

*Organizational Semiotics: a state of the art report.*  
by Henk W. M. Gazendam (March 23, 2004)

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## What is organizational semiotics?

*Organizational semiotics* tries to understand organizations based on the use of signs, texts, documents, sign-based artefacts and communication, thereby using the results of for instance psychology, economics, and information systems science as basic disciplines. One of the aims of organizational semiotics is showing what you are doing when you are trying to understand, design or change organizations in terms of the use of for instance models and metaphors. This is done in order to liberate people from being trapped in the (unconscious) use of a specific metaphor or model type, and to make visible design space.

Organizational semiotics is a branch of semiotics. Semiotics, as seen from the viewpoint of organizational semiotics, studies signs or texts or documents or sign-based artefacts or perhaps memes as relatively autonomous and persistent phenomena. These texts, signs, documents are studied in their relation to their author, their reader, the world they represent, and other texts. There seems to be a triadic system (Peirce would be pleased to hear that) consisting of living creature, ecological system and sign. Psychology focuses on the living creature as a system having a mind, evolutionary biology focuses on the ecological system as a whole, and semiotics focuses on the sign. There are three fundamentally different approaches to the elementary unit of communication in semiotics, and all three have found their way now into organizational semiotics. These three approaches are based on the text, the sign and the meme as fundamental units, respectively. Organizational semiotics has found its place based on its practical applications in the field of analyzing and designing organizations, economic transactions and information systems using approaches, frameworks and methods that have been developed as alternatives to mainstream methods. Well-known methods are, for instance, linguistic analysis of communication during work, actor interaction analysis, actor task analysis, semantic analysis, norm analysis, and simulation model building.

## History of organizational semiotics

Organizational semiotics started around 1973 with Ronald Stamper's seminal book 'Information' (Stamper, 1973), a book that was intended to be the first chapter of a book on information systems design called 'organizational semiotics'. After this book, Ronald Stamper went on developing methods for analyzing organizations and specifying requirements for information systems. This suite of methods called MEASUR originated in the years 1984-1996, was defended by Ronald Stamper in the IFIP FRISCO group as can be seen in the FRISCO report of 1996, and has been excellently documented by Kecheng Liu in his book 'Semiotics in information systems engineering' (Liu, 2000). A parallel development in this field took place in the form of the work of Peter Bøgh Andersen, amongst others resulting in the first book on computer semiotics (Andersen, 1990). A first workshop on organizational semiotics took place in 1995 at Twente University, Enschede (The Netherlands). From 1999 on, there has been a yearly workshop (1999: Almelo, The Netherlands; 2000: Stafford, United Kingdom; 2001: Montreal, Canada; 2002: Delft, The Netherlands; 2003: Reading, United Kingdom). These workshops have resulted in a series of reviewed and edited post-workshop books, published with Kluwer Academic

Publishers. The next workshop will take place in Setubal (Portugal), 19-20 July, 2004. Organizational semiotics will also be present at the 8<sup>th</sup> IASS congress in Lyon (<http://sites.univ-lyon2.fr/semio2004>), 7<sup>th</sup>-12<sup>th</sup> July, 2004, in a round table session. A website is in development at <http://www.orgsem.org>.

### Approaches within organizational semiotics

Within organizational semiotics, three major approaches can be discerned: (I) system-oriented approaches, (II) behaviour-oriented approaches, and (III) knowledge-oriented approaches. These three approaches partly correspond to Andersen's (1991) distinction between signs as *systems*, a psychological view of signs as *knowledge*, a sociological view of signs as *behaviour*, and an aesthetic view of signs as *artefacts*.

#### *System-oriented approaches*

System-oriented approaches include sign system oriented approaches, evolutionary approaches and systems-theoretical approaches.

Sign system oriented approaches studies media (spoken language, texts, instruments, computer interfaces) as sign systems, and sees the use of these media by people as based on systems of narration and interpretation. to the linguistic analysis of the used signs, and to the development of models for understanding the interpretation of signs by people. User interaction with media (texts, computer interfaces, instruments) is observed, as well as communication between people at work. The used media are analyzed using linguistic tools and organizational viewpoints like work practices (One of the branches of sign system oriented approaches, systemic semiotics, uses systemic functional linguistics and elements from social semiotics and organization theory). Media are analyzed semiotically into the smallest components and operations, using for instance sign types. Models are developed to understand the interpretation of sign systems by users using for instance conceptual spaces, case theory, and object-oriented modelling.

Evolutionary approaches and systems-theoretical approaches focus on the dynamics of the social system, for instance society, the web, an organization, a collection of organizations, as a whole. Evolutionary approaches choose strategies for survival and selection in evolutionary time as basic mechanism, while systems-theoretical approaches focus on state functions and mutual influence of interacting systems.

Key researchers in this field are: Peter Bøgh Andersen (Aalborg University, Denmark) and Rodney Clarke (Staffordshire University, United Kingdom).

#### *Behaviour-oriented approaches*

A fundamental viewpoint of behaviour-oriented approaches in organizational semiotics is that there is no knowledge without a knowing actor, and that there is no knowledge without action. Behaviour-oriented approaches have been the most influential approaches within organizational semiotics until now (based on the number of publications and researchers). Within the behaviour-oriented approaches, information field based organizational semiotics can be distinguished from interaction structure based organizational semiotics.

#### *Information field based organizational semiotics*

Information field based organizational semiotics (the Stamper school of organizational semiotics) is based on the idea of an information field (Stamper, 1973, 2001; Liu, 2000). Humans are seen as agents. Agents act influenced by the forces that are present in an information field. These forces originate from the norms that are

shared in an organization or social community. An information field consists of physical affordances and social affordances, and the norms attached to them. Physical affordances are physical objects, physical spaces, and other physical agents that afford certain behaviour by a species. Physical affordances correspond to behaviour patterns, and are defined in terms of these behaviour patterns. In the Stamper school of organizational semiotics, it is said that affordances *are* behaviour patterns. For instance, a car affords driving by humans and transportation of humans and other species from one place to another. Physical affordances often have norms attached to them based on an associated social affordance. For instance, a car generally will be associated with ownership, and ownership has norms attached to it regarding who is allowed to decide about the use of the car. Social affordances can be seen as social constructs existing as signs that can be created and annihilated by agents having the appropriate authority. Sometimes, these social affordances have the character of contracts between agents. Once they exist, social affordances afford, that is, authorize and stimulate, certain behaviour patterns of the agents concerned. Norms are attached to each affordance type governing the creation, annihilation, and use of particular affordances belonging to that type. A social affordance may be the prerequisite for another social affordance.

Important steps in the analysis of organizations in information field based organizational semiotics are semantic analysis and norm analysis. In semantic analysis, agents and the affordances they create and use are distinguished at the type level. Agent types, affordance types, and their relationships together form an ontology chart. In norm analysis, the responsibilities of agents with respect to affordances are investigated, and the norms governing the behaviour of these responsible agents are specified. In information system design, the ontology chart can be the basis of an object model, while the norm description can be the basis for a behavioural specification, for instance in the form of use cases.

Key researchers in this field are: Kecheng Liu (The University of Reading, United Kingdom), Ronald Stamper (University of Twente, The Netherlands), John Connolly (Loughborough University, United Kingdom), Cecilia Baranauskas (UNICAMP, Brazil), Samuel Chong (Accenture, United Kingdom), and Michael Heng (University of South Australia, Australia).

#### *Interaction structure based organizational semiotics*

Interaction structure based organizational semiotics has its roots in the language action perspective and focuses on actions and the actors performing these actions. Humans are actors. Human actors can act on behalf of an organization; in this case the human actor is an agent of the organization, and the organization can be seen as an actor.

An organization is seen as (1) an agreement (a communicative fact) between the principals and other parts of the society, and (2) a pattern of everyday actions that is continuously reproduced through communicative acts of its agents. Organizations are constituted and maintained through communication. Information systems are organizational sign artefacts with action capabilities. Information systems can also act as agents of an organization. Information systems are established through design actions. These design actions are of communicative character having a regulative force.

Actions can be part of a structured interaction between actors, for instance a business interaction. Such an interaction has a default structure consisting of generic

phases based on social convention. Actability is a property of something which enables and/ or contributes to the performance of the action.

In interaction-based organizational semiotics, the analysis of organizations and the related design of information systems typically focus on the charting of actions and language actions (communicative actions) between actors within organizations, and between organizations conceived as actors. This charting of actions generally leads to interaction diagrams. Frameworks that offer basic concepts and typical patterns of interaction are used to sharpen observation and to standardize modelling.

Key researchers in this field are: Göran Goldkuhl (Linköping University, Sweden), Jan Dietz (Delft University of Technology, The Netherlands), and Ewa Braf (Jonköping International Business School, Sweden).

#### *Knowledge-oriented approaches*

Knowledge-oriented approaches to organizational semiotics see knowledge as representations or sign structures in the human mind, enabling adequate behaviour of the human actor. Newell and Simon's symbol system hypothesis of cognition has been a very important step in the development of knowledge-oriented approaches in semiotics. Based on this hypothesis, the cognitive architecture of an actor is distinguished from knowledge, sign structures in the actor's mind that are processed by the cognitive architecture. In the ecological environment or semiotic Umwelt of the actor, actor-made signs express intentions, help remembering and enable communication. These signs can be seen as knowledge moving between actors, and are sometimes called information to distinguish them from knowledge in the actor mind. In this way a triadic system can be discerned consisting of the actor's cognitive architecture, the signs in the actor's mind (knowledge), and the signs in the actor's semiotic Umwelt made and perceived by the actor (information). A further distinction can be made between tacit or sensory knowledge, coded knowledge, and theoretical knowledge. Communication between actors requires the use of signs that exist in their shared semiotic Umwelt. These signs have a language action aspect and a content aspect. This content aspect can be seen as coded or documented knowledge; content with a certain structure, cohesion and theoretical dimension can be seen as a model or as theoretical knowledge. Tacit knowledge is knowledge in the actor's mind that is not expressed as signs in the semiotic Umwelt.

Within organizations, knowledge can be created by processes of construction. Knowledge about something that does not exist yet but has to be constructed (for instance, a new aeroplane, or new computer program) has to be attained by a process of discourse. In this process, actors take viewpoints based on their specialist knowledge and organizational role. Based on these viewpoints, views are expressed. In a process of negotiation, views are exchanged, compared, criticized, and possibly changed, with the aim to reach a set of compatible views that can be seen as organizationally constructed knowledge.

As a result of processes of knowledge construction, and other communication and learning processes, knowledge transfer and knowledge conversion can occur. Knowledge conversion is the change of knowledge from one type to another, for instance the change between tacit knowledge, coded knowledge, and theoretical knowledge. Knowledge conversion is an important perspective for studying the dynamics of organizations.

Multi-actor simulation models of organization can be based on simulated actors based on a cognitive architecture and social constructs that express actor commitments. Generally, these social constructs are the result of processes of

negotiation between the simulated actors leading to the solution of problems stemming from incompatible views and desires. Examples of such social constructs are plans, contracts, tasks, and norms. These social constructs are important instruments to achieve coordinated actor behaviour. A second type of multi-actor models is based on actors that are logically modelled including axiological, epistemic, and deontic components. These actors can express commitments, propose commitments and negotiate with each other about them, and accept commitments. In this way a process of knowledge construction resulting in social constructs can be simulated. Actor behaviour is based on commitments and other norms. A third type of multi-actor models is based on a special type of Petri-net that can handle signs, and sign processes, leading to a dynamic picture of the use of signs and other behaviour by actors in an organization. These simulation models can be used for the simulated re-engineering of organizations.

Typical methods of knowledge-oriented organizational semiotics are task analysis, analysis and characterization of organizational knowledge, observing and analyzing processes of knowledge construction, and developing multi-actor models of organizations.

Key researchers in this field are: Henk Gazendam (Groningen University and Twente University, The Netherlands), René Jorna (University of Groningen, The Netherlands), Pierre-Jean Charrel (Université Toulouse 2 Mirail and IRIT, France), Daniel Galarreta (Centre National d'Etudes Spatiales, France), Joaquim Filipe (Escola Superior de Tecnologia de Setúbal, Portugal), and Ricardo Gudwin (UNICAMP, Brazil).

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