

# INSEMTIVES

## Incentives for Semantics

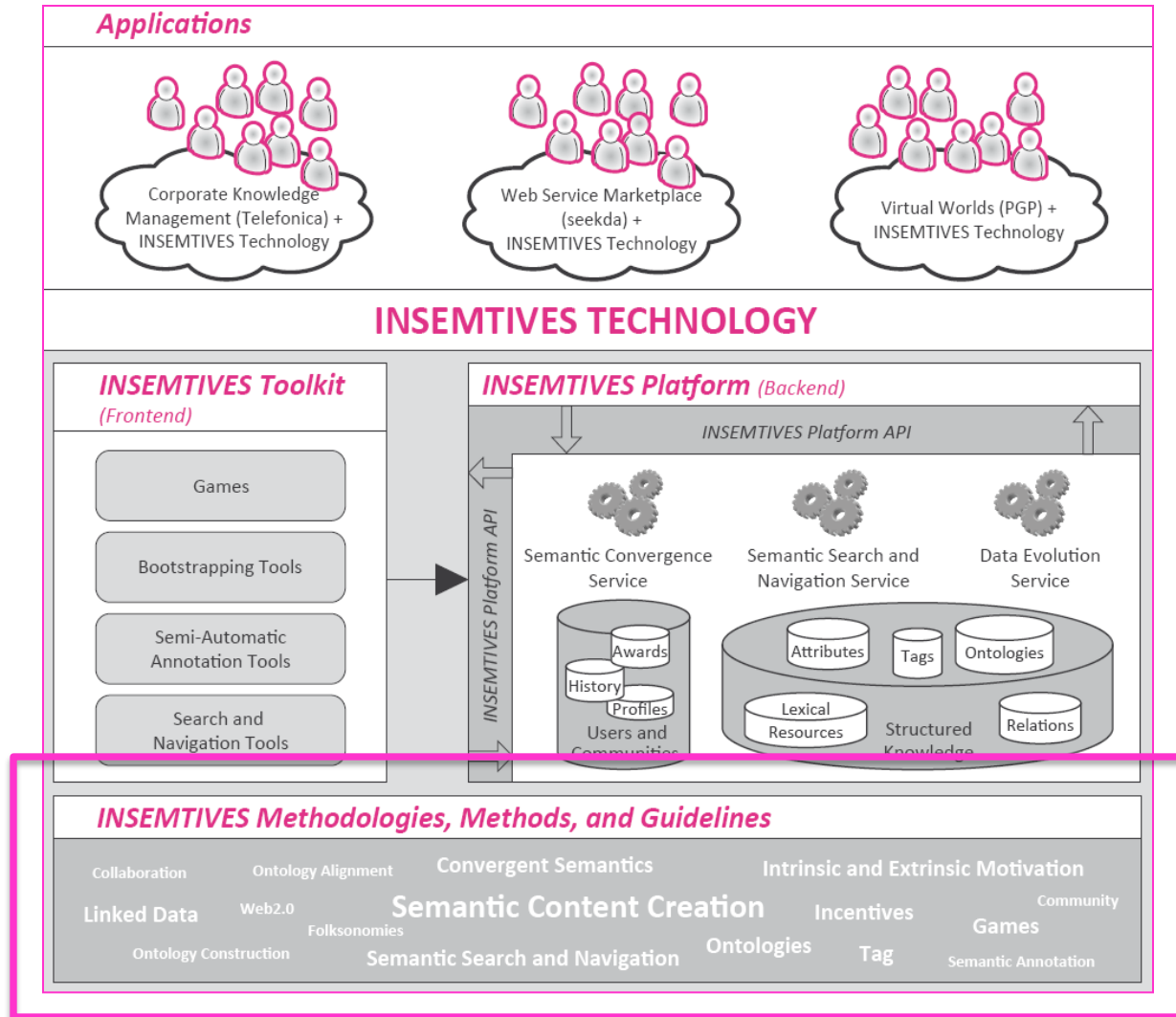
### WP 1

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# Overview





# Challenge and motivation

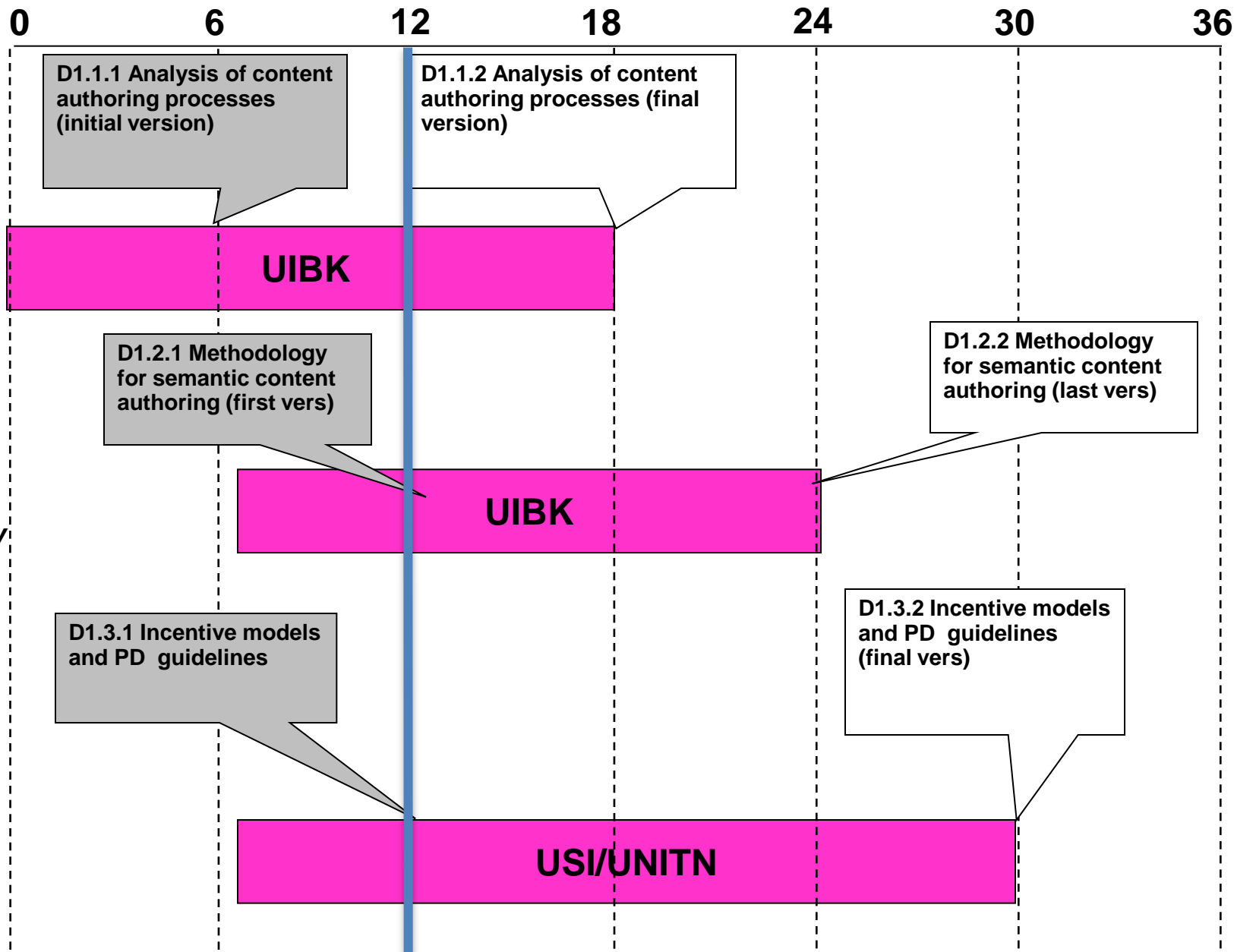
- **Bringing technical infrastructures and social opportunity structures together**
- Some tasks in semantic content creation require the human in the loop, thus:
  - How increase motivation of end users?
  - How should tools/ Technologies be designed to foster human contribution?



# Aims and outcomes

- Analysis of semantic content creation tasks.
- Identification of human-driven semantic content creation tasks.
- Defining incentive models for semantic content creation tasks.
- Specifying a methodology for semantic content creation including incentives-related considerations and participatory design.

# Work plan view





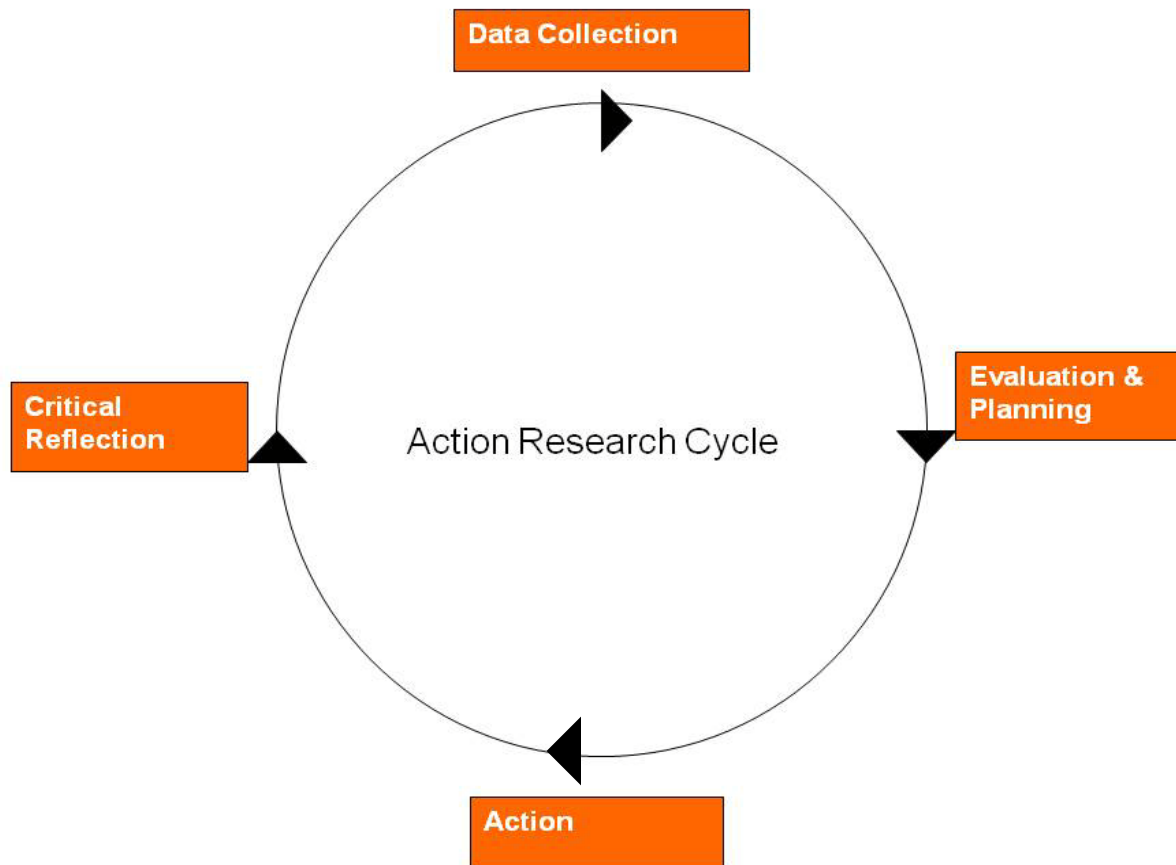
# Research approach and methods

- User-centered approach and practice orientation
- Literature Review (Psychology, Economics, Design Science)
- Requirements Analysis: State of the art
  - Usability lab tests
  - Expert walkthroughs
- Generalization from use case studies
  - Semi-structured interviews
  - Focus group discussions and Workshops
- Field experiments and fine tuning



# AR process model

- Action Research: Evolutionary, cyclic process model





# Methods (examples)



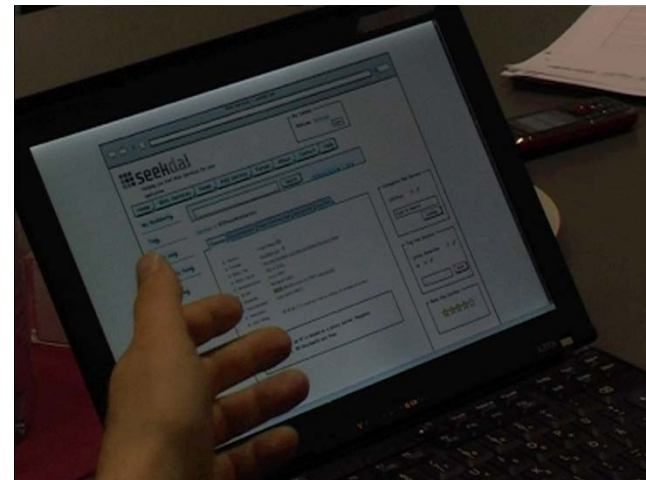
Usability Test



Usability Test



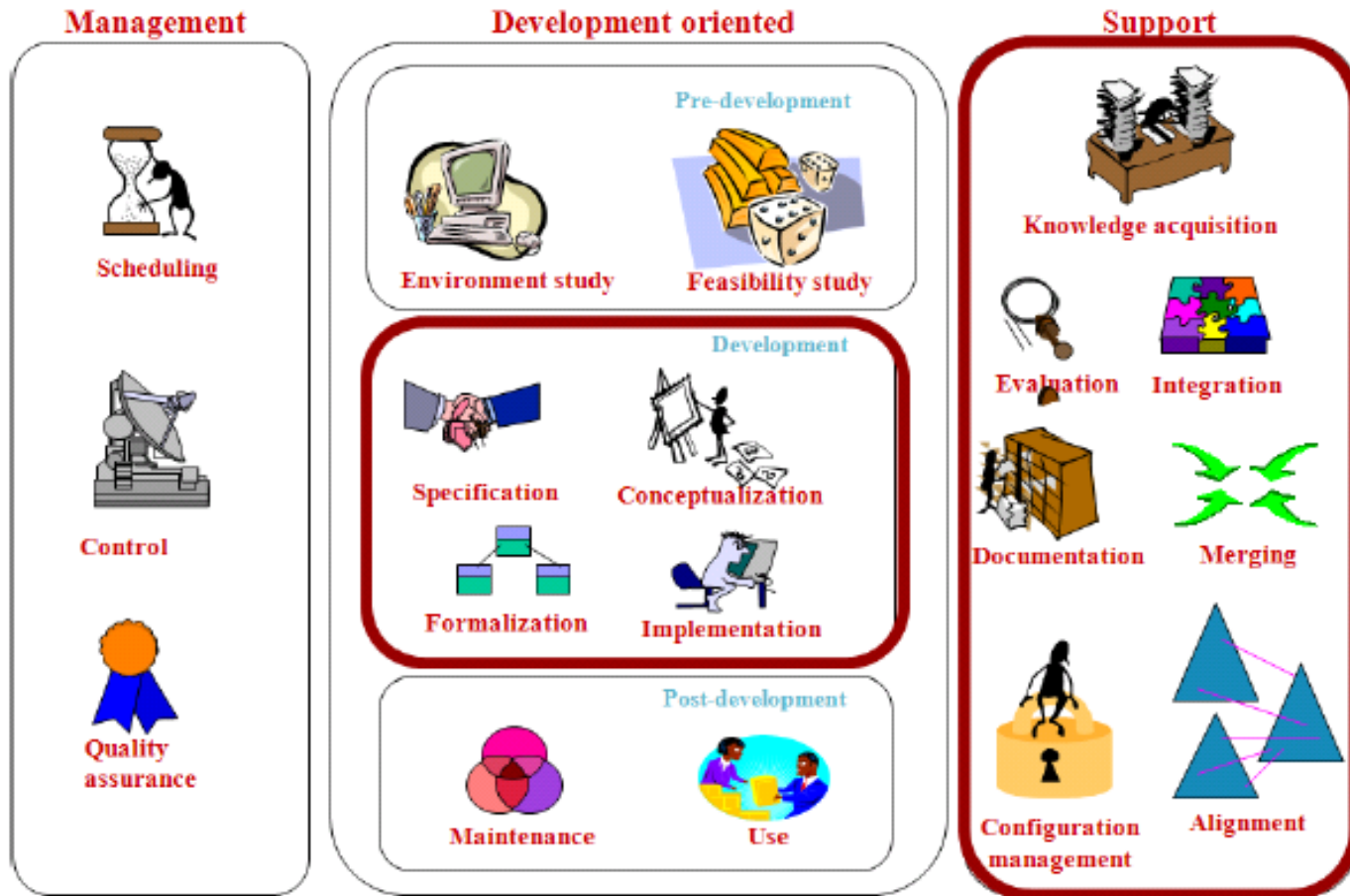
Expert Walkthrough



Video: User Interview



# Semantic content creation



Gomez-Perez et al., 2004



# Human intelligence in semantic content creation

Name	Human Contribution
Ontology development	Largely human-driven. Collection of terms and definition of class hierarchies can be automatized.
Description of domain and scope	<i>Katharina Siorpaes and Elena Simperl: Human Intelligence in the Process of Semantic Content Creation, World Wide Web Journal (WWW), Springer, December 2009.</i>
Competency questions	
Re-use of existing ontologies	
Collection of relevant terms	
Typing of terms	
Building a hierarchy	
Define properties	
Define axioms	
Create ontological instances	
Documentation	
Ontology alignment	Tools are all designed for automation, but the majority required human contribution.
Ontology learning	Learning tools are automatic or semi-automatic (requiring human intervention). Activities around learning are human-driven.
Ontology evaluation	Some aspects can be evaluated automatically. However, whether an ontology is suitable to be used in a domain can to a large extent only be evaluated by a human actor.
Annotation of text	Semi-automatic with human contribution.
Annotation of multimedia	Largely human-driven with little automation.



# Human intelligence in semantic content creation: examples

- Aligning ontologies
  - Deciding whether two concepts are related
  - Type of relationship
  - Validating results from automatic methods
  - Training sets for algorithms
- Video annotation
  - High level semantics
  - Watching and interpreting the video (topic, sentiment, location, etc.)





# Where can the human really be expected to contribute?

- Expressivity of annotations (→ WP2 on models)
- Which content? Corpora that are annotated/aligned ...
- Post-processing: validation
- Training sets: for text annotation algorithms, alignment
- *Entertaining* games
  - Complexity of tasks
  - Space of possible decisions
  - Too easy vs. too difficult
  - Interesting content (i.e. YouTube videos vs. eCl@ss and UNSPSC ontologies)
  - Last but not least: game design



# Which variables affect performance of users?

Relevant task-related variables that might affect the performance of the users of semantic annotation tools:

- Goal of the annotation or ontology population exercise
- Task, or more typically, an ordered collection of tasks into which the annotation exercise can be divided
- Social structure, a stylized and simplified set of social relationships among the subjects participating in the exercise
- Nature of good, a stylized description, in game-theoretical terms, of the relationship between what good is produced and who consumes it
- Required skills of the agents to complete the annotation task.



# Which tools can be used to foster participation?

- Annotation Task Matrix
  - A multidimensional tool for semantic annotation task analysis that allows for a description of an annotation task along all of relevant dimensions simultaneously
- Usability/ sociability requirements
- User Experience Design/ Design for Fun
- Guidelines/ Methods for PD
- Community Support



# Selected findings (TID)

- Usability/ Sociability requirements
  - Inconsistent navigation and colour scheme
  - High complexity, little help and adaptability
  - Lacking visibility/ awareness of users' contribution
- Relevant incentive/ motivation variables
  - Employees use their own media channels to communicate, instead of official ones
  - Users contribute only if they benefit themselves -> “critical mass”-problem (incentives to contribute to public good)
  - Task variety and goals should be challenging
- Methodological problem of limited access



# Selected findings (seekda!)

- Usability/ sociability requirements
  - Redundancies and external content (ads)
  - Lacking customization according to users' needs
  - Risk of inappropriate user generated content (descriptions)
- Relevant incentive/motivation variables
  - Contribution processes to public goods
  - Community effects and expertise: „Facebook“ for web service developers
- Methodological problems:
  - Limited users and Missing business model





# Selected findings (PGP)

- Usability/ Sociability Requirements
  - Intuitive and self-descriptive icons
  - Ambiguous wording (descriptions, error messages)
  - Target group specific design (children, parents, teachers)
  - Lacking visibility/ awareness of user behaviour (buy items)
  - Lacking adaptability (skip intro, sound/ volume control)
- Relevant incentive/motivation variables
  - Contribution to personal goods (virtual words)
  - Skill level: low but can improve using educational games
- Methodological problem of end user access





# Outlook

- Final analysis of semantic content authoring processes
  - Include additional considerations such as complexity of tasks, corpora, etc.
  - Include findings from case studies and tools (games!)
- Final methodology for semantic content authoring
  - Revisions based on experiences from case studies
- Final incentive models and PD guidelines
  - Outcome will be a concrete “cookbook”