Lecture 0: Org. Econ.?  

“the economic analysis of managed interactions” (~Intro, HOE 2013)

1. What Is an Organization?  
2. Our Organizational Economy  
3. OE’s Footprint?  
4. The Origins of OE  
5. Progress on Internal Organization  
6. Progress on Firms’ Boundaries  
7. Partial Summary

Lecture 1: Pricing

1.1 Formal Incentive Contracts  
   • Feltham & Xie Accng. Rev. 94

1.2 Relational Incentive Contracts  
   • Bull QJE 87, Levin AER 03

1.3 Formal and Relational Incentive Contracts  
   • Baker, Gibbons, & Murphy QJE 94

1.4 Boundary of the Firm as an Incentive Instrument  
   • Baker, Gibbons, & Murphy QJE 02

If markets get the prices wrong, then an economist’s job may be to fix the pricing, such as through an incentive contract.
Lecture 2: Politics

Where important actions cannot be priced, the organization can be seen as a decision process—with battles for control, lobbying those in control, and so on.

2.1 Background
- March J.Pol. 62, Cyert-March BTF 63

2.2 Fixed Decision Architectures
- Milgrom-Roberts AJS 88, Secs. 2&3 in GMR HOE 13

2.3 Endogenous Decision Architectures
- Aghion-Tirole JPE 97, Sec. 5 in GMR HOE 13, BD HOE 13

2.4 Empowerment as a Promise
- Baker, Gibbons, & Murphy JLEO 99, Foss Org. Sci. 03

Lecture 3: Path-Dependence

Having noted the importance of relational contracts (e.g., in incentives in Lec. 1 & in empowerment in Lec. 2), we now consider the difficulties in building and changing relational contracts.

3.1 Persistent Performance Differences …
- Syverson JEL 11

3.2 … Are Correlated with Proxies for Mgmt. Practices
- Bloom-Van Reenen QJE 07, …

3.3 Many of These Mgmt. Practices are Relational
- Sec. 4 in GH HOE 13

3.4 Difficulties in Learning to Collaborate
- Kreps ICC 96, Chassang AER 10, …?

Lecture 4: Summary

Initiative vs. Coordination

4.1 The Goals
4.2 The Tools
4.3 The Manager?

Aghion & Tirole JPE ‘97

- Superior often “rubber-stamps” subordinate’s proposal
  Shareholders → Board of directors → CEO → Division VP ...

Q: Why (and how) would actor with formal authority cede real authority?
A: Knows that other actor has better info and sufficiently similar preferences
Aghion & Tirole (cont.)

- 3 potential projects \((k = 1, 2, 3)\)
- Benefits \(B_k\) to \(P\), \(b_k\) to \(A\)
- One project has \(B_k = b_k = -\infty\)
- Other payoffs are
  - \(B_k = B\) or 0 \((B > 0)\)
  - \(b_k = b\) or 0 \((b > 0)\)
- “Alignment” probability = \(\alpha\)
  - Prob. \(\alpha \rightarrow (B, b)\) and \((0, 0)\)
  - Prob. \(1-\alpha \rightarrow (B, 0)\) and \((0, b)\)

Aghion & Tirole (cont.)

- A pays cost \(c_A(e)\) for soft info
  - Prob. \(e\): A learns all own payoffs
  - Prob. \(1-e\): A learns nothing
- P pays cost \(c_P(E)\) for soft info
  - Prob. \(E\): P learns all own payoffs
  - Prob. \(1-E\): P learns nothing
- P-formal authority ✓
- A-formal authority ?

Aghion & Tirole (cont.)

P-formal authority:
- P informed \(\rightarrow\) chooses \(B\)
- P uninformed but A informed \(\rightarrow\) A chooses \(b\) \(\rightarrow\) P receives \(\alpha B\)
- Equilibrium efforts \((E^*, e^*)\)
  \[
  U_p = EB + (1-E)\alpha B - c_P(E) \\
  U_A = E\alpha b + (1-E)eb - c_A(e)
  \]
- With probability \((1- E^*)e^*\), A has real authority (rubber-stamping occurs)
- Terrific!

Aghion & Tirole (cont.)

A-formal authority:
- A informed \(\rightarrow\) chooses \(b\)
- A uninformed but P informed \(\rightarrow\) P chooses \(B\) \(\rightarrow\) A receives \(\alpha b\)
- Equilibrium efforts \((E^{**}, e^{**})\)
  \[
  V_A = eb + (1-e)E\alpha b - c_A(e) \\
  V_P = \epsilon\alpha B + (1-\epsilon)EB - c_P(E)
  \]
- With probability \(e^{**}E^{**}(1-\alpha)\), “P’s organization” is choosing \((0, b)\) over \((B, 0)\) and knows it
- Strange?
Example 2: Decentralization @ J&J

(Aguilar & Bhambri ‘83)

• “Decentralization = Creativity = Productivity”
  – **J&J**: 140 (220) local operating companies
  – Exec. Com. = 11 (but Tylenol w/ codeine)
  – π-center, autonomy, retained earnings

• Hospital Services Group “3 years late”
  – Revising promises w/ LOCs?
  – New promises @ HSG?
    • Service group? Cost center? Staffing?

Real Empowerment

• Very important (≠ hair styles & dress codes)
• Management ≠ external institutions
  – Involuntary servitude, non-competes
  – Lawyer-client decision rights
• Management ≠ formal contracts within firms
  – Union as contracting party
  – Courts recognize contracts between “legal persons”
• Delegation / empowerment = relational contract
  – Static model as reduced form?

BGM JLEO 99

• Formal authority resides at the top, but middle managers have some authority
• Below the top, decision rights can be loaned, not owned
• Empowerment is a promise
  – Johnson & Johnson
  – Oticon
  – Xerox Technology Ventures
  – ...

BGM 99 (cont.)

• Project’s payoffs = x to A, y to P
  – x_L < 0 < x_H
  – y_L < 0 < y_H
• *Informed boss*: A’s proposal reveals y to P
  – P’s SR incentive: reject y_L < 0?
• *Uninformed boss*: A’s proposal reveals nothing to P
  – A’s SR incentive: propose x_H > 0?
Agent incurs cost \( c(a) \) to search for project

- \( \text{Prob} \ (x = x_H) = a \)
- \( \text{Prob} \ (y = y_H | x = x_H) = p \)

Myopic centralization (ratify only \( y_H \))

- \( V_C = a^C p(x_H + y_H) - c(a^C) \)

Informal delegation (ratify all \( y \))

- \( V_D = a^D (x_H + E[y | x_H]) - c(a^D) \)

Welfare comparison

- Incentive effect (\( a^D > a^C \))
- Implementation effect (\( x_H + y_L < 0? \))

Results:

1. Authority → empowerment (as in contractual delegation)
2. Expected and extreme values matter
3. Different information structures → different reneging temptations (for different parties)
4. Static model (with contractual delegation) not necessarily correct reduced form (eg, Levin 03)
5. Spinoffs

Informal boss:

- When \( V_D > V_C \), informal delegation as equilibrium of repeated game?
  - \( y_L + (1/r)V_D > 0 + (1/r)V_C \)

Uninformed boss:

- When \( V_C > V_D \), informal authority as equilibrium of repeated game?
  - \( 0 + (1/r)V_C > x_H + (1/r)V_D \)

Empowerment @ Oticon

(Foss Org. Sci. ’03)

- **Oticon**: hearing aids in Denmark
  - World leader in 70s, dying in 80s (same exec team 30 yrs)
  - 4/18/90 “Thinking the Unthinkable” (6pp.)
- “Spaghetti organization” (flexible but coherent?)
  - Tuborg, trolleys, tube, (not) titles
  - Self-defined and –managed teams + PPC (Kolind + 3)
- Worked! (for a time)
  - Found in-ear from ’70s; prod devp time cut 50%
  - 1/2 of 93 sales from 91-93 products
  - PPC reasserts control: mistake, opportunism, confusion?
Lecture 3: Path-Dependence

Having noted the importance of relational contracts (e.g., in incentives in Lec.1 and empowerment in Lec. 2), we now consider the difficulties in building and changing relational contracts.

3.1 Persistent Performance Differences …
   • Syverson JEL 11

3.2 … Are Correlated with Proxies for Mgmt. Practices
   • Bloom-Van Reenen QJE 07, …

3.3 Many of These Mgmt. Practices are Relational
   • Sec. 4 in GH HOE 13

3.4 Difficulties in Learning to Collaborate
   • Kreps ICC 96, Chassang AER 10, …, ??

Outline of Chapter

1. There exist persistent performance difference (PPDs) among seemingly similar enterprises. Syverson JEL 11 + Sec. 2
2. Understanding PPDs matters for business strategy, government policy, and economic research.
3. Proxies for management practices are correlated with these performance differences. BVR QJE 07 + Sec. 3
4. Many of these management practices rely on relational contracts. Gibbons-Henderson Org Sci 12 + Sec. 4
5. Economic models of building and changing relational contracts have arrived. Sec. 5
6. Building and changing relational contracts remains more difficult than most theory has described. Sec. 6

What Do Managers Do?
Exploring Persistent Performance Differences among Seemingly Similar Enterprises
Robert Gibbons and Rebecca Henderson

1. Evidence of Persistent Performance Differences

A. Large-sample profitability studies (control for industry)
B. Large-sample productivity studies (some control for inputs, prices)
C. Focused-sample productivity studies (detailed dependent variable and controls)

"The magnitudes are striking: (a) plant at the 90th percentile of the productivity distribution makes almost twice as much output with the same measured inputs as the 10th percentile plant." Syverson (JEL, 2011)
Competition & Dispersion

- why concrete?
  - high transportation costs
  - multiple markets
  - homogeneous good with physical output measure
- available instrument for concrete market density = construction industry

Results
1. Higher productivity and less dispersion in high density (more competitive) markets
2. But almost as much dispersion in less competitive markets

Syverson JPE 2004

Intra-Firm Productivity Differences

- Commercial food division of a large multi-business firm with 40 operating units that prepare, deliver, and set-up food
- All 40 sites are very similar along multiple dimensions: located in the US, employ low-skilled labor, utilize same technology, serve similar customers, produce similar products
- Multifactor productivity index computed as standardized output (meals & set-ups) divided by standardized inputs (labor & capital costs)
- Use regression analysis to adjust for local labor markets, size of local market, unionization, age of equipment, product quality, and local monopoly

Chew, Bresnahan, & Clark 1990

2. Who Cares (About PPDs)?

A. Strategy
   - Explain?
   - Manage?
   - Fix?

B. Policy
   - Antitrust, Trade, Research, Climate, …
   - Cyert & March ‘63

C. Economics
   - Industry dynamics
   - International trade

Lucas JAE 1988: 5
"I do not see how one can look at figures like these without seeing them as representing possibilities."
"This is what we need a theory ... for: to provide some kind of framework for organizing facts like these, for judging which represent opportunities and which necessities."

Ericsson-Pikkarainen 1995: 53
"We provide a model of industry behavior which, because it incorporates firm-specific sources of uncertainty, can generate the variability in the fortunes of firms observed in these data."
Molitov-Fein 2003: 1695
"This paper develops a dynamic industry model with heterogeneous firms to analyze the role of international trade as a catalyst for these intra-firm reallocations within an industry."


- Incentive systems
- Promotion incentives
- Training
- Recruitment
- Hiring & Firing
- Performance assessment
- Job design

Adler & Clark 1991 MS
Arthur 1994 AMJ
Bartel 1994 IR
Huselid, 1995 AMJ
MacDuffie, Sethuraman, Fisher, 1996 MS
Dunlop & Weil, 1996 IR
Huselid & Becker, 1996 IR
Ichino, Shaw, Prennushi 1997 AER
Lazear, 2000
Bresnahan, Brynholfsson & Hitt 2002 QJE
Black & Lynch, 2001 REStat
Hamilton, Nickerson, Owan 2003 JPE
Bloom & van Reenen, 2007 QJE
Bartel, Ichinoi, Shaw 2007 QJE
Bandiera, Barankay, Rasul 2009 ECTA

- Cross-functional teams
- Autonomous workgroup meetings
- Flexible job assignments
- Joint Labor-Mgmt Committees
- Shop-floor Committees
- Performance monitoring
- Benchmarking
- Production planning & scheduling
- Inventory management & monitoring

- Kelley 1994 MS, 1996 IR
- Henderson & Cockburn 1994 SMJ
- Batt 1999 ILRR, 2001 BJIR
- Appleyard & Brown 2001 IR
- MacDuffie, Sethuraman, Fisher, 1996 MS
- Ichniowski, Shaw, Prennushi 1997 AER
- Bresnahan, Brynholfsson & Hit 2002 QJE
- Black & Lynch, 2001 RESat
- Kato & Morishima, 2002 IR
- Hamilton, Nickerson, Owan 2003 JPE
- Macher & Mowrey, 2003 JPIM
- Bloom & van Reenen, 2007 QJE


- Target setting
- Budget processes
- Span of control
- Number of managerial levels
- Self-managed teams
- Profit centers
- Production line decision authority
- Spending limits

- Arthur 1994 AMJ
- Henderson & Cockburn 1994 SMJ
- Batt 2001 BJIR
- Appleyard & Brown 2001 IR
- MacDuffie, Sethuraman, Fisher, 1996 MS
- Bresnahan, Brynholfsson & Hit 2002 QJE
- Black & Lynch, 2001 RESat
- Bertschek & Kaiser, 2004 MS
- Bloom & van Reenen, 2007 QJE
- Bloom, Sadun, van Reenen 2009

Large-Sample Evidence (w/in US)

- 732 medium-size manufacturing firms in 4 countries
- Data on MPs in 4 areas (18 questions) collected through detailed telephone interviews
- Performance on MP scored 1 to 5, converted to z-scores, collapsed to simple average
- Significant cross-country differences, substantial within-country heterogeneity
- Correlated with profitability, survival, Tobin’s Q

<table>
<thead>
<tr>
<th>US</th>
<th>Depth</th>
<th>US</th>
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Groups of Management Practices
- Shop floor operations (3)
- Monitoring prod’ n & perf (5)
- Targets (5)
- Incentives (5)

Bloom & Van Reenen QJE 2007

Focused Sample: Steel

- Longitudinal data on HR MPs collected through records and interviews at finishing lines of 36 steel minimills
- HR MPs are highly correlated in sample; correlation patterns used to group MPs into 4 systems
- Production lines that begin and end in HRM system 1 are on average 4% points more productive than production lines that begin and end in HRM system 4

<table>
<thead>
<tr>
<th>Table 2—Proportion of Production Lines with Specific HRM Practices Within Each HRM System Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practices in seven HRM policy areas</td>
</tr>
<tr>
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</tr>
<tr>
<td>1. Incentive pay</td>
</tr>
<tr>
<td>a. Line incentives</td>
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<td>2. Recruiting and selection</td>
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<tr>
<td>a. High scanning</td>
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<td>3. Employment security</td>
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<tr>
<td>a. Employment security</td>
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<td>4. Performance management</td>
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<tr>
<td>a. Job rotation</td>
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<tr>
<td>5. Reward systems</td>
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<tr>
<td>a. High times</td>
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<td>6. Job design</td>
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<tr>
<td>a. Job design</td>
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<tr>
<td>7. Communication</td>
</tr>
<tr>
<td>a. Information sharing</td>
</tr>
<tr>
<td>b. Shared vision</td>
</tr>
</tbody>
</table>

Ichniowski, Shaw, Prennushi AER 1997
4. Management Practices & Relational Contracts

- Barnard (1938), Simon (1947), Penrose (1959), Cyert and March (1963), Arrow (1974) …
- Equilibria of repeated games (with transfers)
- Shared understandings of the parties’ roles in and rewards from collaboration …
- Part of the culture of a relationship?
- Part of the norms of a relationship??

Example 1: Bonus @ Lincoln Electric
(Fast & Berg 75)

- Arc welders and supplies in Cleveland (Fortune 200)
- Pay = piece rate + bonus
  - supervisor assesses ideas, cooperation, dependability
  - bonus about half of typical worker’s pay
  - bonus pool about half of pre-tax, pre-bonus earnings
- Complementary relational contracts
  - Change piece rate; employment security
- (Re)defining relational contract, even after decades

Example 3: “ProPub” @ Merck
(Henderson & Cockburn SMJ 94)

- Bio-tech revolution ⇒ science-based discovery
  - hire PhDs, build labs, attend confs, do research, publish papers!
  - “ProPub” → patents (e.g., @ Merck)
- Imagine recruiting first rookie @ Merck:
  - better lab, less teaching, better pay
  - almost like asst. prof.
  - but clearly not identical
    - e.g., Nobel in 3rd year with no drugs

Summary of Part 4

- Many important management practices seem relational
- Many important relational contracts seem hard to explain ex ante and hard to change ex post
- Explanation for slow diffusion?
**Existing Views of Slow Diffusion**  
(~~J. Rivkin~~)

- **Perception:**  
  - We don’t know we’re behind.  
- **Inspiration:**  
  - We know we’re behind, but we don’t know what to do.  
- **Motivation:**  
  - We know what to do, but we don’t want to do it.  
- **Implementation:**  
  - We’re trying but can’t get the organization to do it.

**IO & OE Theories of the 4 ‘tions**

<table>
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<tr>
<th></th>
<th>IO (N = 1)</th>
<th>OE (N &gt; 1)</th>
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<tbody>
<tr>
<td>Perception</td>
<td>Differing Priors?</td>
<td>Group Think?</td>
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<tr>
<td>Inspiration</td>
<td>Bandit?</td>
<td>Silos?</td>
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<tr>
<td>Motivation</td>
<td>NPV?</td>
<td>Human Capital?</td>
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<tr>
<td>Implementation</td>
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Our Central Case: Practice does not fully diffuse even though clearly helpful, widely understood, and trying hard to implement.

**Perception, Motivation?**

- Management practice *could* be light switch:  
  - Easy to describe  
  - Straightforward to implement

**Inspiration?**

- Management practices *could* be light switches:  
  - Each one easy to describe & simple to implement  
  - But complicated interactions (bumpy landscape)
Culture & Bloodstream Infections: Is Hand-Washing a Light Switch?

An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU

Observation: checklist extremely simple

Fact: two-fold intervention (checklist + culture)

Possibility: need both (but culture not a light switch)

“Safety Attitudes” and Bloodstream Infections (in ICUs in Michigan)
“Culture” in Multinationals?

Table III – Decentralization and Trust Robustness

<table>
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<tr>
<th>Additional variable/Decentralization</th>
<th>(1)</th>
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<tbody>
<tr>
<td>None - Results</td>
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<tr>
<td>Management Quality</td>
<td>(0.504)**</td>
<td>(0.412)**</td>
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<tr>
<td>Individual Pay Incentives</td>
<td>(0.580)**</td>
<td>(0.491)**</td>
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<tr>
<td>Family ownership</td>
<td>(0.608)**</td>
<td>(0.572)**</td>
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<tr>
<td>Hierarchical Religion</td>
<td>(0.580)**</td>
<td>(0.572)**</td>
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<tr>
<td>Competition</td>
<td>(0.217)</td>
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Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Dependent variable is the decentralization score index, measured by plant manager’s autonomy over hiring, investment, products, and marketing. Estimation by OLS with robust standard errors in parentheses. Standard errors clustered by the firm’s headquarters region of location (country of origin of the plant belongs to a foreign multinational). TRUST measures the percentage of individuals who agreed with the statement “most people can be trusted” in the firm’s headquarters region of location (country of origin of the plant belongs to a foreign multinational). MANAGEMENT in the firm-level Bloom and Van Reenen (2007) management survey. ROLES is the percentage of managerial compensation tied to individual, team, and firm performance. FAMILY MANAGEMENT is a binary equal to one for

Bloom, Sadun, Van Reenen QJE 12

Inspiration vs. Implementation?

\[ d_2 \text{ global} \]
\[ d_1 \text{ local} \]
\[ w = E(y) \]
\[ w = c(a) \]

Bumpy Landscape

\[ \pi = y - w \]
\[ U = w - c(a) \]

Ridge Line

5. Are Relational Contracts Part of the Implementation Problem?

A. Unobserved Heterogeneity
B. Consummate Collaboration Hard to Build & Sustain
C. (Re-)Building an Equilibrium??

5C. (Re-)Building an Equilibrium??

What can an economist do to help a fixed set of people be more productive together?

Liebenstein: “Wonder if they’ve discovered how to play cooperate-cooperate, while the others are stuck in defect-defect?”
5A. Unobserved heterogeneity (ie, only seemingly similar)

- Discounting
  - Board AER 12

- Competition
  - Board & Meyer-ter-Vehn WP 11
  - Powell WP 12

- Network
  - Fainmesser AEJ μ 12
  - Jackson, Rodriguez-Barraquer, Tan AER 12

- Types
  - MacLeod-Malcomson JPE 88
  - Watson JET 99, GEB 02
  - Halac AER 12

5B. Consummate Cooperation Can Be Hard to Build & Sustain

- PPDs among Ex Ante Identical Enterprises
  - Chassang AER 10

- Long-run Distortions from Short-run Shocks
  - Li & Matouschek forth. AER

- Cooperation Hard to Sustain, Even Once Built
  - Public state: McAdams AEJ μ 11
  - Global games: Chassang Ecta 10, Chassang & Padro i Miquel QJE 10
  - Private monitoring: Levin AER 03, MacLeod AER 03, Fuchs AER 07, Maestri AEJ μ 12

5B. Consummate Cooperation Can Be Hard to Build & Sustain

- Chassang AER 10
  - “equilibrium theory of equilibrium selection”

- Andrews-Barron WP 13
  - “side payments through policy commitments”

- Venables WP 13
  - “devote time and energy to managing internal coalition”

- Attempting to extract private info → imperfect monitoring → punishments on path
- Safer (but ultimately less rewarding) to stick with what’s known
- Optimal to stop trying to learn if already know fairly productive things
- Game-theoretic version of bandit model (w/ surplus needed to provide incentives to explore)
1. Principal invests or not: \((-k, b)\) or \((0, 0)\)
2. If P invests then each action feasible with prob. \(p\)
3. Unproductive and productive actions:
   - \(a_U \in A_U\) costless for Agent and useless for Principal (\(A_U\) large)
   - \(a_P \in A_P\) cost Agent \(c\) & produce \(y(a_P)\) or 0 for Principal (w/ prob. \(q\) and 1-\(q\), resp.)
4. Common knowledge:
   - Number of productive actions & potential payoffs \(y(a_P)\)
   - Feasible actions each period & Agent’s choice
5. Private information:
   - Only Agent knows which actions are productive

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**Lecture 4: Summary**

Initiative vs. Coordination

4.1 The Goals
4.2 The Tools
4.3 The Manager?
2) The Tools

**Strategic Design**
Organizations are **machines**
An organization is a mechanical system crafted to achieve a defined goal. Parts must fit well together and match the demands of the environment.
**Action comes through planning.**

**Political**
Organizations are **contests**
An organization is a social system encompassing diverse, and sometimes contradictory, interests and goals. Competition for resources is expected.
**Action comes through power.**

**Cultural**
Organizations are **institutions**
An organization is a symbolic system of meanings, artifacts, values, and routines. Informal norms and traditions exert a strong influence on behavior.
**Action comes through habit.**

*Formal Is (Usually) Flawed*
Relational (Discretion) is Required

Increasing Initiative/Empowerment?

Increasing Coordination?

3) The Manager?

Transaction difficulty

Effectiveness

100%

necessary

(prospect of) self-interested exercise of discretion

ideal

managerial?

Non-Integrated

Integrated

observed markets observed firms

Which problems to fix, which to tolerate?