

Study Guide: Information, Organization, and Management

FT2008

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Unit 1

Topics

- Exchange and Coordination & Division of Labor
- Computer-supported Coordination of Economic Activity
- Implications of Information and Communication Technology
- Exchange and Coordination of Economic Activity
- Division of Labor and Productivity
- Specialization Gains
- Computer-supported Coordination of Economic Activity
- Make or Buy
- Impact of ICT on Coordination

Review Questions

- Explain the principle of division of labor. Which effects cause the increase in productivity?
- Division of labor increases the effort for coordination. How does this limit the cost-efficient degree of division of labor?
- Explain the impact of information technology, in particular the Web, on the cost-efficient degree of division of labor.

Unit 2

Topics

- Industrial Engineering and Work Organization: 1920s - today
- Taylor: Scientific Management
- Ford: Standardization and Mass Production
- Hammer: Business Process Reengineering
- Criticism of BPR
- Reference Process Libraries
- The Cradle-Building-Problem
- Business Processes and Computer Systems
- Three Dimensions of Competitiveness
- Taylor: Tooling – The Science of Shoveling
- The Crisis of Taylorism and Fordism
- Hammer: Business Process Reengineering
- Criticism of BPR
- Long-tail Processes and the Economics of Automation

Review Questions

- Summarize the key aspects of Taylor's idea of „Scientific Management“.
- Give examples for the „one best way“ of executing a particular task.
- Is it easy or difficult to find the „one best way“?
- Are the workers able to find the „one best way“ for their tasks on their own?
- In Adam Smith's view on the division of labor, employees can improve the execution of a task as they like, e.g. for implementing better procedures which they invent during their work. Is that also feasible in Scientific Management?
- When does it pay out to find and implement the „one best way“ for a certain task?
- Explain the basic idea of Business Process Reengineering (BPR).
- How is BPR related to Scientific Management?
- Operational Efficiency (i.e. minimal cost per execution of a task) is just one dimension of competition between enterprises. Name and explain two other dimensions.
- Explain why the approach of Scientific Management created major problems when the business environment became more dynamic in the 1970s and beyond.
- Explain how Tayloristic businesses face problems spotting the need for change and adapting to changes in the environment.
- Explain the phenomenon of a „long tail“ of processes in enterprises. Why are only frequently executed processes supported by IT?

Unit 3

Topics

- Coase: The Nature of the Firm
- Williamson: The Economics of Organization
- Wallis and North: Measuring the Transaction Sector in the American Economy
- Read: I, Pencil. My Family Tree as told to Leonard E. Read
- Efficient Division of Labor
- Specificity of Goods
- Malone et al: Electronic Markets
- Sampson: The Myth of Diminishing Firms
- Arbitrage
- Opportunism

Review Questions

- What are transaction costs? List at least five types of activities that create transaction costs.
- Explain how the level of transaction costs influences the choice between producing a good internally („make“) vs. purchasing it on the market („buy“).
- How do transaction costs affect the total size of corporations (e.g. in terms of the number of staff members)?
- Do transaction costs limit the cost-efficient degree of division of labor?
- Which variables influence the level of transaction costs?
- Explain the impact of IT on the level of transaction costs.
- Explain the impact of specificity on the level of transaction costs. Why are the transaction costs higher for the exchange of *more specific* goods?
- Can economic policy (Wirtschaftspolitik) contribute to lower transaction costs? How?

Unit 4

Topics

- Principal Agent Theory
- Principal Agent Problems in E-Business
- Organizations and Institutions
- Information Asymmetry and Exchange
- Opportunism
- Hidden characteristics, Hidden Action, Hidden Information, Hidden Intention
- Game Theory: Prisoner's Dilemma
- Institutions: „Socially sanctionable expectations, related to actions and behavior of one or more individuals“ - stabilize expectations and facilitate the coordination of production
- Contract Theory: Classical contracts, neo-classical contracts, relational contracts

Review Questions

- Explain the Principal-Agent Theory. How does the asymmetric distribution of information allow opportunistic behavior, and which types of failures are the result?
- Give examples of principal-agent relations and explain the problems that may occur.
- Can you think of scenarios in which both sides of a business relationship are at the same time principal and agent?
- How can institutions help reduce the level of transaction costs?
- Explain why contracts are often only approximations of the intended agreement. How can mediation rules complement incomplete contracts?
- Do principal-agent problems increase the level of transaction costs?
- How can the principal reduce the risk of adverse selection without screening the potential agent?

Unit 5

Topics

- Computer Systems, Models, and the Real World
- Formalization: Importance and Limits; Formalization as a precondition of ICT
- Algorithms: Sequence of processing steps that solves a given problem
- The Critical IT / Process Divide
- Querying the Process Space
- Manipulating the Process Space
- Semiotics: Scientific research of objects and functions of communication processes
- Levels of Semiotics
- Syntactic: Analysis of signals and relationship between signals
- Semantic: Analysis of signals and their meanings
- Pragmatic: Analysis of signals and their effects
- Problems and limitations of using IT for business problems
 - Modeling Costs
 - Blurry means for specifying the intended meaning
 - IT represents reality and is part of reality
 - Model Perspicuity (if humans communicate only via a model, they may misunderstand each other)
 - Dynamics and Evolution
 - Computability

Review Questions

- Explain the relationship between real-world problems and models of these problems executed inside computer systems.
- Why do we have to translate real-world problems into models in order to use a computer?
- Who takes care of this translation?
- What happens in the relation between the model and the real-world problems if the real-world problems change over time?
- What is meant by „computability“ and how does it limit the usage of computers for business problems?
- Give examples of business problems for which the computational complexity is so high that it constraints the practical usage of certain algorithms.

Unit 6

Topics

- Network Externalities: Positive, negative, direct, indirect
- Metcalf's Law
- Standards and Standardization
- Effects of Standardization
- Strategies for Successful Standardization
- Switching Costs
- Lock-in
- Pricing in the Internet Age: Differential Pricing
- Versioning as Strategic Choice
- Moore's Law

Review Questions

- What are network externalities?
- What is the difference between positive and negative network externalities?
- What is the difference between direct and indirect network externalities?
- Explain how standardization causes network effects and switching costs.
- How can vendors use switching costs to increase their profits?
- Should the pricing of information goods be based on their production costs?
- How can versioning of information goods be used to increase vendor profits?
- Explain Moore's Law and discuss how it may affect the future market for human labor.

Unit 7

Topics

- The Semantic Web Vision
- Limitations of the Current Web: Search by Words
- Limitations of the Current Web: Combining Web Content and Reuse
- Universal Resource Identifiers (URIs) and URI Schemes
- First Class Objects (FCO)).
- Cool URIs
- Data Model: RDF
- Vocabulary: Languages: RDF-S, OWL
- Annotation

Review Questions

- Explain how the current Web is limited as far as search and the combination of content from multiple Web pages is concerned.
- What are homonyms and synonyms and how do they affect search on the Web?
- Summarize the Semantic Web vision.
- Is the Semantic Web a new Web or an extension of the existing Web?
- What are „cool“ URIs and why are they important?
- Explain the basic contribution of RDF for the Semantic Web vision.
- What is meant by „Annotation“?

Unit 8

Topics

- Motivation for Models of Information and Communication
- Communication Models
- Levels of Semiotics
- Technical Communication Model
- Novelty Confirmation Model
- Axioms of Communication (Watzlawick, Beavin, Jackson)
- Communication Interferences (Schulz von Thun)
- Coordination of Action (Habermas)
- Radical Constructivism
- Media Richness and Managerial Choice (Daft/Lengel)
- Evaluation of Information

Review Questions

- Do you think information is a special good? Is it fundamentally different from capital, land, labor, and other input factors to production?
- Communication is based on digital and analog modalities. What does this mean for someone presenting a proposal to a new audience?
- Explain how hiring business consultants can have a signaling effect.
- How can the media richness theory explain why e-mail is not always the most efficient means of communication?

Thank you & all the best for the exam!