Information, Organization, and Management

Unit 2

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Unit 2: Overview

- Markets and Corporations
- Coordination and Transaction Costs
- Wallis/North: Empirical Findings
- Transformation and Transaction Services
- Markets as Processes
- Entrepreneurship
- Organization Theory
  - Institutions
  - Game Theory
  - Property Rights Theory
  - Transaction Cost Theory
  - Principal Agent Theory
  - Contract Theory
- Impact of ICT on Market Structures and Organizations
Markets and Corporations
Coordination and Transaction Costs

• Scarcity and Choice
• „Raw“ Natural Goods vs. consumption
• Transformation: Raw materials -> Goods
• Requires coordination
• Approaches for the Reduction of Scarcity
  – Division of Labor
  – Specialization Gains
  – Production Detours
• All of them require exchange and coordination
  cf. Wigand/Picot/Reichwald (1997)

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Scarcity and Choice

• Humans have unlimited wants
• Resources are limited
• Resources must be allocated
• Examples
  – Microeconomic Perspective: Household Budget
  – Macroeconomic Perspective: Usage of Land, Labor, and Capital
Division of Labor and Specialization

• Mutually dependent

• Division of Labor
  – Breakdown of complex transformation processes into individual tasks and assigning dedicated workforce for single tasks or small sets of tasks

• Specialization
  – One individual is involved in only a very small task of the overall transformation

• Motivation:
  – Cognitive and temporal limitations of humans
  – Productivity gains: Specific knowledge, processes, skills

  cf. Wigand/Picot/Reichwald (1997)
Division of Labor and Specialization

- Specialization observable on various levels
  - By unit
    - Personal
    - intrafirm
    - interfirm
  - Geographically
    - sectoral
    - regional
    - national
    - international

cf. Wigand/Picot/Reichwald (1997)
Production Detours (Menger)

- Classifies goods according to their proximity to consumption
- Production Detour: Sacrificing immediate consumption for the sake of future productivity increase
- Example: Using grain as seed instead of food

cf. Wigand/Picot/Reichwald (1997)
Coordination

• Division of labor increases the problem of coordination:
  – who shall produce what in which quantity by when using which resources (...) ?

• Coordination does not happen automatically, but is a task in its own right
  – Exchanges must be initiated, negotiated, observed
  – also consumes resources
  – „Management“

• Ignored in neo-classical models
  – Determining prices etc. free of cost

cf. Wigand/Picot/Reichwald (1997)
Distribution of Experience, Knowledge, and Abilities

- Actors have different resources and skills
- Ability to process information is limited
- Asymmetric distribution of information
- Also, search and evaluation of information consumes resources
- Example: Capabilities and intentions of potential partners

cf. Wigand/Picot/Reichwald (1997)
Coordination of Economic Activity

• Coase (1937), Williamson (1975), Picot (1982)
• Transaction costs: „production costs of coordination“
  – using the market
  – internal
• Resources spent on
  – initiation
  – negotiation
  – completion
  – control
  – supervision

  cf. Wigand/Picot/Reichwald (1997)
Wallis/North: Empirical Findings

Percentage of Transaction Costs on GNP

simplified from Wallis/North (1986);
cf. Wigand/Picot/Reichwald (1997)
Trade-off: Specialization Gains vs. Cost of Coordination

• Further increase in specialization is limited by level of transaction costs (cost of coordination)

• Thus, technology and methodologies for reducing transaction costs are of utmost importance for future economic development.

cf. Wigand/Picot/Reichwald (1997)
ICT promises to reduce Transaction Costs

- Froogle vs. printed yellow pages
- Communication by e-mail, IRC, Skype vs. TTY
- ERP Systems
- eBay vs. Flea Market
- etc.
Factors Influencing Transaction Costs

Behavioral Assumptions
- Bounded Rationality
- Opportunism

Environmental Factors
- Transaction atmosphere, availability of capital and know-how, transaction frequency
- Uncertainty/Complexity
- Specificity

Distribution of Information

cf. Wigand/Picot/Reichwald (1997)

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Transformation and Transaction Services

• Transformation Services: Actual transformations

• Transaction Services
  – By industry: financial, insurance, wholesale, retails
  – By task within non-transaction industries

cf. Wigand/Picot/Reichwald (1997)
Impact of a Higher Market Dynamics on the Forms of Coordination

• Modification and adaptation of institutional arrangements consumes resources
  – Business Process Reengineering
  – Staffing
  – Updating of contracts
  – Any adaptation of capacities

• The higher the dynamics, the higher the likelihood of adaptation and associated costs.

  cf. Wigand/Picot/Reichwald (1997)
Markets as Processes

• Markets: Economic locations where supply and demand meet

• Neo-classical:
  – goods on one market are perfect substitutes - >homogenous/perfect market
  – all information is reflected by the price
  – all actors have all information

• Criticism: about half of all economic activity is about exchanging and processing information

  cf. Wigand/Picot/Reichwald (1997)

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Market Process Theory

• Paradigm: Asymmetric Distribution of Information

• Austrian School: Menger, von Mises, Schumpeter, von Hayek et al.

• Hayek: „The Use of Knowledge in Society“ (1945)

cf. Wigand/Picot/Reichwald (1997)

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Hayek: „The Use of Knowledge in Society“ (1945)

- Price as a mechanism to convey information
- Empowers actors to make good decisions with relatively little information
- Example: Rise in price for oil

cf. Wigand/Picot/Reichwald (1997)
Entrepreneurship

• Entrepreneurs: have „informational lead“
• Three functions of entrepreneurship
  – Innovation
    • Exploits „informational lead“
    • Only until other businesses imitate
  – Coordination
  – Arbitrage

cf. Wigand/Picot/Reichwald (1997)
Knight‘s Profit Theory

– Differences in risk preferences between individual
– Employment is an insurance surrogate
– Employer guarantees employment for a given duration, takes over risk of being able to sell results, gets profit for that

cf. Wigand/Picot/Reichwald (1997)
Arbitrage

- Exploiting differences in prices for goods on different markets
- Based on "informational lead"
- Important role
  - by exploiting the opportunity, arbitrator destroys the opportunity
  - makes markets more efficient and integrates fragmented markets
- Bridging discrepancies in time, location, and quantity

cf. Wigand/Picot/Reichwald (1997)

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Creative Bridges Between Information Spheres

Entrepreneurial Idea =

Information about supplier markets

Information about buyer markets

Information about transformation

cf. Wigand/Picot/Reichwald (1997)

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Organization Theory

• Institutions: „Socially sanctionable expectations, related to actions and behavior of one or more individuals“
• Stabilize expectations and facilitate the coordination of production
• Self-maintaining vs. such requiring supervision

cf. Wigand/Picot/Reichwald (1997)
Game Theory: Prisoner’s Dilemma

Lack of Institutional Arrangement -> suboptimal choices

cf. Wigand/Picot/Reichwald (1997)
Property Rights Theory

Foundations:
• Assumption: Individual maximization of utility
• Existence of Property Rights
• Existence of Transaction Costs
• Appearance of External Effects

cf. Wigand/Picot/Reichwald (1997)
Property Rights

• Rights to
  – use a good (usus)
  – change the form and substance (abusus)
  – keep the profits and carry the losses resulting from a good (usus fructus)
  – sell the good (right of liquidation)

cf. Wigand/Picot/Reichwald (1997)
Property Rights Theory: External Effects

• not all property rights are held by one individual

• not the full effect of economic consequences of usage of a resource on one actor

  – Example

    • I drive my car through the Inn valley and create pollution
    • A spark from a steam-engine train ignites and destroys a forest

  cf. Wigand/Picot/Reichwald (1997)
Property Rights: Efficient Setting

• Such distribution of property rights that minimizes the sum of transaction costs and the loss caused by external effects.
• Example: CO2 certificates
• Also for the internal structure of a corporation!
  – Modularization
  – HR / Incentives

cf. Wigand/Picot/Reichwald (1997)
Transaction Cost Theory

• Taking into account the resources spent on coordination (i.e. the transfer of property rights)
• Explains the existence of firms

cf. Wigand/Picot/Reichwald (1997)
Factors Influencing Transaction Costs

Behavioral Assumptions

- Bounded Rationality
- Opportunism

Environmental Factors

- Transaction atmosphere, availability of capital and know-how, transaction frequency
- Uncertainty/Complexity
- Specificity

Distribution of Information

cf. Wigand/Picot/Reichwald (1997)

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Specificity

• Value reduction of a good when used not for the originally intended purpose but the second best alternative.

• Sources
  – Location
  – Time
  – Logistics

cf. Wigand/Picot/Reichwald (1997)
Opportunism

• Strategic behavior of increasing one‘s own utility eventually at the expenses of others and under disobedience of social norms.

cf. Wigand/Picot/Reichwald (1997)
Uncertainty

• Likelihood of unexpected task modifications

cf. Wigand/Picot/Reichwald (1997)
Availability of Knowledge and Capital

- Ability to produce a good internally is subject to the availability of knowledge and capital

cf. Wigand/Picot/Reichwald (1997)
Market and Hierarchy: A Continuum in between

Hierarchy

Only Individuals Acting on Markets

cf. Wigand/Picot/Reichwald (1997)

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Coordination Forms and Specificity

cf. Wigand/Picot/Reichwald (1997)

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Impact of ICT on Market Structures and Organizations

cf. Wigand/Picot/Reichwald (1997)

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Principal Agent Theory

• Division of labor -> asymmetric distribution of information -> space for opportunistic behavior

• Examples of Principal/Agent relations

cf. Wigand/Picot/Reichwald (1997)
Principal Agent Theory: Problems

- Hidden characteristics
- Hidden Action
- Moral Hazard
- Hidden Intention

cf. Wigand/Picot/Reichwald (1997)
Principal Agent Theory: Solutions

- Signaling
- Screening
- Self-Selection

cf. Wigand/Picot/Reichwald (1997)
Contract Theory

• Classical contract:
  – commodities
  – short-term
  – change of partners easy, no dependencies
• neo-classical
  – as above, but spans some time
  – spec already an approximation
  – explicit mediation rules
• relational
  – contract is only an approximation

  cf. Wigand/Picot/Reichwald (1997)
Review Question 1

• Explain the basic assumption of the principal/agent theory. Name four typical failures and give an example of a principal/agent problem.
Review Question 2

• Use the findings from Wallis/North (1986) to explain why a microeconomic theory that assumes complete information in markets is deficient.
Review Question 3

• Explain how division of labor and specialization are interrelated.
Review Question 4

• Why is the reduction of transaction cost a necessity if we want to reach additional specialization gains?
Additional Reading

- Wikipedia: *Principal-Agent Problem*  
- Wikipedia: *Economic Calculation Problem*  
- Wikipedia: *Ideas and Life of Friedrich Hayek*  
- Wikipedia: *Transaction Cost Theory*  
- Wikipedia: *Game Theory*  
- Wikipedia: *Prisoner’s Dilemma*  
Reading Assignment for Next Unit

Thank you!

The slides of today‘s class will be available at [http://www.heppnetz.de/teaching/img/](http://www.heppnetz.de/teaching/img/) shortly.