

A CYBERNETIC MODEL OF ORGANIZATIONS CONNECTING ORGANIZATION AND CULTURE THEORY

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Abstract

The paper presents a cybernetic model that relates to classes of organization theory and culture theory. It is shown how existing theories/models can be extended and considerably be specified through Knowledge Cybernetics. The proposed model distinguishes between four domains (culture, strategy, structure, operations) and six processes (cultural guidance, strategy implementation, structural guidance, performance assessment, single- and double-loop learning). It can be used to map and interpret pathologies of social systems.

INTRODCUTION

Developments in the field of organization and culture theory have yielded different and sometimes competing classes of theories. While numerous approaches suggest certain and often similar elements for a respective model (e.g. Hatch, 1993; Homburg & Pflesser, 2000; Schein, 1985), they only provide limited insights into change in social systems and how organizations relate to their external environment, e.g. distinguished groups of stakeholders or society. Following criteria for comprehensive theories by Whetton (1989), most existing models fail to clearly indicate how their domains are linked to each other, thus might not explain, e.g. behavioral misconduct. Recent events, such as the BP oil spill in the Gulf of Mexico, raise the question how and why this has happened and whether existing organization theory can properly explain such outcomes. Behavioral misconduct is commonly seen as a consequence of organizational pathologies (Samuel, 2010: 159). However, well-grounded frameworks for the identification/resolution of such pathologies are to a large extent non-existent (Greve et al., 2010).

This paper is concerned with a meta-theoretical model that connects organization and culture theory to allow for social systems diagnostics. The notion of meta-frameworks is well-known in Managerial Cybernetics (Beer, 1981), Complexity Theory (Prigogine and Stengers 1984; Hemaspaandra and Ogihara 2002) and Knowledge Cybernetics (Yolles 2006). We draw on Knowledge Cybernetics due to its proven record of migrating theories and constructs from different fields of research (Yolles 2010). The rationale of the model follows cognitive learning theory (e.g. Argyris & Schön, 1978; Bandura, 1986 & 1988; Piaget, 1950) and information process theory.

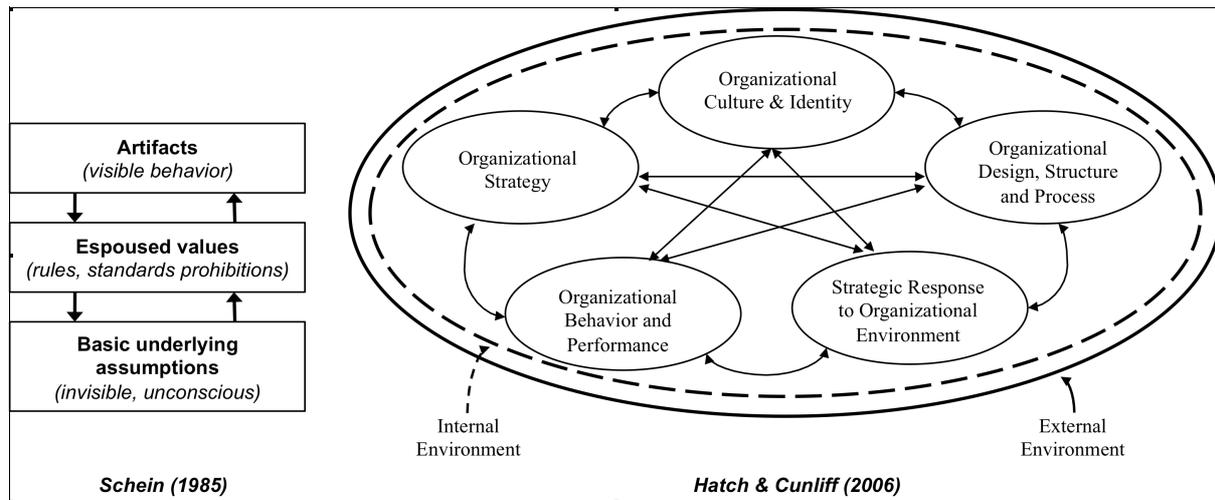
THE CYBERNETIC ORGANIZATION MODEL

In the following we will demonstrate how we derived with the proposed model and to which extent it is linked to different classes of organization and culture theory, assuming cybernetic relationships.

The derivation of a cybernetic model of organizations rooted in organization and culture theory

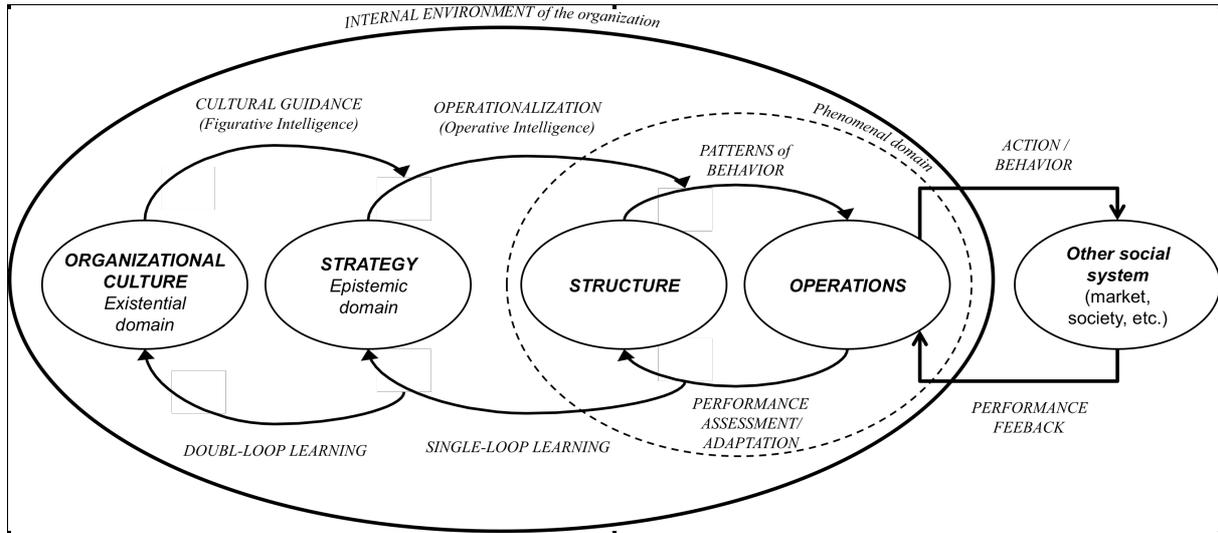
As this paper aims at developing a cybernetic model based on organization and culture theory we had to consider two broadly accepted existing models, e.g. Hatch & Cunliffe (2006) and Schein (1985). Both models are illustrated in Figure 1.

Figure 1: Models of organizations by Schein (1985) and Hatch & Cunliffe (2006)



Hatch and Cunliffe (2006) identify 5 major fields of organization theory: Organizational culture and identity, organizational strategy, organizational design and structure, organizational behavior and performance, and strategic response to organizational environment. While their model suggests which domains seem to be of utmost importance when analyzing organizations, it does not extend our knowledge about how these domains are related to each other and how they may change over time. Thus, there is need for a flexible organization theory framework, which defines domains and processes of organizations in a coherent and comprehensible systemic context. A first approach can be taken by considering the organizational culture model of Schein (1985), who suggests a certain hierarchy between ‘underlying values’, ‘espoused values’ and ‘artifacts’. Still, a precise definition of relationships among domains is not provided, which reaches beyond what is commonly defined as ‘organizational mechanisms’ (Pajunen, 2008). The model has to provide a powerful and extensible construct, which is able to respond to queries about problem situations. This was achieved by applying principles of Knowledge Cybernetics, considerations of Hatch and Cunliffe (2006) and Schein (1985), as is shown in Figure 2.

Figure 2: Cybernetic model the organization



The model considers a phenomenal, epistemic and existential domain. Table 1 provides an overview of how these domains belong to widely recognized organization and culture theory.

Table 1: Equivalences of the domains in the cybernetic model in organization and culture theory

Domains of the cybernetic model	Equivalents in organization theory (Hatch & Cunliffe, 2006)	Equivalents in culture theory (Schein, 1985)
Existential domain	Organizational culture	Underlying values
Epistemic domain	Strategy	Espoused values
Phenomenal domain	Structure, operations	Artifacts

The coupling between the distinct domains is cybernetic in nature, with feed-forward and feedback “loops” that are most simply described in terms of operative and figurative intelligence (Piaget 1950). Intelligence is the capability of an organization to appreciate its own knowledge in the light of available information and new knowledge, and to combine own knowledge with new knowledge in order to effectively pursue its interests. Intelligences help to consider the interests and influences of other social system (stakeholders, institutions, counterparts in the task environment), consider the agency's own goals and the goals of others, and to develop ideas about possible reactions of others to the action taken by the agency. In the following each domain and its relationships, represented by ‘circular causalities’, will be discussed.

The phenomenal domain of an organization: The relationship of structures and operations

Organizations are connected to their outside world through their phenomenal domain, in particular its operations, which become manifest through action/behavior. Operations make an

organization visible as a member of society. Structures are responsible for the ‘internal allocation of tasks, decisions, rules, and procedures for appraisal and reward, selected for the best pursuit of [...] [a] strategy’ (Caves, 1980: 64) and therefore provide a frame of reference for the development of certain ‘desired’ modes of operations and actions. Thus the phenomenal domain of an organization can be understood as a structural coupling between these two domains (i.e. structures and operations) and shall serve for the realization of strategies.

Changes in the phenomenal domain are triggered by performance feedback of other social systems, i.e. institutions, organizations, interest groups and individuals, which can be subsumed as stakeholders of an organization (Freeman, 1984). Performance feedback does not only refer to financial aspects, but might also include social pressure on organizations, if they behave in a non-corporate social responsible way.

Based on the established organizational information structures, an organization’s performance might be assessed and properly analyzed, in order to respond to actions of the external environment. If the set actions do not lead to the required outcome, an organization might adjust its structures to allow for new operations to emerge. However, it might be very likely that learning processes are required to properly respond to an organizations inadequate performance. These are dealt with in the following.

The epistemic domain: Strategic orientation and implementation

Strategy is commonly defined as the overall orientation of an organization for reaching pre-set goals and objectives (Chandler, 1973; Whittington, 2001) and ‘is an organization process, in many ways inseparable from the structure, behavior and culture of the company in which it takes place’ (Andrews, 1971: 53). Consequently, strategies are aimed at achieving economic and social viability, which guarantee organizational survivability. The phenomenal domain is designed in such a way that it supports and facilitates the operationalization of strategies to become successful action/behavior. In organization theory, the relevance of strategy-structure fit is stressed by several scholars (e.g. Andrews, 1971; Ansoff, 1965; Williamson, 1975). Amburgey & Dacin (1994) and Harris & Ruefli (2000) stress that the relationship between structures and strategies is recursive, thus implies a cybernetic relationship, expressed by a feedback ‘loop’.

Changes in strategy take place through a ‘processes of detecting and correcting error’ (Argyris, 1977: 116), which is known as ‘organizational learning’. However, only organizations which ‘purposefully construct structures and strategies so as to enhance and maximize organizational learning’ can be considered as ‘learning organizations’ Dodgson

(1993: 377). There might be barriers to learning such as ‘poor vertical communication’ or ‘poor coordination of functions, business or borders’ (Beer & Eisenstat, 2000). These refer to the phenomenal domain and emphasize the role of structures in processing and distributing information within an organization. This process can best be explained by ‘single-loop learning’, which denominates the processes of detecting errors and adjusting existing strategies to meet new requirements. ‘Double-loop learning’, however, considers a more profound process of learning, where ‘underlying organizational policies and objectives’ (Argyris, 1977: 116), i.e. organizational culture values, are questioned to turn an organization into an economic and social viable system.

The ability to transform a strategy into actual behavior is understood as ‘operative intelligence’. ‘Operative intelligence’ manifests actual behavior in interaction with the outside environment. It constitutes the observable form of strategies and through action provides the organization's contribution to the common good. Operative intelligence determines desired patterns of behavior and collects information about states of reality in the feedback/learning processes from the environment to pursue its goals effectively and efficiently.

The epistemic domain: Organizational culture as shared ethics of doing business

Organizational culture is blamed to have a significant impact on organizations competitiveness (e.g. Barney, 1986; Cameron & Quinn, 2005) and performance (e.g. Gordon & DiTomaso, 1992). Thus, considering ‘underlying values’ (Schein, 1985), which influence an organization’s actions and interactions with other social systems seems crucial. We conceptualize organizational culture as the fundamental values of an organization that determine the shared ethics of doing business. It has a considerable impact on how strategies are formulated and operationalized through structures and operations. The ability of communicating and ‘applying’ organizational culture values to the epistemic and phenomenal domain is defined by an organization's figurative intelligence. Figurative intelligence provides (or projects) a set of figurative images (desired outcomes of future action) that should solidify and form strategies, structures and operations of an organization. Figurative intelligence decides what kind of information assembled through operative intelligence will be considered as important (relevant) and will be either used to re-emphasize its own strategies or to decide about necessary adaptations of strategies or even organizational culture values.

CONCLUDING FINAL REMARKS

The validity of the model can be partly addressed by considering criteria for generic models (Simpson et al., 2005), which have been met to a large extent:

(1) A generic model should be connected to widely recognized fundamental properties and processes of an object of attention

(2) A generic model should reduce complexity

(3) A generic model should provide a powerful and extensible construct for modeling that is able to respond to queries about problem situations

(4) A generic model should recognize epistemic distinctions like objects, events, boundaries, processes and the environment

(5) A generic model should be able to provide structured response to complex problem situations

While these criteria might provide some evidence for its theoretical validity it still requires to be tested empirically by conducting, e.g. case study research. However, the cybernetic model might serve as a first attempt (1) to synthesize organization and culture theory in light of knowledge cybernetics towards a meta-framework of organizations and (2) to provide a flexible and powerful tool to investigate systematically in pathologies of social systems, which would be represented by inefficient or even blocked processes between the suggested domains.

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