Session 12:
Technology Policy Organizations
Concluding Materials
Joel Cutcher Gershenfeld
Course Objectives

Part I: Technology Policy Organizations
- Understand the nature and operation of technology policy organizations in the 21st Century – utilizing alternative lenses, tools and methods
- Build leadership skills associated with aligning organizational strategy, structure and process in support of technology policy objectives
- Ground knowledge of technology policy organizations in the complex realities of organizational life – through integration of personal experience and field data collection

Part II: Technology Policy Negotiations and Dispute Resolution
- Build interactive skills associated with effective negotiations on technology policy issues
- Understand the nature and operation of dispute resolution systems in the technology policy context
- Develop the wisdom to establish constructive “rules of the game” in the technology policy context
Elements of the “New” Organization

- Networked → Managing with & across Teams
- Flat → Negotiating & Managing Conflict
- Flexible → Managing Change
- Diverse → Gaining through Diversity
- Global → Learning across Borders

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Three/Five Perspectives on Organizations

- Strategic Design Perspective
- Political Perspective
- Cultural Perspective
- Engineering
- Economic

Organization
Social and Technical Systems Framework

Complexity

Uncertainty

Social / Organizational Systems

- Social Interaction Processes
- Structure & Sub-Systems
- Capability & Motivation

Technical Systems

- Physical / Natural Systems
- Economic Systems
- Political / Societal Systems
- Methods (Processes)
- Machines (Equipment & New Technology)
- Materials (Components & Supply Chain)

"Contextual" Systems *

Fragile/Robust Interrelationships Producing, Over Time, Outcomes for Multiple Stakeholders

- Customers . . . Workforce . . . Shareholders . . . Suppliers . . . Society

Feedback

* Note: Context boundaries vary as appropriate with the systems under consideration

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Focus on Social / Organizational Systems

Structure & Sub-Systems
- Structure
  - Groups
  - Organizations
  - Institutions
- Sub-Systems
  - Communications
  - Information
  - Rewards & reinforcement
  - Selection & retention
  - Learning and feedback
  - Conflict resolution

Social Interaction Processes
- Leadership
- Negotiations
- Problem-solving
- Decision-making
- Partnership

Capability & Motivation
- Individual knowledge, skills & ability
- Group stages of development
- Fear, satisfaction and commitment

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Focus on Technical Systems

Machines (Equipment & New Technology)
- Equipment and machinery
- Physical infrastructure
- Information technology
- Nano-technology, bio-technology, and other developments at the frontiers of science

Methods (Processes)
- Job design/office design
- Work flow/process mapping methods
- Value stream mapping
- Constraint analysis
- Statistical Process Control (SPC)
- System optimization and decomposition methods

Materials (Components & Supply Chain)
- Assembly – Interchangeable parts and mass production systems
- Logistics – Just-In-Time delivery (JIT) systems and Synchronous material flow systems
- e-commerce and supply chains

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Focus on Contextual Systems

Economic Systems
- Markets
- Incentives
- Trade relations
- Public, private, and non-profit sectors
- Industry structures
- Product/firm/industry life-cycles
- Externalities and other “market failures”

Physical / Natural Systems
- Atmospheric systems
- Geo-thermal systems
- Aqueous systems
- Biological systems
- Chemical systems
- Bio-chemical systems
- Sub-atomic systems
- Laws of physics
- Extra-terrestrial systems

Political / Societal Systems
- Regulatory systems
- Standards and protocols
- Institutional arrangements
- History
- Cultures and sub-cultures
- Values and assumptions

* Note: Context boundaries vary as appropriate with the systems under consideration
Organizational Assumptions

- **Theory X and Theory Y Perspectives:**
  - Assumptions about employees and their motivations

- **20th and 21st Century** Models of the Organization:
  - Assumptions about people, work, technology, leadership, and goals

- Review Each Pair to Discuss Process of Shifting from 20th to 21st Century Assumptions
Core Assumptions: People, Work, Technology, Leadership, Goals

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