



Information & Organization

SIKS course, Sep 2006

HansWeigand, UvT



Course overview

Monday, September 25: Block I

- 10.45 - 12.00 Introduction (dr. H. Weigand, UvT)
- 12.00 - 13.30 Lunch
- 13.30- 14.00 case
- 14.00 - 16.30 Mintzberg on coordination II (dr. R. Batenburg, UU)

Course overview

Tuesday, September 26: Block II

- 09.00 – 12.00 IT, Strategy and Innovation (prof.dr. R. O'Callaghan, UvT)
- 11.45 - 13.30 Lunch
- 13.30 - 15.30 Business Process Management (prof.dr. P. Grefen, TUE)
- 16.00 - 17.00 E-government (vd Zee)

Wednesday, September 27: Block III

- 09.00 – 09.45 Economic approaches to organizations (dr.H. Weigand)
- 09.45 - 11.45 Interorganizational coordination (prof.dr. Y.H. Tan, VU)
- 11.45 - 12.00 Closing, evaluation (dr. H. Weigand, UvT)

What is an organization?

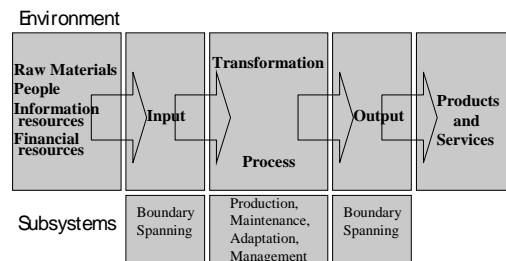
- Definition
- Importance of Organizations
 - Bring together resources to achieve desired goals and outcomes
 - Produce goods and services efficiently
 - Facilitate innovation
 - Use modern manufacturing and computer-based technology

Daft

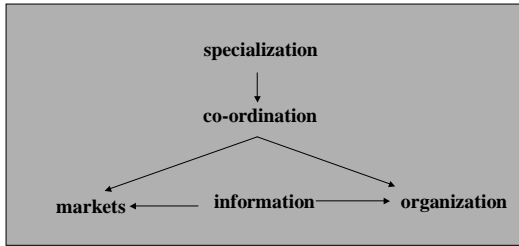
Importance of organizations

- Adapt to and influence a changing environment
- Create value for owners, customers and employees
- Accommodate ongoing challenges of diversity, ethics, and the motivation and coordination of employees

An open system and its subsystems



Division of labor

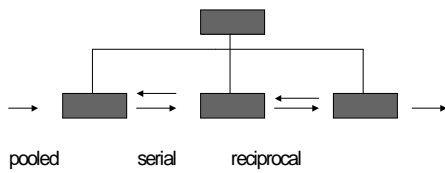


Douma & Schreuder

Information and Coordination

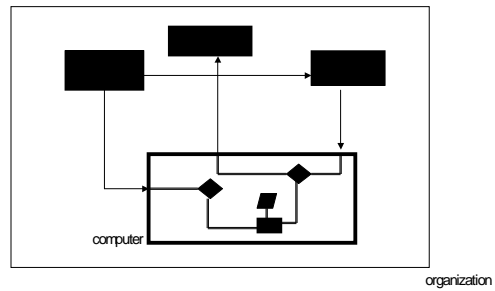
- Information asymmetry
- The value of information
- Game theory (simultaneous/sequential games)
- Behavioral theory of the firm (Simon & March)
- Coordination mechanisms vs interdependence
- Agency theory
- Transaction costs economics
- Evolutionary approaches, organizational ecology

Coordination mechanisms vs type of interdependence (Galbraith, Lawrence, Lorsch)

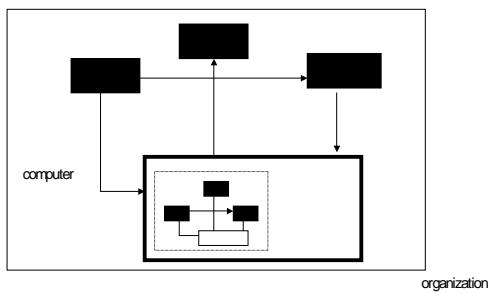


Instead of more complicated coordination mechanisms, it is also possible to reduce coordination need (e.g. buffers)

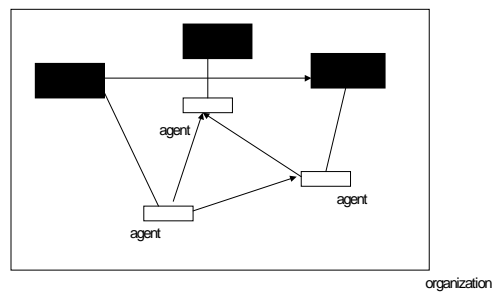
Information Management vs CS/IS - traditional view



Information Management vs CS/IS – object view



Information Management vs CS/IS – agent view



What can you learn from this course?

- Organizational context of Information Systems?
- Innovation management?
- Principles of coordination?

Write down at least one thing you want to learn.

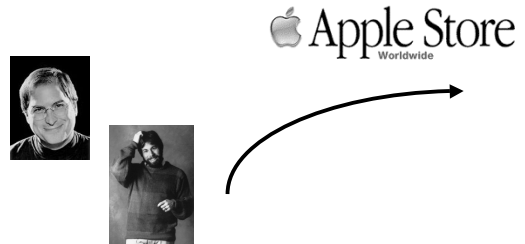


Herbert A. Simon
1916-2001

Behavioral theory of the firm (Simon, March, Cyert)

- The firm as a coalition of participants
- *Participants* have goals (aspiration levels)
- Inducements/contributions: *satisficing*
- The firm as a coalition of *groups* of participants (consumers, investors, ..)
- Bounded rationality
- Information transmission has its costs

Organization size, life cycle and control (Daft, ch 8)



Differences Between Large and Small Organizations

- | | |
|---|---|
| <ul style="list-style-type: none"> • LARGE <ul style="list-style-type: none"> – Economies of scale – Global reach – Vertical hierarchy – Mechanistic – Complex – Stable market – “Organization men” | <ul style="list-style-type: none"> • SMALL <ul style="list-style-type: none"> – Responsive – Flexible – Regional reach – Flat structure – Organic – Simple – Niche finding – Entrepreneurs |
|---|---|


Organizational growth



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	1.	2.	3.	4.
	Entrepreneurial	Collectivity	Formalization	Elaboration
Characteristic	Nonbureaucratic	Prebureaucratic	Bureaucratic	Very Bureaucratic
Structure	Informal, one-person show	Mostly informal, some procedures	Formal procedures, division of labor, specialties added	Teamwork within bureaucracy, small-company thinking
Products or services	Single product or service	Major product or service with variations	Line of products or services	Multiple product or services lines
Reward and control systems	Personal, paternalistic	Personal, contribution to success	Impersonal, formalized systems	Extensive, tailored to product and department
Innovation	By owner-manager	By employees and managers	By separate innovation group	By institutionalized R&D
Goal	Survival	Growth	Internal stability, market expansion	Reputation, complete organization
Top Management Style	Individualistic, entrepreneurial	Charismatic, direction-giving	Delegation with control	Team approach, attack bureaucracy

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Weber's Dimensions of Bureaucracy and Bases of Organizational Authority

- BUREAUCRACY**
 1. Rules and procedures
 2. Specialization and division of labor
 3. Hierarchy of authority
 4. Technically qualified personnel
 5. Separate position and incumbent
 6. Written communications and records
- LEGITIMATE BASES OF AUTHORITY**
 1. Rational-legal
 2. Traditional
 3. Charismatic

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Bureaucracy in a changing world

Bureaucracies have been successful, but ...

- The need for flexibility
- Increased professionalism of employees

Remedial actions:::

- Downsizing, decentralization
- Alternative control strategies
- Role of IT

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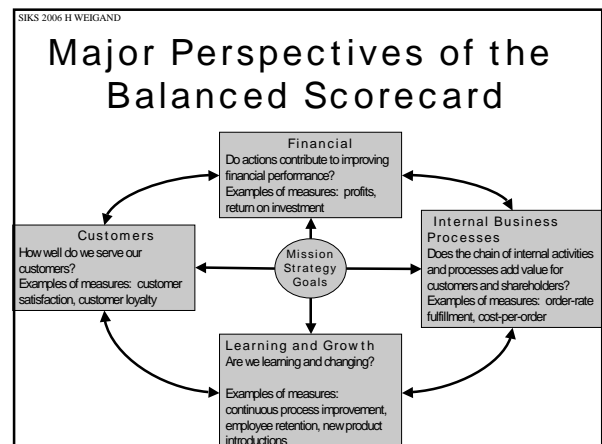
Three Organizational Control Strategies

<u>TYPE</u>	<u>REQUIREMENTS</u>
Bureaucratic	Rules, standards, hierarchy, legitimate authority
Market	Prices, competition, exchange relationship
Clan	Tradition, shared values and beliefs, trust

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Management Control Systems Used as Part of Bureaucratic Control

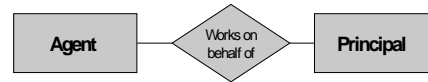
<u>Subsystem</u>	<u>Content and Frequency</u>
Budget	Financial, resource expenditures, monthly
Statistical reports	Non-financial outputs, weekly or monthly, often computer-based
Reward systems	Annual evaluation of managers based on department goals and performance
Operating procedures	Rules and regulations, policies that prescribe correct behavior, continuous



Exercise: Evaluation of Control On the Job

Your job responsibilities	How your boss controls	Positives of this control	Negatives of this control	How you would improve control
1.				
2.				
3.				
4.				

Agency theory



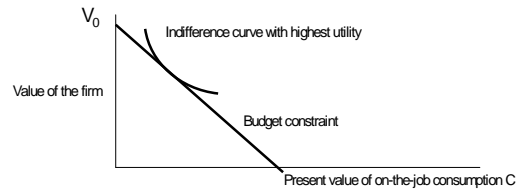
Principal != beneficiary/customer

Agency theory

- Positive theory
 - Firm is a nexus of contract
 - Explain organizational forms as they are
 - Conceptual
 - Separation of ownership and control
- Formal theory of principal and agent
 - Predict reward structure
 - Mathematical form

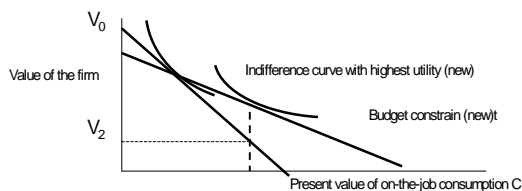
Jensen & Meckling 76

- Assume manager owns all shares
- Conflicting objectives: maximize value of the firm vs on-the-job consumption



What happens when the manager sells a fraction of the shares?

- Manager will spend more on consumption-on-the-job → value of the firm will decrease



What happens if outsiders anticipate on this?

- They will pay less
- Value of the firm lower
- For the manager: decrease in share value, increase in on-the-job consumption, but total utility is lower.
- So why should the manager sell?
- Monitoring and bonding
- Discipline of the manager job market (Fama, 80)

Team production

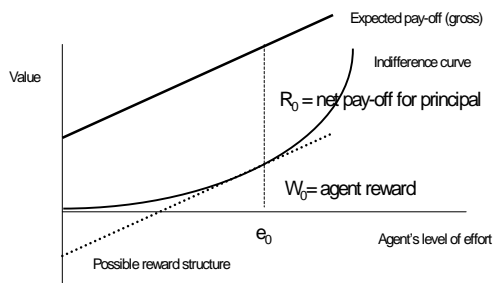
- A situation in which two or more persons can produce more than when they work separately.
- Problem: shirking (free-riding)
- To avoid shirking, a monitoring role can be installed
- Monitor role must have a proper reward function, and control power
→ entrepreneurial firm

Theory of principal and agent

3 cases

1. The principal can observe the agent's behavior
2. The principal has no information about the agent's behavior
3. The principal cannot observe the agent, but he can observe a signal concerning the level of effort by the agent

Symmetric information



Asymmetric information (case 2)

- P can only observe payoff
- P does not know what created the payoff (could A have worked harder?)
- Reward structure:
 - Wage contract (A gets fixed salary)
 - Rent contract (A gets payoff – rent)
- Differences in distribution of rewards, and also in distribution of risks

Asymmetric information (cnt)

- If both P and A are risk-neutral, the best reward structure is a rent contract
- If A is risk-averse, he wants to be compensated for the risks by higher expected income -> risk sharing
- In general, A is more risk-averse than P.

Using signals

- Signal can be the working time (clocking)
- Using signal for the reward structure is good iff the agent is risk-averse
- If agent is risk-neutral, then rent contract is better.

Eisenhardt (1989)

- When the contract between the principal and the agent is outcome-based, the agent is more likely to behave in the interest of the principal
- When the principal has information to verify agent behavior, the agent is more likely to behave in the interests of the principal

Eisenhardt (cnt)

- Information systems are positively related to behavior-based contracts and negatively related to outcome-based contracts
- Outcome uncertainty is positively related to behavior-based contracts and negatively related to outcome-based contracts

Eisenhardt (cnt)

- The risk aversion of the agent is positively related to behavior-based contracts and negatively related to outcome-based contracts
- The risk aversion of the principal is negatively related to behavior-based contracts and positively related to outcome-based contracts

Eisenhardt (cnt)

- The goal conflict between principal and agent is negatively related to behavior-based contracts and positively related to outcome-based contracts
- Task programmability is positively related to behavior-based contracts and negatively related to outcome-based contracts

Eisenhardt (cnt)

- Outcome measurability is negatively related to behavior-based contracts and positively related to outcome-based contracts
- The length of the agency relationship is positively related to behavior-based contracts and negatively related to outcome-based contracts.

Comparative studies

(Knott & McKelvey, 1998)

- Explain firm efficiency in a franchise setting
 - By agency theory (residual claims)
 - By organizational routines (March & Simon; evolutionary approaches)
- Franchising seems to contradict agency theory

AM Knott, B. McKelvey, *Nirvana efficiency: a comparative test of residual claims and routines*
Journal of Economic Behavior & Organization, 38, 1999.

Results

- Both residual claims and organizational routines are significant in explaining performance differences
- Significance of organizational routines is much higher
- Sole ownership is not the right efficiency standard

Evolutionary approaches to organizations

- From static to dynamic perspective
- Organizational ecology (Hannan, Freeman)
- Evolutionary theory of economic change (Nelson, Winter)

Why do giraffes have long necks?



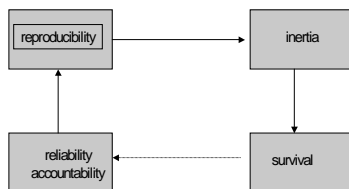
- creationist
- evolutionist: *cumulative adaption*
 - Lamareckian:
 - principle of use and disuse
 - Darwinian:
 - natural selection

How does this apply to organizations?

Organizational ecology (Hannan, Freeman- 1989)

- Levels of analysis
 - demography
 - population ecology
 - community ecology
- Population defined by “organizational form”
- Relative inertia

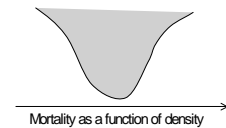
Inertia and survival



Organizational population

Density is determined first by carrying capacity of the niche

Density is further determined by competition and legitimation



Evolutionary theory of economic change (Nelson, Winter - 1982)

- Organizational routines
 - Cf. tacit knowledge (Polanyi, 1962)
 - Serve as organizational memories
 - Represent a truce in intra-organizational conflict
- Mutations of organizational routines
 - By chance
 - By deliberation (typically, “local search”)
 - Successful routines will be replicated quickly

OHP 11.4

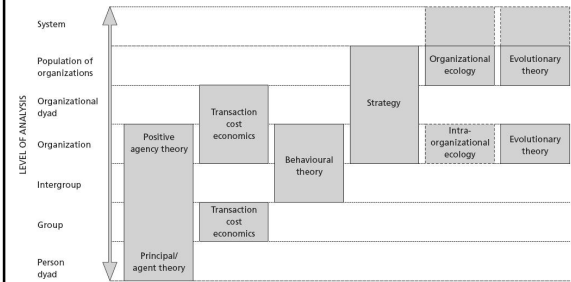


Figure 11.4 Levels of analysis

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OHP 11.2

