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
  – Taylorism, 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