

Ontology/info integration breakout group

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The Fish Story

- Rainbow trout were reclassified as salmon around early 90s by scientists/taxonomists/biologists at XXX
- Why? Differentiae suggested rainbow trout were salmon
- They were the experts recognized by IDIS (Integrated Dynamic Info System)
- Therefore, the reclassification had the force of law
- Who cared?
 - Fisheries in WA: treaties gave WA Indians the right to fish salmon in perpetuity; suddenly they could catch rainbow trout as they wanted, which affected the fisheries
 - Anglers cared
 - The trout: their sustainability was affected
- Lesson: “No indicator is innocent!”. A seemingly small decision in the advancement of science had a major effect due to the existing circumstances
- How did society respond? (Check Google)
- What can IT do?
 - The scientists should have been warned about the effects
 - Policymakers should have been warned
 - See research agenda following

Research themes 1: topic clusters

- Ethical issues:
 - Data collection, ontologization decisions, and modeling / processing embody **value judgments**: what do you highlight and what do you sideline? How do you reason about these issues? Computational support for approaches and methods of reasoning about complex issues (e.g., Precautionary Principle) within BDE; implications of presentation/interface design decisions; etc.
 - **Data sharing** and hiding:
 - **Teaching** ethics of IT for BDE: ethics-based SIM City?
- Transparency (across data, assumptions, models, metadata, etc., all anchored on the data)
 - Ability to determine, for each datum, all associated/encapsulating/definitional/interpreted information
 - Propagation of effects of decisions

Topics continued 2

- Semantics of BDE:
 - Defining the meanings of BDE concepts; operationalizing these concepts in domains and tasks; verifying theoretical semantics work; supporting data standardization; finding, capturing, managing, and sharing semantics; providing semantic services for others
- Application of knowledge and practice in new domains:
 - Do existing practices work in general? Codification and formalization of approach; development of methodology (protocols, processes, testing, etc.)...
 - Finding and re-using existing work (e.g., from Health — can the environment be treated as a patient?)

Topics continued 3

- Quality Control:
 - Data uncertainty (formal measures)
 - Accuracy and reliability
 - Change / recency
 - Trustworthiness of source/creator quality ratings, pedigree
- Centrality of location to BDE info:
 - GIS; flexible media (integrated displays of space and other characteristics across media); overlaying different spatial frameworks of interpretation (polygons) for different people/models; topological relationships among regions, etc.; ontological definitions for space
- Collaboration:
 - Support for collaborative decision-making: sharing data; dynamic decision-making; sharing simulations of decisions; training of value of collaborations
 - Community building technology