

Executive Summary

Negotiation and Market Engineering

– Dagstuhl Seminar 06461 –

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Negotiations are ubiquitous and during the last decades electronically supported negotiations became indispensable for business life. Recent years have witnessed significant changes in electronic markets and trading organization enabled by new technologies. These new technologies have created significant opportunities for reduced transaction costs, negotiation support, and automated trading. The workshop series aims to foster international collaboration among researchers working on (electronic) negotiations with different levels of analytical negotiation support, communication support, and automation as well as on trust, enforcement, and other aspects of electronic markets.

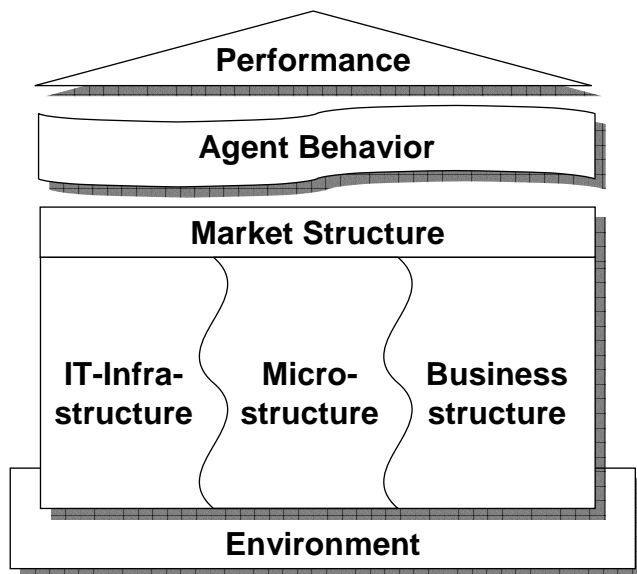


Figure 1: Framework for electronic markets

Market Engineering – the structured, systematic, and theoretically founded procedure of analyzing, designing and introducing electronic market platforms – provides a comprehensive and interdisciplinary view on electronic negotiations and markets. The structure of an electronic market is compiled of three pillars as sketched in figure 1. The focus of the workshop series is the interrelation of the IT-infrastructure, the microstructure, and the business structure for electronic negotiations. Beyond this, the influence of the overall market structure on the market performance is a key question to address.

The market structure thereby does not directly determine the performance—it acts via the agent behavior. Thus, understanding the decision strategies and heuristics agents apply in electronic markets, especially in negotiations, is crucial.

The **IT-infrastructure** offers a wide range of options: starting from simple communication support (e.g. two negotiators communicating via e-mail), over analytical decision support (e.g. negotiation support systems aiding in the offer analysis) to entirely automated negotiations (e.g. trading software agents). Currently, these different research branches evolve rather separately.

The **microstructure** of electronic markets does not evolve like in many traditional markets; it has to be consciously designed. The processes and protocols for an electronic negotiation have to be implemented in code and, thus, “code is law”. Therefore, one should carefully engineer the rules and respective laws of the microstructure before building an electronic negotiation system. Research on negotiation protocols and cognitive processes mainly comes from economics.

The **business structure** comprises the negotiation fees and everything related to the shareholders around a negotiation or market platform or software. Questions like accessibility, monitoring, accounting, billing, and the revenue model have to be addressed for commercially operating the infrastructure. To date, the business structure is a very open field for research and the seminar intends to encourage work in this direction.

The workshop series aims at bringing together researchers working on: (1) negotiation support systems and automated negotiations as part of the IT-infrastructure, (2) researchers working on microstructure aspects like negotiation protocols, reputation mechanisms, and enforcement, (3) researchers working on negotiation strategies, heuristics, and the cognitive processes of negotiators, and (4) researchers working on the socio-economic environment including legal aspects of negotiations and electronic markets, especially on contracting and regulation. This interdisciplinary combination of applied computer science and microeconomic as well as legal, psychological, sociological research promises to lead to a holistic view on engineering electronic negotiations. The wide variety of approaches, technologies, and experiences shared by seminar participants are brought together to produce a comprehensive view on engineering economic transactions over the Internet.

Current research topics in the area of this seminar include, but are by far not limited to:

- IT-Infrastructure
 - Decision Support Systems
 - Automated Negotiations
- Microstructure
 - Negotiation protocols
 - Auction mechanisms
 - Reputation mechanisms
- Business structure
 - Evaluating, pricing, and billing negotiation support services
 - Pricing of transaction services
- Analyzing agent behaviour and testing market performance
 - Performance measurements across different protocols
 - Laboratory and field experiments; computer simulations and multi-agent systems
- Market and environment analysis
- Engineering of services supporting market platforms and participants