Emerging Information and Management Strategies: It's a Question of Balance

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Presentation Goals

- *Describe the imbalance problems facing modern organizations*
- *Explain how Transformational Knowledge Management can*
  - *Address these problems*
  - *Provide the context for and lead to more balanced IT solutions*
- *Introduce the use of ontologies to balance multiple conceptualizations*
- *Explore the limits of established conceptual frameworks*

What is Balance?

- *Balance is not the same as alignment*
  - *Alignment can be forced*

- *Balance is usually accomplished through design or negotiation*

- *Optimal balance points are constantly shifting and evolving*

Why is Balance Important?

- *Lack of balance is a stressor*
  - *Issues are often symptomatic of root causes and drivers that pinpoint imbalances*
- *Common stress patterns*
  - *Sub-optimizations*
  - *Resulting downstream diseconomies*
- *Emerging need to sustain multiple, independent cultures with unique value systems*
- *Less costly automation enables new, more sophisticated balance points*

The Limits of Engineering

- *Traditional approaches expand the scope of the engineering effort*
  - *Integrated Enterprise Information Lifecycle Architectures*
- *Barriers to success*
  - *Time and cost*
  - *Organizational culture: lines of authority, incentive systems, financial and performance management systems*
  - *The death of process*
- *Tools turned into weapons*
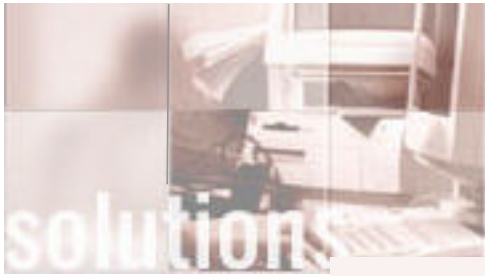
Why Manage Knowledge?

"The world's wealthiest man, Bill Gates owns nothing tangible — no land, no gold or oil, no factories, no industrial processes, no armies. For the first time in human history the world's wealthiest man owns only knowledge… In the future, when capitalists talk about their wealth, the will be talking about their control of knowledge."
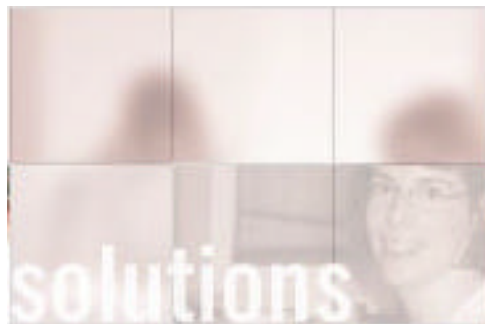
Lester Thurow, 1999
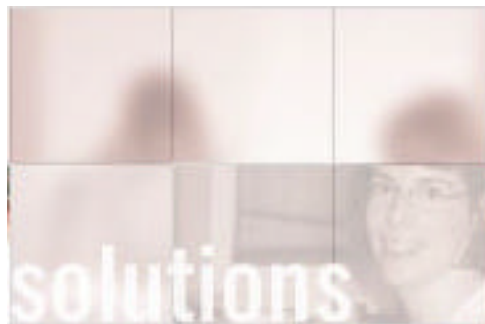
The Fundamentals of Control

- *Understand the relevant properties and sequences of events*

- *Identify and predict patterns of behavior*

- *Determine inflection and control points*

Transformational Knowledge Management

- *Focuses on the mechanisms that are used to transform data into information, knowledge, and, ultimately, behavior*
- *Is based on solid fundamentals*
  - *Epistemology*
  - *Philosophy*
  - *Ontology*
- *Provides a balanced framework for modeling knowledge flows and articulating design principles*

The TKM Framework

- *Agents*
  - *Individual agents*
  - *Organizational agents*
  - *Automated agents*
- *Knowledge artifacts*
  - *Explicit artifacts*
  - *Implicit artifacts*
  - *Tacit artifacts*
- *Activity areas*
  - *Knowledge Creation*
  - *Knowledge Retention*
  - *Knowledge Transfer*
  - *Knowledge Utilization*
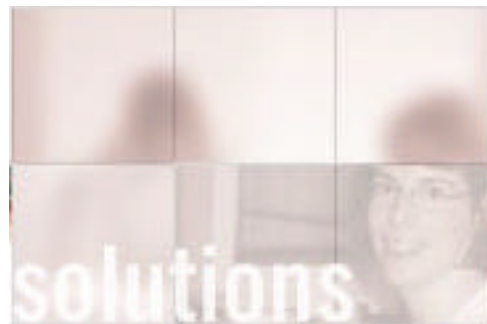
Applications of TKM

- *Support integration of*
  - *Tools*
  - *Methods*
  - *Practices*
- *Improve issue analysis*
  - *Tie breakdowns to knowledge flows, identifying specific dependencies and deficiencies*
- *Improve the quality of IT initiatives by relating design elements to Knowledge Utilization Events*
  - *Actions*
  - *Decisions*

Applications of TKM

- *Provide mechanisms for balancing competing interests and approaches*
- *Identify critical dependencies*
- *Establish balanced performance criteria*
- *Better model and understand emergent behaviors*
- *Resolve semantic breakdowns*
  - *Provide a rich, generalized model for describing a wide range of organizational and technical concepts*
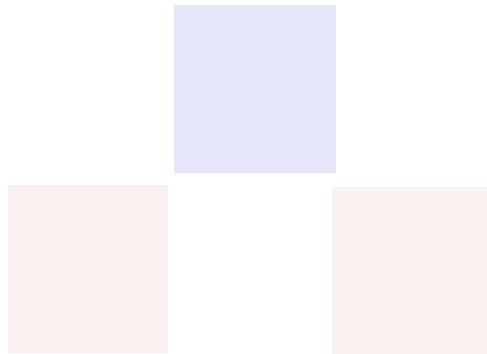
The Emergence of Ontologies

"If you know about something you tend to invent new words and terms to express this knowledge."
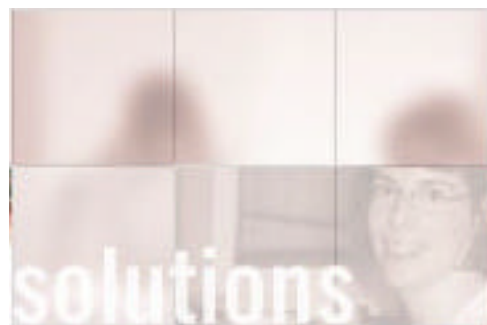   Dr. Steven Pinker, MIT

"The first step to wisdom is getting things by their right names."
    Chinese Proverb

"It ain't what it is until it is what it is."
    Yogi Berra

What are Ontologies?

- *Ontologies define, describe, or represent a conceptual space*
- *They range from*
  - *Highly formalized ontologies used in AI to*
  - *Transnavigational ontologies, which*
    - Map and integrate multiple world views
    - Rely heavily on tacit knowledge
    - May even defy formalization
- *They normally contain*
  - *Terminology and supporting semantics*
  - *Associations between concepts*
  - *A supporting rule base*

Application Areas

- *Increasingly, ontologies are being used to drive semantic consistency*
  - *Across organizational and cultural boundaries*
  - *Within XML-based applications where consistency of meaning is critical to distributed processing environments*
- *Many of the emerging ontology development initiatives are moving away from highly-formal representation models.*

Ontologies and Balance

- *A common language can represent a balance point between multiple contexts and conceptualizations*
  - *Enabling improved communication between individual, organizational, and automated agents.*
- *Ontology development balances competing interests, terminology, and semantics*
  - *Often becoming an exercise in self-awareness*
  - *Differentiation of normalized and context-specific ontologies*

The Limits of Conceptualization

- *The Innovator's Dilemma*
  - *Based on a study of destabilizing innovations in the hard disk industry*
  - *Introduces a conceptual framework for describing and understanding failure*
  - *Outlines principles of disruptive innovation*
- *Major findings*
  - *Good companies fail*
  - *Good management practices are context-specific*
  - *Well-aligned management, customer, and investor paradigms often blind companies to destabilizing technologies*

Principles of Disruptive Innovation

- *Companies depend on customers and investors for resources*
  - *Demand may codify too late*
- *Small markets don't solve the growth needs of large companies*
  - *Low margins, high internal cost structures*
- *Markets that don't exist can't be analyzed*
  - *Rationality requires information*
- *Technology supply may not equal market demand*
  - *Technical advancement tends to overshoot*

Recommendations

- *Isolate and incubate*
  - *Cultural independence*
  - *Formation of different value systems and propositions*
  - *Different cost structures*
- *Discovery-based planning*
  - *Recognizes that the right approach for exploiting destabilizing markets cannot be known*
  - *Assume that forecasts and strategies are wrong*
  - *Deliberately damages prior knowledge*

MetaBalance

- *The act of balancing multiple, different, and often competing alignment and balancing strategies*
  - *Engineered vs organic*
  - *Sustaining vs disruptive innovation*
  - *Process and results-oriented measures*
- *MetaBalance is comprised of numerous, short-term imbalances*
- *Often requires the development of new integrating paradigms and conceptualizations*

Paradigm Lifecycles

- *Paradigms have definite life spans*
  - *Development*
  - *Maintenance*
  - *Decay and crisis*
  - *Renewal and new development*
- *Organizational cultures and paradigms may have be incubated from the dominant value system*
  - *Incubation may not be required if an integrating conceptualization emerges or can be developed to synthesize the competing approaches*

Practice Maturation

- *Practices comprise behavioral axioms, supporting ontologies, and associated value systems*
- *Practices are usually incubated during formative stages*
- *Reintegration can take a variety of forms*
  - *Establishment of behavioral standards*
  - *Establishment of performance standards*
  - *Establishment of conceptual standards*
  - *Establishment of artifact standards*

Conclusions

- *IT may be necessary, but it isn't sufficient to address the more complex challenges facing organizations today*

- *Increasingly, these challenges involve the balancing and/or integration of multiple conceptual frameworks*
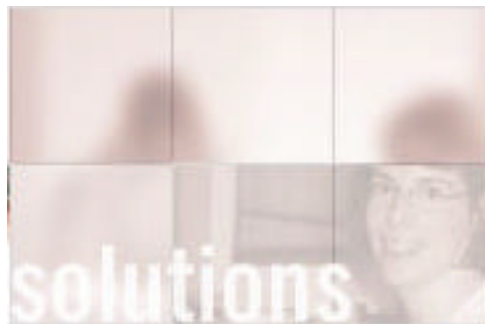
Conclusions

- *Transformational Knowledge Management provides the tools to improve the balance of a wide variety of organizational and IT initiatives and their associated conceptualizations*

- *Increasingly, these emerging conceptualizations will undergo some level of formalization*

Conclusions

- *The active management of conceptual frameworks and their associated paradigms will provide the seedbed for more sophisticated automation*

- *Because of its ability to serve as a conduit for semantically rich data, XML will become an increasingly critical knowledge artifact standard*
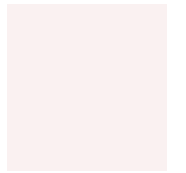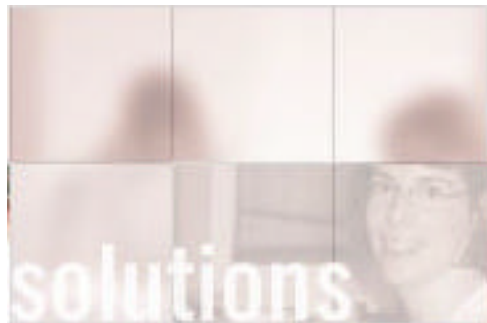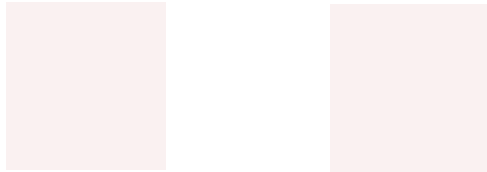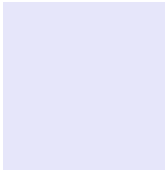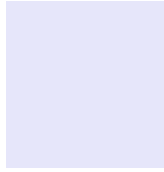
Sustained Success

It's a question of balance