Establishing and Maintaining Business Value Alignment to Support Ontology Development

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Value Metrics, Value Models, and the Value Proposition
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Introduction

- Informed by active collaboration with Bo Newman, Bob Smith, and Joe Beck
- Based on work in the following areas
  - Alignment theory
  - Values-based decision making
  - Knowledge flow analysis and modeling
- Key ontology development risk areas
  - Synchronization of alignment issues and strategies
  - Disassociation
  - Dynamic semantics inherent to natural ontologies
- Potential Solutions
  - Knowledge flow analysis and modeling
  - Federated business value framework
Alignment

- Definitions of business value are alignment mechanisms
  - Seek to align ontology development effort with other organizational goals

- Engineered ontologies are alignment mechanisms
  - Driven by performance gaps
  - Solutions should be matched to the agent-specific alignment issues
    » Changes to natural ontologies
    » Engineered ontologies: Performance targets, Policies and procedures, Syntax-based data standards, Controlled vocabularies, Taxonomies, Fully-formalized ontologies

- Expect to find fractal relationships among the semantics of the project (perceived business value) and the semantics formalized by the project
Disassociation

- Values represent a synthesis of prior knowledge
  - Decision making is expensive
  - Economic efficiency drives abstraction and decontextualization to allow proven principles to be applied across behavioral contexts
  - Values “short circuit” Data / Information / Knowledge transformations
  - Risk of suboptimized, misaligned decisions increases with changes to behavioral context

- Disassociation risks typically associated with ROI
  - Discounted present value calculations
  - Inability to calculate financial impact of strategic value
  - Instabilities associated with wicked problems and enabling technologies
Dynamic Semantics

- Dynamic Semantics result from the interplay of Individual, Social, and Automated Agents and their associated ontologies.
- Formalization doesn’t stabilize the natural ontologies that they are based on.
- Categorizing the semantic properties of interest can help isolate and prioritize the sources of semantic instability:
  - Interpretive semantics
  - Contextual semantics
  - Aspirational semantics
  - Behavioral and conditional semantics
Knowledge Flow Analysis and Modeling

Main components
- Knowledge assets: Tacit, Implicit, and Explicit
- Agents: Individual, Social, and Automated
- Agent behaviors
- Semantics: Interpretive, Contextual, Aspirational, Behavioral, Conditional

Can be used to characterize organizational issues
- Differentiate behavioral and semantic breakdowns/gaps
- Identify agent types and their semantic formalization requirements
- Isolate conceptual drivers and assess expected stability

Requirements and value propositions based on characterized knowledge flows reduce alignment risks
Perceived value likely to differ across stakeholder groups

- Specific semantic gaps and requirements typically tied to localized value-system optimizations
- Consensus-based approaches can filter out strategic value propositions

**Recommend**

- Identifying core business drivers that span organizational contexts
- Make individual operational units responsible articulating operational benefits
  - Keeps the most volatile project semantics localized
  - Allows “to be” Knowledge flows to be updated to reflect new opportunities and other conceptualization changes
- Enables explicit change control mechanisms to be applied as changes to organizational meaning are encountered