrial best practices to be turned into official standards**
- **This process will contribute to the further development of the language industries at large**
- **Similar to terminologies, language (and other content) resources in general have to be considered as multilingual, multimodal and multimedia from the outset**

Terminology management + language and content resource management

- **Language resources:**
  - **Text corpora → tagging** (on the basis of grammar models)
  - **Lexicographical data**
    - Words
    - Collocations
    - Morphology
  - **Terminology & terminological phraseology**
  - **Speech data**
- **LR management:**
  - **Preparation, maintenance, exchange, …**
  - **Metadata** (incl. bundling/bindings etc.)
  - **Data modelling & metamodel(s)**
  - **Data exchange / interoperability**
  - **etc.**

Structured content today (1)

- Terminology
  - Nomenclature, taxonomy, typology, ...
  - Glossary, vocabulary, ...
  - Terminological phraseology
  - Graphical symbols and other non-linguistic representations?
  - Properties, characteristics, attributes, ...
  - Ontologies
  - Names, names, names, ...
- Thesauri, classification schemes, keywords
- Encyclopedic (knowledge) entries
  - Knowledge-enriched terminology entries
  - (explained) proper names, ...
- Ontologies, topic maps, ...
- +Lexicographical data and other language resources
- +other content resources

are often contradictory, NOT coherent, integrated, reliable, ...

Structured content today (2)

- **According to content management** (technical p-o-v):
  - **Texts: → translation, localization, internationalization…**
  - **Speech: → communication…**
  - **Image: → CAD/CAM…**
  - **Multimedia: → video, presentations…**
- **At the level of lexical semantics** (content p-o-v):
  - **Terminology** → basis of domain knowledge
  - **Language resources**
  - **Other content resources**

  – *incl. non-verbal representations*
  - **Meta-content** – i.e. content about content
  - **Metadata** – i.e. data about data (data categories)

Practical problems

Standardization of terminologies (and other kinds of structured content)

- **is difficult (if done properly)**
  needs a minimum of methodological experience
- **lacks "customized" training**
  for terminology standardizing experts in given subject fields
- **is not "attractive" (for up-and-coming experts)**
  hence the common attitude: "leave it to the old hands"
- **is time consuming and therefore expensive**
  not "rewarding" enough (compared to the great efforts involved)
- **no "user-friendly" system support**
  for cooperative committee work in terminology standardization
- **little coordination**
  across all standardization (incl. terminology standardization)
- **only a limited degree of acceptance**
  for standardized terminologies beyond standardization
- **"traditional" working method out-dated, etc.**
  e.g. working group or sub-committee of terminology experts

STRUCTURED CONTENT DEVELOPMENT

- **Time consuming → costs**
- **Cost of preparation?** calculatable, but…
  → maintenance: quality, reliability, liability, …
- **Traditional methods → web-based methods**
- **Duplication of efforts? → content management**
- **Application of tools → technical interoperability**
- **Multilinguality → localization principles**
- **Distributed work → workflow management**
- **eContent → mContent**

→STANDARDIZATION → INTEROPERABILITY

Content interoperability standards

- **Content-related requirements**
- **Workflow methodology**
- **Metadata and metadata repositories**
- **Data modelling principles and requirements**
- **Micro datamodels**
- **Metamodels**
- **Content repositories**
- **Federation of repositories**
- **Business models** (incl. copyright management…)
- **…**

Terminology standardization

- **Hitherto prominently verbal-linguistic term-oriented approach to terminological data management needs to take non-linguistic representations of concepts as fully equivalent to verbal-linguistic representations into account.**
- **Thus a generic datamodel can be achieved, which is applicable to all kinds of "structured content" (here: content items at the level of concepts or lexical semantics).**
- **Since terminological data and other kinds of structured content have a lot in common, it seems appropriate to handle them with one and the same theoretic-methodological approach.**

Increasing use of DBs in standards development

Result of an survey done by ISO Central Secretariat:

- **June 2005: Approximately 15 TCs/SCs**
- **June 2007: Over 40 TCs/SCs**
- **March 2006: First DIS disseminated in the form of a database (ISO/TC 61/SC 1 – *Plastics vocabulary*)**

→ Emerging approach to standards development

ISO/CDB – Content (1)

ISO standards containing terminology

- **Vocabulary standards: app. 800**
- **Other standards with terminology: app. 8000**
- **App. 180.000 ~ 200.000 terms in ISO standards**
- **→ Cooperation with EAFTerm (China, Japan, Korea):**
  ISO/CS obtained around 120.000 terminology records from ISO standards
  through a project implemented by CNIS

ISO/CDB – Content (2)

- **Graphical symbols**
  - **App. 4500 (in ISO standards)**
  - **App. 1000 (in IEC standards)**
- **Other types of representations (codes, product properties etc.)**
  - **Numbers - ????**

Applicability of the DB approach

Standard consists in full or in part of a "collection of items", e.g.

- graphical symbols
- terms and definitions
- product properties
- data dictionaries of all types
- classification systems
- codes (for various types of objects)
etc.

Current use of databases by ISO committees

Advantages:

- **Large number of items can be easier managed and maintained**
- **Consistency can be easier ensured**
- **Database tools readily available**

Challenges/problems:

- **Lack of support in terms of IT infrastructure**
- **Grass root developments**
- **Lack of compatibility (e.g. regarding data categories), maintenance problems**
- **Access modalities to content are unclear**

TMB AHG (1)
"Standards as databases"

Established by ISO Technical Management Board in June 2005 with the mandate to investigate issues relative to standards as databases, incl.

- **Possibilities for harmonization**
- **Implications related to standards development procedures & technical infrastructure**
- **Access modalities, incl. commercial aspects**

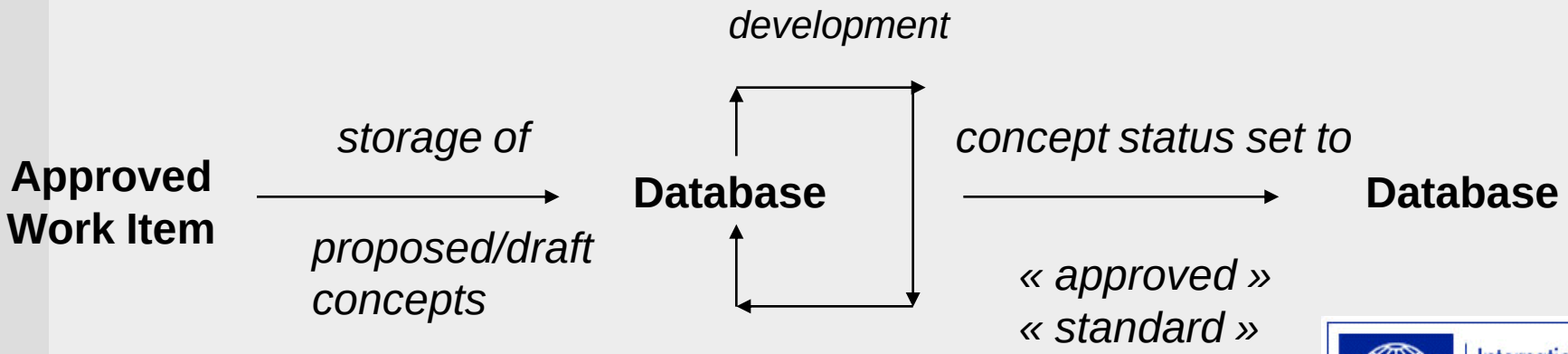
TMB AHG (2) – Main output

- **Development and maintenance procedure for standards in database format**
  (approved by TMB in June 2007 – Annex ST to ISO Supplement to the Directives)
- **Specification of basic functions of a concept database**
- **Data model for CDB (extension of ISO 16642:2003 to address all kinds of concepts irrespective of the type of their representation)**
- **Definition of four access layers related to different types of objects in the CDB (approved by CPSG in June 2007)**

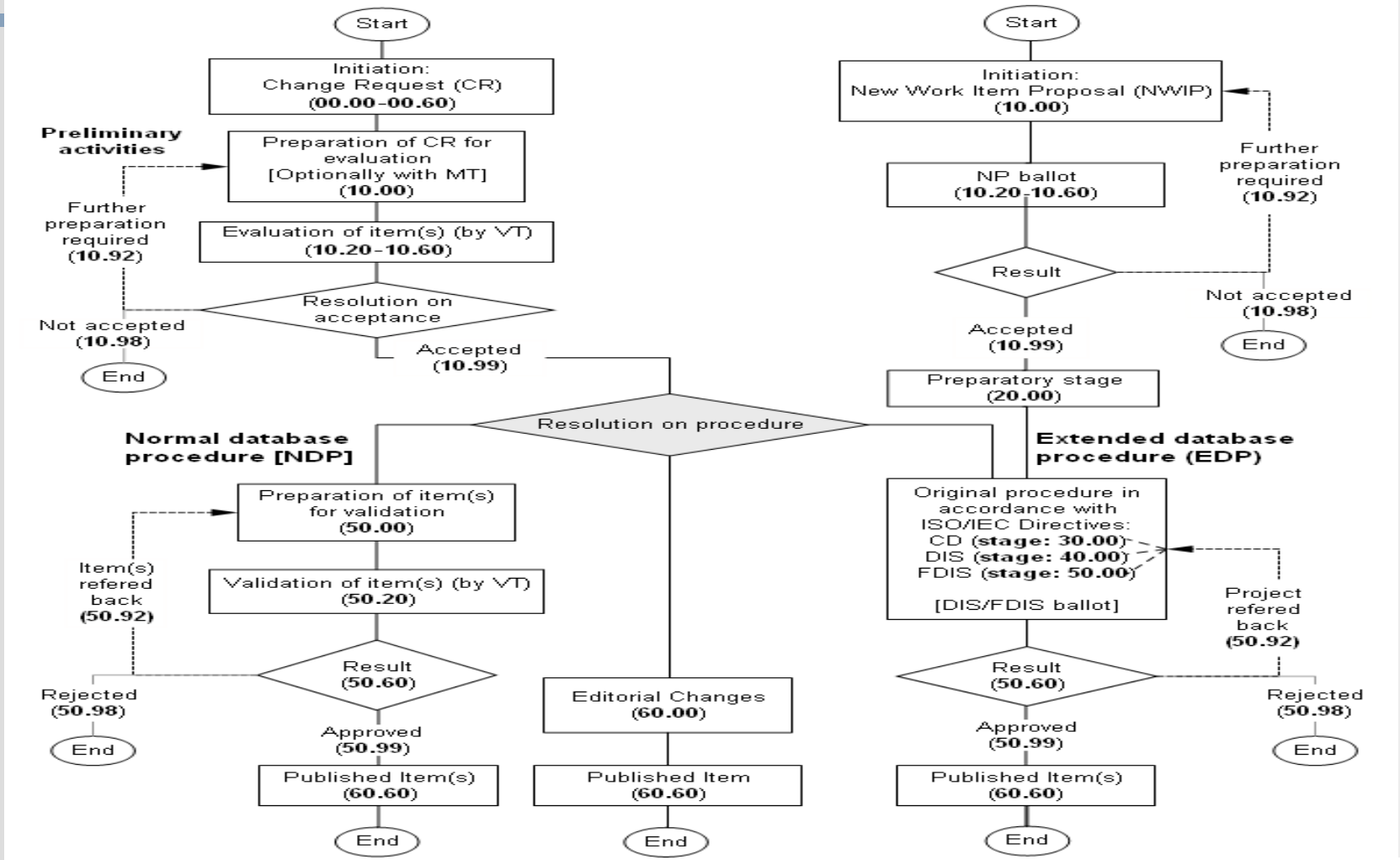
Use of databases

Use type 1: For maintenance *after* development

Use type 2: For development from scratch



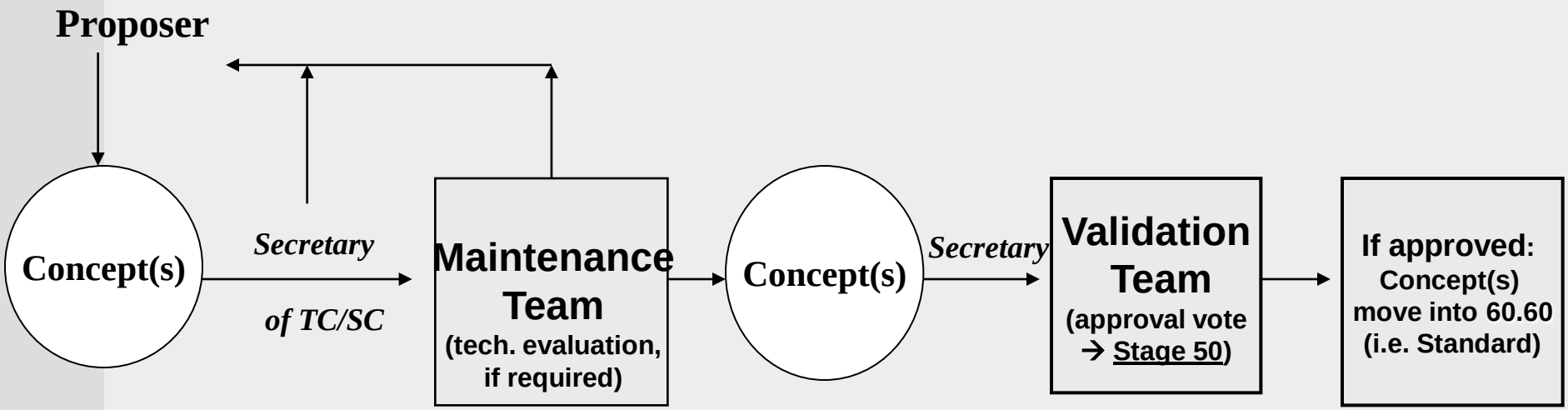
ISO/CDB - ISO procedure (1)
(Annex ST to ISO Supplement)



ISO/CDB – Procedure (2)

- "Source/Master" of the standard:
  ➔ Stored in the database (not a document!)
- Maintenance and development of standards by a committee through defined processes
- Procedure includes four sub-processes:
  - (1) Development of new standards (start with New WI Proposal)
  - (2) Maintenance of existing standards (start with Change Request)
  - (3) Withdrawal process (start with Change Request)
  - (4) Systematic review of standards

ISO/CDB – Procedure (3)
« Normal » DB-procedure [2 – 6 months]



Implementation

- Cooperation agreement with software partner
- Cooperation mode and input from ISO committees to be organized
- Implementation time frame: 2007 Q4 – 2009 Q2 (first release)
- Review of implications of the new procedure & implementation by ISO/CS
- Integration with the production chain in the Central Secretariat

ISO/CDB - Access modalities

- Free access-layer (thumbnails, basic record elements) for navigation in the content
- Terminology freely available ("ISO electronic dictionary")
- Web-access to individual items
- Federated development/maintenance of content on the basis of role based permissions
  - → Project teams, PLs, PEs / Review groups / Other committees

http://cdb.iso.org

Thank you for your attention

ADDRESS

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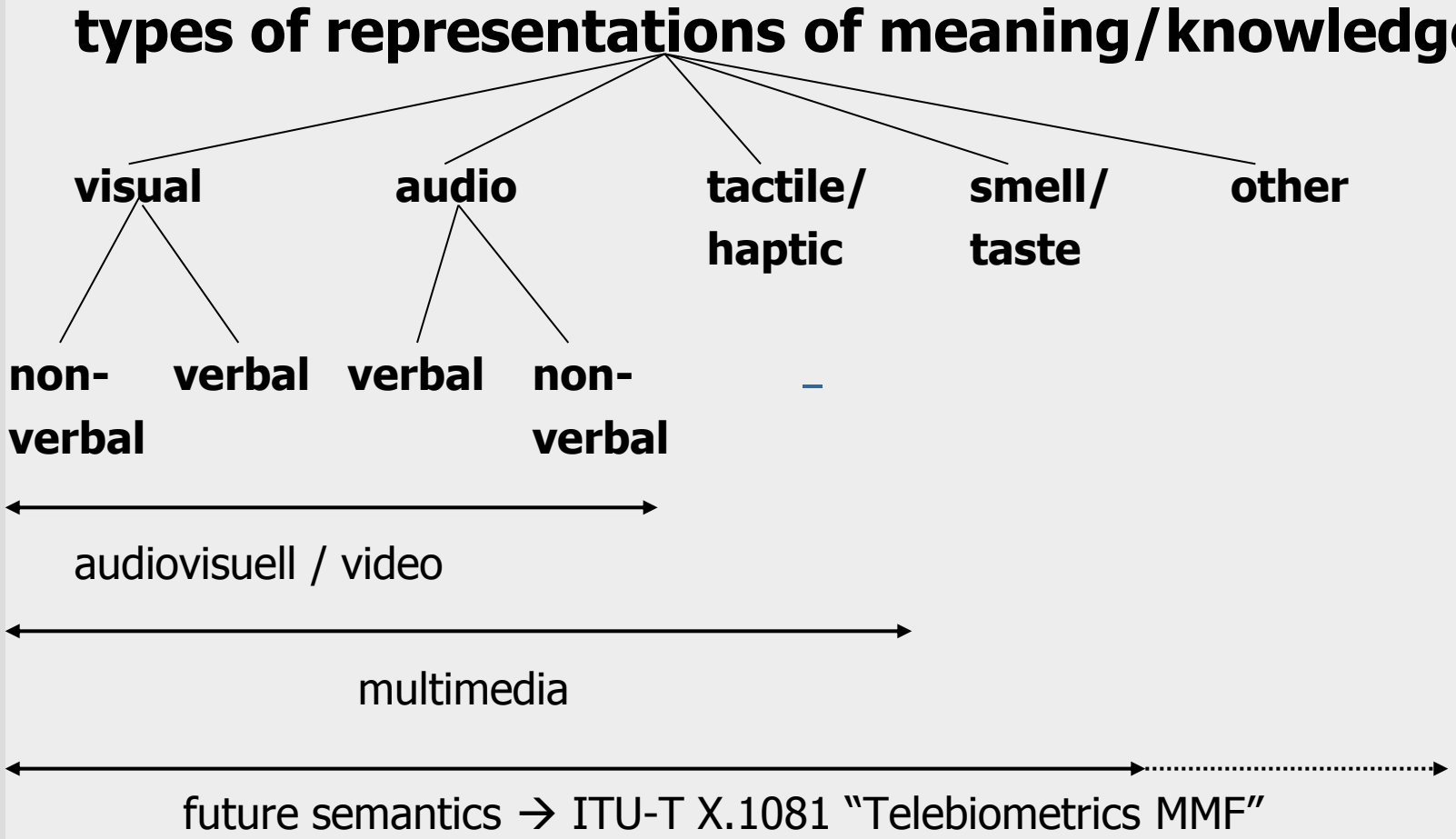
ISO/CDB – Data model

- **Extended data model based on ISO 16642:2003**
  - **Concept-oriented**
  - **Support for concept representations other than terms (graphical symbols, codes etc.)**
  - **Multilinguality**
- **Model needs to be further tested with other types of representations**

Structured content (1):
content entities at the level of lexical semantics



TYPES OF SD-RELATED REPOSITORIES

- **Classification etc.**
  →multiple
- **Properties**
  →acc. to types
- **Data dictionaries**
  →acc. to types
- **Metadata**
  →acc. to types
- **Terminologies**
  →acc. to types & domains
- **Ontologies**
  →acc. to types & domains

→huge amounts of repository items
to be taken care of in federated registries

ISO/TC 37 (4) – from BP

Terminological knowledge engineering

- **Terminology science provides the methodology for the preparation, recording and processing (as well as re-use) of terminological data**
- **Terminography supplies the tools for the efficient preparation and processing of terminological data which in turn are further processed into dictionaries, vocabularies, terminology databases, etc.**
- **Terminological knowledge engineering provides the tools to represent, manage and access knowledge of different degrees of complexity**
- **Knowledge(?)/content management cannot be efficient without a strong terminology component (comprising terminological data, methods and tools)**

DATA MODELS & METADATA

1. ISO/TC 37 ➔ fundamentals of multilingual mContent development *(incl. language resources and LR management)*

2. application areas: eBusiness, eHealth, eLearing, eGovernment, product data management, ...
   JTC 1/SC 2, 7, 22, 29, 31, 32, 34, 35, 36; ISO/TC 154; ISO/TC 184/SC 4; ISO/TC 215; IEC/TC 3, 93

3. other initiatives and consortia:
   OIDDI - Open and Interoperable Data Dictionaries Initiative
   OASIS, OMG, OAGi, ...

➔ **(informal) coordination & harmonization: MoU/MG**