Technology Policy Organizations Session 9

Large-Scale Systems Change

Principles and a Debate

Joel Cutcher-Gershenfeld

Overview

- **Systems Change Initiatives**
  - Goal/Focus
  - Type

- **Strategies for Change**
  - Top Down Re-Engineering
  - Bottom Up Process Improvement
  - Middle-Out Protocols and Standards
  - Underlying Core Values and Assumptions

Systems Change Initiatives

- **Work-Process Centered Systems Change Initiatives**
  - Taylorisim, Industrial Engineering and Work Redesign
  - Socio-Technical Systems Redesign
  - Worker Participation and the Human Relations Movement
  - Team-Based Work Systems

- **Relationship-Centered Systems Change Initiatives**
  - Strategic Alliances
  - Joint Ventures
  - Labor-Management Partnerships
  - Customer-Supplier Partnerships

- **Outcome-Centered Systems Change Initiatives**
  - Quality Initiatives (Total Quality Management, Six Sigma, etc.)
  - Lean Initiatives (Lean Manufacturing, Lean Enterprise, etc.)

Systems Change Initiatives (cont.)

- **Business Process-Based Initiatives**
  - Process Re-engineering
  - Activity-Based Costing (ABC)
  - Enterprise Resource Planning Systems (ERP)
  - e-business Initiatives

- **Structural, Policy and Market-Driven Systems Change Initiatives**
  - Organizational Restructuring
  - Mergers and Acquisitions
  - Privatization
  - Regulation and De-Regulation of Markets

- **Technology-Driven Systems Change Initiatives**
  - New Technology Implementation
  - Material and Method-Driven Transformations
  - Research and Development Commercialization

Systems Change Strategies

- **Direction/Focus**
  - "Top Down" Re-engineering
  - "Bottom Up" Kaizen
  - "Middle-Out" Protocols and Standards
  - "Underlying" Values and Culture

- **Additional Dimensions: Intensity Over Time/Scope of Change**
  - "Pilot / Diffusion"
  - "Wall-to-Wall"

Systems Change – Top Down

- **Concept of "Re-engineering"**
  - Many meanings, from a pretext for restructuring and downsizing to a systematic review of operations -- *if it's not broke, break it*
    - Roots private and public sectors, including "re-inventing the corporation" (by Hammer and Champy) and "re-inventing government"
    - First driven by economic crisis, now seen as a process for system change in a broad range of circumstances
      - The "Re-Engineering Revolution"
    - GE "workout" process as a proto-type

System Change – Bottom Up

- **Concept of "Kaizen"**
  - Many meanings, from tangible improvement activities to an underlying philosophy and a way of life -- *you are never done improving*
    - Roots in post WWII Japan
      - First seen piecemeal -- quality circles (QC), statistical process control (SPC), just-in-time (JIT) delivery
      - Increasingly seen from a systems perspective -- Total Quality Management (TQM), Total Preventative Maintenance (TPM), Continuous Quality Improvement (CQI), Lean Production Systems, Six Sigma Systems
    - Kaizen-teian systems -- many small improvements build capability for system change
    - Toyota Production System as a prototype

Systems Change – Middle Out

- **Concept of "Protocols and Standards"**
  - Critical "narrowing of the hourglass" as innovation is codified and new development is enabled
    - Roots in political science, physics, complexity science, game theory, computer science, genetics, and other domains
      - Appeal of a limited set of rules enabling a broad diversity of behaviors/responses
      - Contrasts among cooperative and competitive models for establishing protocols and standards, as well as voluntary and regulatory models for enforcing protocols and standards
    - Power in establishing the "rules of the game"
    - World Wide Web as a prototype

Systems Change – Core Values

- **Concept of "Core Values and Assumptions"**
  - Highlighted by Ed Schein as the deepest level of culture in an organization – underlying the visible "artifacts" of a culture and the stated principles and practices
    - Roots in Anthropology, Sociology, and Psychology
    - May or may not be stated or conscious
    - Example of contrasting assumptions about people from McGregor's *The Human Side of Enterprise*:
      - Theory X: People can't be trusted at work – they require monitoring and incentives – focus on control
      - Theory Y: Once basic needs are met, people come to work wanting to do a good job and seek self actualization – focus on commitment
    - Example of contrasting assumptions on quality:
      - Inspection versus Prevention
    - Compare Costco with Wal-Mart as prototypical

Systems Change – Additional Dimensions

- **Concept of "Pilot Experiments"**
  - Many types of pilots
    - Pilot teams, facilities, business units
  - Selecting where to pilot
    - "If it will work here, it will work anywhere"
    - "Begin with small successes"
    - "Target bottleneck/priority areas"
  - Plan for lessons from the pilot experiment to guide subsequent diffusion
  - Issue of managing multiple concurrent pilots

- **Concept of "Wall-to-Wall"**
  - Requires unfreezing event or bold leadership
  - System-wide shifts in policy or fundamental changes in external context
  - Gradual diffusion is not an option – the entire organization must change
  - Requires substantial planning and resources

System Change – A Four-Way Debate

The primary focus or strategy of most large-scale systems change initiatives should center on. . .

- **Team One: Kaizen** (bottom-up process improvement)
- **Team Two: Re-Engineering** (top-down restructuring)
- **Team Three: Protocols and Standards** (middle-out rules and criteria)
- **Team Four: Core Values and Assumptions** (underlying culture)

Debate format:
- Opening Statements (2 min.)
  - Within team consultation (2 minutes)
- Rebuttal (2 min.)

Strategies for Negotiated Change

- **Change strategies and negotiation blind sides**
  - **Top-down re-engineering**
    - *Forcing process makes recovery afterwards difficult*
  - **Bottom-up process improvement**
    - *Fostering process makes subsequent conflict difficult*
  - **Middle-Out Protocols and Standards**
    - *A combination of forcing and fostering to establish and enforce*
  - **Underlying Culture**
    - *Forcing and fostering may be reinforced or undercut by underlying values and assumptions*
  - **Pilot-experiment and diffusion**
    - *A combination of fostering followed by forcing*
  - **Wall-to-wall**
    - *A combination of forcing followed by fostering*
  - **Additional relevant aspects of change strategies**
    - Evolution vs. Revolution
    - Unilateral vs. Consensus
    - Structure vs. Process vs. Behavior Focus