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# Inside Organizations and Out. Methodological Tenets for Empirical Research Inspired by Systems Theory

*Cristina Besio & Andrea Pronzini\**

**Abstract:** »Innerhalb und ausserhalb von Organisationen. Methodologische Grundsätze einer durch Systemtheorie inspirierten empirischen Forschung«. This paper focuses on how organizational research inspired by Niklas LUHMANN's systems theory can be epistemologically framed and methodologically designed. Central methodological pillars such as structural and semantic analyses, observing contingencies, explaining trivialities, functional analysis and exploring coupling mechanisms are discussed. Drawing from several empirical studies, we demonstrate that systems theory is a highly efficacious framework for the study of modern organizations, as it permits an uncommon observational perspective that is able to question what is often taken for granted. Finally, we highlight how management can profit from systems theoretical research on organizations.

**Keywords:** organizational research; systems theory; functional method; semantic analysis; management research.

## 1. Introduction

Organizational studies have demonstrated a growing interest in Niklas LUHMANN's systems theory (1984, 1997) in recent years (see e.g. HERNES & BAKKEN, 2003; SEIDL & BECKER, 2005). However, this general acknowledgment of the theory's conceptual potential has not gone hand in hand with a concomitant increase in empirical research drawing from the same approach. As it would seem, sociological systems theory does not dispose of a methodological foundation capable of steering empirical studies. Verily, it remains unclear how research questions driven by systems theory can be opera-

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tionalized. While examining topics such as decision-making processes in modern society, discrepancies between semantics and structures, or paradoxes in organizations, scholars currently find themselves in the academically unsettling situation of tackling these questions without sound methodological orientation (BAECKER, 1994). Clearly, a more in-depth discussion of adequate research designs based on Niklas LUHMANN's systems theory is needed.

Nevertheless, the general "complaint" outlined above which is related to the assumption of the dearth of methods offered by systems theory is grounded in an equally widespread misinterpretation of Niklas LUHMANN's work (see e.g. BESIO & PRONZINI, 1999, 2008). Contrary to prevalent scholarly opinion, Niklas LUHMANN's work (1984, 1997) contains several methodological guidelines and suggests a specific and consistent methodology. Moreover, even if the full potential of this theory for organizational studies has not yet been exploited, there are already several empirical studies which suggest its future usefulness.

Starting from these considerations, this paper aims to show that Niklas LUHMANN's systems theory can be regarded and implemented as an appropriate framework for the study of organizations, as it permits a relatively uncommon perspective, above all prompting inquiries into the taken for granted. Moreover, the paper endeavors to provide practical suggestions on how to create an organizational research design based upon systems theory. It is further argued that insights stemming from systems theory-driven research have the potential to enrich management practices. The paper is organized as follows: We start by outlining some important epistemological assumptions of systems theory (Section 2). This is necessary because the assumed misconceptions involving the theory's methodology are actually epistemological, and not methodological, issues (LUHMANN, 1987, p.36). Only with a clear understanding of what systems theory regards as knowable it is possible to judge what type of empirical research fits this theory. In the main section, we introduce some methodological pillars for studying organizations, also summarizing some examples taken from different studies (Section 3). Finally, we highlight how management can profit from a sociological systems theory backed by a solid, more explicitly formulated methodological framework (Section 4).

## 2. Epistemological Assumptions

Much of the "methodological misinterpretation" outlined above results from the translation of unsuitable epistemological criteria and expectations into systems theory. One cannot pretend that the approach in question provides methods that satisfy the canons of classical methodology when it is the same (canonical) epistemological foundations which systems theory denies. Problems begin to arise in particular when the methodological consistency of systems theory is measured against methods grounded in basic assumptions such

as the subject/object distinction and which, albeit with laudable finesse, try to establish a correspondence between scientific statements and reality. As long as observations remain based on the subject/object distinction, the world is viewed as an object both separate from the subject and acting as the ultimate reality. It is thus assumed that reality exists independently from observers; every unerring subject should furthermore produce the same description of the world.

Searching for methods suitable to systems theory means donning the spectacles of operative constructivism (LUHMANN, 1990; ESPOSITO, 1992). The principal distinctions then become system/environment and operation/observation (BESIO & PRONZINI, 2008). This conceptual shift has far reaching epistemological consequences. In a genuinely constructivist manner, systems theory assumes that the “world out there” ultimately remains unobservable and the observer can only refer to it using distinctions or schemes for which there is no direct correlation in the world. An observer is always a system, that is to say, a specific context of operations which differentiates itself from the environment while relying on a single principle (e.g. thinking or communication). Observation schemes are developed within the network of system operations. Thus, any type of external “reality” cannot be known by a system, which is limited to (and only capable of) constructing its own reality for phenomena beyond its own boundaries. This constitutive process is achieved by the system itself, using its own schemes.

However, this proviso implies neither an attitude nor a conceptual premise of “anything goes.” Niklas LUHMANN’s constructivism (1990) is called “operative” because the absence of arbitrariness depends on the fact that every observation of the observing system, e.g. science, is also an operation linked to other operations of this same system. The ultimate reality is the reality of the system, which has to construct a network of observations while continuing to operate. As a consequence, a description of reality “works” as long as the observing system can continue to operate with it. Internal boundary setting is the basic mechanism implemented to create control over observations. In science, this regards the internal construction of connected concepts, rational criteria, rules for inferences, methods, disciplines, and so on. In this context, not every operation, for example not every empirical design, is admitted.

Every system, even science, operates in an environment that must tolerate it to permit the system’s continued operation. Niklas LUHMANN (1990, p.38) is clear about his perspective, stating in no uncertain terms that the environment counts. A system continues operating within an environment. This circumstance also excludes some operations. For example, specific scientific explanations may not be plausible in a certain society and therefore research in these fields becomes difficult to legitimate. Of course, the natural environment counts and, although it is not directly accessible to the observing system, also constrains the latter. The world is not a direct source of information. The

world does not “protest” or provide clear signals to tell the observer whether his or her representations are “true” or “false” in any objective sense. It can, however, show signs of disquiet by tolerating only a limited range of structures (theories, methods, descriptions, etc.).

The idea of theory as a construct is widespread in the social sciences. In contrast, empirical observation is often still considered capable of accessing the world “as it is.” Quantitative approaches typically use empirical research in order to “verify” hypotheses. One is aware that the hypotheses are a construction, but their truth or falsity is treated as a matter in which reality can step in to arbitrate. Despite the difference between quantitative and qualitative approaches, even qualitative research strives in many cases for observing the world “as it is.” Interpretative approaches such as ethnography or discourse analysis maintain that social reality is symbolically constructed. One of their fundamental assumptions is that the world is pre-structured by competent observers. Methodologically, these approaches aim to reconstruct reality from the point of view of the actors who are themselves under observation. The researcher interprets the world from the perspective of the observed subjects (LAMNEK, 2005, pp.252-254). This means that empirical observation has to reconstruct these interpretations in a “true-to-reality” fashion. The specific observation schemes of the researcher must be prevented from interfering.

Sociological systems theory clearly states that, both theory and methods communicate a reality which turns out to be nothing but the product of a system. Reality is the internal reference to an inaccessible world which is controlled by the internal consistency of an observer’s operations (e.g. operations which reference existing theory and methods) and the degree of tolerance of the environment (e.g. society). As a consequence of this perspective, empirical research does not have better access to reality. Theory and methods, therefore, are both scientific (systemic) structures with different functions. While theory offers improbable descriptions of the world, methods establish the rules that have to be followed in order to apply the code true/false to propositions (BE-SIO & PRONZINI, 2008). For systems theory, both theory and methods are necessary and interrelated science-constituting programs that set specific mutual constraints, and exclude arbitrariness. On the one hand, methodological rules have to be harmonized with theory. This means that the focus of different research techniques and how different methodological aspects will coalesce and interrelate are steered by theory. On the other hand, empirical findings can eventually produce theoretical modifications. In the following, we will focus on methodology.

### 3. A Systemic Methodology for Studying Organizations

For systems theory, empirical research means theory-driven observation. The link between theory and methods is strong. However, the main task is not to

test a hypothesis by controlling a representative sample. Instead, systems theory adopts an exploratory attitude toward empirical material, thereby searching for tendencies that it regards as relevant and for which it can offer a meaningful interpretation.

In the following, we present some possible approaches to empirical research based upon systems theory. We will discuss structural and semantic analysis, the observation of contingency, the explanation of trivialities, functional analysis, and the exploration of coupling mechanisms. While these different approaches stress a particular aspect, they are not mutually exclusive options and can be combined.

### 3.1 Chains of Decisions

Approaching organizations from a systems theory-based perspective means analyzing them as social systems. Many concepts such as complexity, self-organization and reflection gain substance only when they are placed in relation to the concept of system. In systems theory, organizations are defined as autonomous systems which differentiate themselves from an environment. They do this primarily by reproducing specific operations: decisions. The production of recursively related decisions constitutes the unity of organizations (LUHMANN, 2000a). Other features such as formal structure are secondary and would not exist without operative closure on the basis of decisions. “Secondary,” however, does not mean superfluous. Every decision opens up a wide array of communicative options. But, if too many possibilities exist, the subsequent decision has to process a massive amount of information. As a consequence, it becomes nearly impossible to decide, the system can be easily “overwhelmed” and faced with the risk of disintegration. While this is true for all types of communicative systems, decisions create specific problems. A decision is the communication of the selection of an alternative. Every decision contains an inherent bundle of alternatives and therefore produces a visible contingency: a different decision could always have been reached. This means the decision is often open to further questioning on the part of organization members, thus placing it on unstable footing. Under these circumstances, a system is only operational if structures such as hierarchies or organizational culture develop and stabilize. Structures limit the set of possible relations between communications and therefore transform contingency into a structured complexity.

This has important consequences for empirical research. According to the above definition of organization, decisions and not actions should be taken as the main *research objects*. The individual no longer constitutes the last analytical reference point. Systems theory abandons the idea of explaining organizational practices by means of actions and their underlying intentions. An analysis considering individuals would involve the introduction of too many non-

essential elements for the explanation of organizational dynamics. Unfortunately, this mandate of observing communication is faced with the problem that communication cannot be observed as such, but can instead only be inferred (LUHMANN, 1984, p.226; BRIER, 2007, p.41). Communication bundles three different selections; these are utterance, information and understanding (see LUHMANN, 1997, p.72). An act of communication is understood socially only as long as an observation results from the difference between utterance and information. Simply writing or saying something does not suffice; the basic elements, and not only the structures of social systems, are genuinely social and, therefore, communicative. The aspect of understanding is highly relevant here, as it allows for the self-referential processing of communication. Though it remains “invisible,” understanding is crucial for communication and constitutes the prerequisite and basis for further utterances. As a consequence, understanding can be analyzed through its consequences for utterances. Observing the connection (VOGD & SAAKE, 2008, p.19), we can empirically infer communication. Methodologically, one can reconstruct communication as a sequential chain of operations (SCHNEIDER, 2000; VOGD, 2009).

To be sure, autopoiesis – that is, the process of reproduction of the elements of a system by those very same elements (in the case of social systems, the reproduction of communication through the network of communications) – is a fundamental concept which eludes empirical testing. What can be empirically observed, however, is how different organizations are able to sustain their decision-making processes, i.e. how they ensure that subsequent decisions do in fact follow. Only in this sense can one actually “observe” autopoiesis in action. Empirically, chains of communication and concrete structures are examined. The advantage of defining organizations through the nature of their operations instead of their formal structure is that a variety of elements can be analyzed at the structural level: not only formal structures such as programs or hierarchies, but also cultures, values, and so on are modern organizational forms involved in decision processes.

Appropriate *methodological procedures* for this purpose can include interviews with organizational members, participant observation, conversation analysis, or also objective hermeneutics. Interviews and participant observation are two data collection procedures that allow the researcher to gain access to the mechanism that sustains decision-making processes in organizations. Content analysis, conversation analysis, or objective hermeneutics are all adequate tools for data analysis, to the extent that they are applied with the aim of identifying sequences of decisions, of following the unfolding of communication over time and deconstructing, and subsequently reconstructing, social constructions (HAUSENDORF & BORA, 2006, p.88). In other words, different methodological procedures are adequate insofar as the researcher remains attentive to the specific methodological focus and observational approach of system theory. Empirical *findings*, therefore, are not explanations of chains of action,

but of chains of communication. This also implies that light may be shed on structures, expectations and schemes of observation that shape communicative sequences and are at the same time a result of communicative sequences.

One example of a study with this focus was conducted by STICHWEH (2002) and his colleagues on the diffusion of knowledge at the international level. The research project relies on different methodological procedures such as historical analysis and the secondary analysis of empirical studies. The central methodological pillar is represented by semi-structured expert interviews and by informal talks with selected members, mainly executives, of research institutes and universities, as well as the research and development (R&D) units of multinational organizations. As far as the expert interviews are concerned, the team adopts a *problem-centered* approach: the researchers use these expert interviews to gain insights into international organizational contexts, structural data, research cultures and relevant networks (STICHWEH, 2002). The informal conversations provide a means to grasp daily routines and interactional practices. The interpretation of the data does not utilize a canonical content analysis, but implements a comparative examination guided by the research questions. Through the combination of these methodological procedures, the study compares different paths of globalization in scientific and economic organizations (STICHWEH, 1999). The findings show that the global exchange of knowledge in the academic realm happens mainly through communicative networks and the cooperation of individuals. Not only do universities allow their members to exchange knowledge freely with non-members, but this practice is also highly desirable for the university as a research organization. Conversely, industrial scientists are not permitted to allow information to circulate beyond their respective organizational borders. For firms, knowledge is a source of competitive advantage; great pains are often taken to keep it well out of competitors' reach. In this context, a global dimension is attained because the R&D units of multinational corporations are strongly linked to a formal organization operating across national boundaries. Thus, the global connection of communication chains is regulated by internal structures.

In the frame of this study, HILLIARD (2002) deepens the analysis of structures, procedures, and communication channels used by corporations in order to manage R&D in a global society. He relies on 31 interviews with executives from research units, from other selected organizational units, and project managers from 19 organizations in sectors of biotechnology, pharmaceuticals chemicals, software, electronics and automotives. The interviews permit the following observations: Generally, the globalization of R&D is a process by which companies adapt their structures to the growing possibilities available globally. Multinational corporations make R&D-related decisions by observing global trends, e.g. scanning the field to find who's in charge of specific knowledge-based resources and technologies at the international level. Drawing from empirical observations, the study identifies three types of structural adaptations: the centralization of R&D in



a single location, hierarchical networking and integrated networking. In the first case, the main R&D activities are usually conducted at a site near a company's headquarters, allowing resources and competences to be concentrated. Knowledge can then be spread through the company through different telecommunication channels and periodical personnel transfer. In cases with network structures, companies have research sites in different countries. With hierarchical network patterns, the central R&D unit sets research strategies, allocates resources and coordinates activities for the entire network. Peripheral R&D units usually only conduct research aimed at adapting technologies to local needs. In integrated networks, research units are independent and coordinated by flexible mechanisms. Their R&D units are strategically placed in highly innovative regions (e.g. Silicon Valley). Contrary to a widespread assumption, this study draws the conclusion that the economy is still characterized by a highly centralized pattern of global knowledge communication.

### 3.2 Semantics

Another important level of analysis is the analysis of semantics. Niklas LUHMANN (1980) defines semantics as the stock of distinctions, schemes, and forms which a society or a subsystem can activate in order to shape the production of meaning. While the structural level focuses on connections between decisions, the semantic level focuses on the distinctions used by a system for describing itself internally, for presenting itself to its environment, and the distinctions used in order to describe its own environment. Some well-known examples of this focus are Niklas LUHMANN's analyses of the semantics of time and love (1980, 1982). In these analyses, he stresses his main interest in "cultivated" semantics, that is to say, the distinctions and schemes that are worth remembering and are suitable for official use. Semantics are communicative forms or distinctions which are standardized, typified and symbolized. These forms are not isolated segments, but rather interconnected; changes in some elements can trigger the transformation of an entire semantic complex. In these studies, Niklas LUHMANN's focus also goes beyond semantics to consider how the structure of society varies. His analyses cover the development of semantics over extended periods, starting from tribal societies, continuing through the stratified society of the European Middle Ages to the current form of functional differentiation characteristic of modern society. Systems theory does not start from the assumption that semantics and structure are always compatible. On the contrary, the two can diverge. As a consequence, the relationship between semantics and structure becomes a main focal point for systems-theory-based research.

The distinction between structure and semantics is usually applied at the level of society or its subsystems (e.g. LUHMANN, 1980). However, it can be also useful for the study of organizations. Not only are there general societal

semantics of the “organization”; single organizations or organizational fields also create typical observation schemes (MARTENS, 2006). Applied to organizations, the distinction between semantics and structure is similar to that of talk and action (BRUNSSON, 2002). As objects of research, an analysis of the semantic of organizations focuses on distinctions and schemes of interpretations that are built into organizational narratives. One can concentrate on semantics and interrelations between semantics or also consider the interplay between semantics and organizational structures.

*Methodological procedures* to study semantics are manifold. Some main sources of empirical material are documents, i.e. pre-existing written texts that have not been prepared specifically for research purposes. Document analysis, content analysis, frame analysis, and discourse analysis are all suitable approaches to analyze data, as long as they search for the underlying guiding distinctions and their interrelations. To be sure, the emphasis lies on interpretative schemes that are social – and not individual – in nature. The *findings* of such analysis can shed light on the underlying and implicit distinctions constituting self-descriptions as well as descriptions of others. Moreover, coupled with a structural analysis, discrepancies between descriptions and actual operations can be revealed.

The example we introduce for a semantic analysis is a study by David SEIDL (2007). The author does not fully embrace the framework of systems theory and does not explicitly refer to his study as a “semantic analysis.” David SEIDL draws from a specific trait of systems theory: observation theory and links it to results from neo-institutional research. Nevertheless, this study is particularly interesting because it highlights four different levels which a semantic analysis can encompass.

First, David SEIDL describes the distinctions at the core of a specific semantic complex. At the center is the question of the effectiveness of codes of corporate governance as a specific type of standards. The data sources for the study are documents containing these codes. Such codes are conceptualized by the author as observation schemes which provide distinctions for assessing the corporate governance of companies. That is to say, the content analysis of these documents searches for typical distinctions which are used. These schemes make something relevant (e.g. the disclosure of information on managerial compensation or the composition of management boards), that otherwise would not be observed as such. One important feature of corporate codes is that these codes are not grounded in scientific knowledge, but describe “best practices.” Therefore, they provide insights into the distinctions that are relevant for practitioners. The analysis can query different distinctions, but can also look for aggregations. For instance, since corporate codes suggest which procedures, structures, and practices are appropriate, they simultaneously specify what qualifies as a “good company” (and, the flip side of the same distinction, what is not a “bad company”). Sec-

only, David SEIDL describes how this type of semantics can stabilize, namely through processes of mutual observation between corporations, shareholders and intermediaries. Codes move to the center of an observational field if it can be expected that different observers will make use of them. In this second step, the comparison of schemes focuses on developments over time and the creation of common schemes between different typologies of organizations. A third aspect considered is the phenomenon of decoupling. The use of corporate codes at the level of observation does not necessarily imply that parallel actions are undertaken. The capacity for decoupling is explained by the ambiguity and incompleteness of corporate codes. The analysis inquires as to the characteristics and the types of relationships between distinctions: Are the schemes abstract? Do they provide precise prescriptions for action? Are they coherent? Do they contain diverging elements? The author finds that in order to maintain a degree of flexibility, these schemes refrain from prescribing concrete actions and thus remain open to different interpretations. However, decoupling does not always occur; in some fields supplementary schemes may develop. Their analysis constitutes the last level in David SEIDL's study. In order to be applied, corporate codes have to be related to pre-existing schemes. Supplementary codes can be developed only starting from these schemes. In other words, semantic schemes are not isolated, but interrelated and a semantic change limits some and encourages others.

### 3.3 Observing Observers

Researchers who draw from systems theory must recognize that what they are observing is not social objects or facts, but autopoietic networks of observations. In organizations these observations take the form of decisions. In other words: one becomes an observer of systems that themselves observe. Observing an observer means operating at the level of second-order observation. First-order observation handles the observed system as an objective entity. A first-order observer asks "what-questions," whereas a second-order observer asks "how-questions" related to the ways in which the world is being observed. Since every observation is the operationalization of a specific distinction, second-order observation implies analyzing distinctions used by observing systems. With a second-order observation, the distinctions used by observers cannot be treated as objects; they must therefore be modalized (ESPOSITO, 1992, p.268). This permits one to observe the contingency of the observed observers (NASSEHI & SAAKE, 2002).

For organizational research, the consequence is that instead of observing organizational life through the observations resulting from decisions as if they were facts that can bear objective scrutiny, decisions are modalized and treated as the realization of something that could also have been different. The attention is focused on the utilization of one specific distinction over other possible distinctions. What matters, therefore, is not that management has reached a

specific decision, but how that specific decision was constructed and how this construction is related to already existing organizational structures, routines and practices. The *object of research* is the contingency of decisions. This can be shown by reconstructing the communicative sequences that led to one decision over another. Contingency can also be demonstrated at the semantic level through the comparison of different observation schemes.

The *methodological procedures* that can be implemented to analyze contingency are the same as those named above for structural or semantic analyses. The choice of specific procedures depends on the type of contingency the researcher aims to unravel. However, in an analysis of contingencies, an inquiry into alternative courses of action remains paramount. This not only requires data about what is actually communicated, but also theoretical insights which suggest what alternative expectations are reasonable or viable in a specific situation. Once again, the critical issue is matching the theoretical concepts with the methodological approach, and not the specific procedure itself. The *findings* in this case should be expected to provide a systematic demonstration of the contingency inherent in every selection and therefore allow the researcher to question practices which are often taken for granted by the organizational milieu.

Examples of how contingency can be placed at the center of analysis are provided by Armin NASSEHI and Irmhild SAAKE (2002), whose studies on “the images of death in modern society” shed light on how social systems generate spaces of contingency, that is to say, how structures restrict the range of possible communications and at the same time maintain certain degrees of freedom (p.81). In their studies on the semantics of death, the authors show which meaning-structures are related to the issue of death. Their empirical material was collected in the form of biographical interviews. This procedure is widely used by different theoretical approaches, but it gains a specific meaning in this research context. In a large-scale research project, approximately 150 interviews were conducted with experts from various professional contexts as well as with persons who had different personal experiences with death. The interviews show that the “biographical truth” of events related to death does not necessarily find a correlate in the communicated “stories” about death (SAAKE, 2008). The main point is that biographical interviews do not unravel the “real” biography of the interviewed person. On the contrary, biographical interviews make accessible the communicative strategies that enable events to be represented. These strategies are not individual, but social and dependent on the context in which they develop. Through the narrations of different persons, the interviews allow for the identification of so called “communicative contextures” as well as the modes through which different contextures frame the presentation for death. The different domains selectively determine what is communicated about death and how this communication unfolds. That is to say, through these interviews, one can also identify connections between se-

manics and structures.

Of particular interest for us is the question of how death can be handled in organizational contexts such as hospitals. How are the semantics of death related to practices of dealing with death in these organizations (SAAKE, 2008)? Due to advances in modern medical technologies, the processes that lead from an illness to death can extend over a considerable period of time. As a consequence, it becomes more and more important to study the social contexts in which these processes occur, including hospitals. The analysis of interviews with people experiencing death and dying at the hospital shows that in this organization, discourses related to this topic do not focus on death as such, but on the question of a “good” death. Interestingly enough, in line with modern semantics, the experience of a “good” death involves being presented with options, e.g. the patient or relatives can choose the place and the people who will be present. This allows death to become a part of the biography of the dying patient. “Exposure” to death is replaced by a communicative definition of it. The hospital can assist in shaping the process of dying in the desired way, but it is not the only responsible for choices that the process involves.

Focusing on the semantics of death, the authors highlight how this topic gains a specific meaning in different contexts. The researchers not only describe the semantics of death, but also the contexts in which the topic of death is handled. In light of this analysis, one can, for instance, understand how medical care is forced to concentrate on the body and to institutionalize correspondent routines while leaving the task of explaining the meaning of life and death to other organizations. One could say that in these organizations “understanding death” is replaced by the planning and control of the dying process.

### 3.4 The Explanation of Trivialities

Analyses of organizational phenomena often imply the collection of data. However, an alternative option is to start with the analysis of so called trivialities. Niklas LUHMANN used this technique in a good deal of his work (see e.g. LUHMANN, 2000a). In this case, the *research object* becomes the “trivialities” of organizational life. In their more basic form, these trivialities are nothing less than existing solutions to problems, which are regarded as uncontested organizational facts. The task is then to unravel them in theoretical terms.

Trivialities are characteristics of social systems that are immediately observable and that few would ever feel the need to explain, because their obviousness is uncontested. The bulk of sociological research does not endeavor to explain trivialities, since its main goal is to gain knowledge of the real world. If something is trivial, it is of little interest, because there is already an agreement on it. Trivialities do not need to be questioned and are taken into consideration only in order to specify their contours, at times through precise measurements.

For example, at the current point in time, the increasing disaffection of the electorate with political parties may be considered trivial. Sociological research, however, aims to quantify this disaffection in more precise terms or to demonstrate regional or international differences and to connect these measurements of disaffection to different socio-demographic characteristics of the electorate. Systems theory takes a completely different approach toward trivialities. It references trivialities in order to examine and interpret them in new, unique ways. Findings or empirical “facts” are transformed in research problems. If one observes a socially accepted phenomenon through the lens of a theory of society, the result can often be new options for drawing comparisons: one can assume that political disaffection is part of a more widespread disappointment experienced by modern society with regard to its formal organizations (see e.g. LUHMANN, 1992). Starting from this assumption, one could therefore investigate the unique connection between formal organizations and society and then concentrate on the more specific case of political parties.

At the level of *methodological procedures*, an examination of trivialities often turns out to be a secondary analysis. Trivialities often consist of facts that are already taken for granted by the research community. These facts can include knowledge of milieu participants (LUHMANN, 1997, p.37), quantitative data, data collected through different techniques such as interviews or text analysis, and so forth. There is no one particular procedure that is preferable for the identification of trivialities. Nonetheless, the “exposure” of the researcher to trivialities can be highly facilitated through participant observation. Generally speaking, in organizations, such pre-existing solutions to past problems are normally pervasive and their identification is thus not constrained to specific organizational sectors or levels. The *findings* delivered by the analysis of trivialities have the potential to astonish and far exceed common-sense interpretations. We would even argue that what has often been regarded as Niklas LUHMANN’s “intuition” may actually be seen as his capacity to seriously examine the mundane, that which is in plain sight for everyone to see.

An excellent example of the study of trivialities can be found in Niklas LUHMANN’s article on the scarcity of time and the urgency of deadlines (1968). The study looks at the everyday “tyranny” of the clock, deadlines, and expressions of urgency in organizations. Starting from the simple idea that time-related pressure permeates daily work in every organization, Niklas LUHMANN reminds us how a quick glance at one’s watch or organizer are routine gestures; folders labeled “urgent” or “very urgent” populate every office desk, and deadlines determine the rhythm of our work. Niklas LUHMANN stresses that: “This requires no further proof for the reader of this journal” (p.3; our translation). This last statement elucidates that the facts and examples mentioned remain unquestioned and therefore constitute the starting point for the study as a whole.

Niklas LUHMANN’s article contains neither a discussion nor any references to

the methodological procedure that he uses to identify trivialities. However, it may be characterized as a “light” version of participant observation as the method is commonly used in ethnographic research. Participant observation is known as a technique that allows the researcher to gain insights into ideas, norms, events and contexts that characterize the field studied. Therefore, it is helpful to grasp what is taken for granted in the field, and simultaneously difficult for an outside observer to identify. Participant observation can make the trivialities of the milieu in question visible. To be sure, Niklas LUHMANN used neither field diaries nor did he produce systematic reflections of his position and involvement in the field. However, his observations were far from wholly arbitrary or random. Indeed, before starting his academic career, Niklas LUHMANN, accumulated years of work experience in public administration. This allowed him to observe organizational processes in a relatively direct manner. We know that he used his file card system to collect the most relevant aspects of what he observed in everyday life, to the extent that those experiences could be linked to his theoretical framework. The file card system is a tool for recording observations whose structure is based on the architecture of system theory. It allows for even disparate findings to be categorized and ordered. In our example, a simple and well defined “fact” provides Niklas LUHMANN with a starting point for constructing a very informative reflection on the role of time and its management in modern organizations, while working within the broader conceptual framework of systems theory.

Niklas LUHMANN explains the origins of the orientation towards time, the systems in which it is found, the functions it has and the problems it causes. He argues that time itself is not scarce. The mundane “fact” of the scarcity of time can actually be seen as the result of social evolution. In simple societies, everyone is able to participate in every social event (in some capacity) and therefore one always has “enough time.” When societies become more complex and options increase, many events cannot be experienced by the same person all at once. As a consequence, time becomes scarce. The scarcity of time characterizes every social context in modernity, but for organizations, time is particularly scarce, because of the high level of consensus needed in order to remain operational. Since organizations differentiate tasks which then have to be coordinated, consensus is very important. But consensus involves long communication processes. As a consequence, organizations develop “time-saving” structures like for example chains of command as an attempt to eliminate negotiation or discussions. Organizations also introduce temporal structures such as deadlines in order to optimize their use of time. In organizations, everything has a time frame: a workday has a start and an end, between these two events is a sequence of deadlines. This strong orientation toward time causes activities with deadlines to be prioritized, while tasks without deadlines are often disregarded. Moreover, time causes factual criteria to be distorted. Innovation can be avoided, for example, because it takes time, skewing the preference toward available information. Time constraints are structural consequences of society and therefore cannot be eliminated. How can they be ad-

dressed? The study even goes so far as to provide some practical suggestions in this regard: one might strategically use deadlines as justifications or set artificial deadlines, for example.

### 3.5 Functional Analysis

A central feature of the methodology of systems theory is the so called functional method, a feature that Niklas LUHMANN himself stressed at the inception of his theoretical considerations (1970a, 1970b), but that has been underestimated in the reception of his work. The main point here is that organizational phenomena such as goals, programs, hierarchies or cultures can be considered solutions to specific problems. Starting from the functional method, one must ask: what problem is resolved by a specific organizational element? In other words: which function does it have? To be sure: Niklas LUHMANN's functionalism (1970a, 1970b) does not assume that there is a given set of functions which a system must fulfill in order to survive. In this sense, it is very different from Parsonian functionalism (NASSEHI, 2008, pp.90-99). The basic idea is that if for example a specific structure is used by an organization, then it contributes to its reproduction. This means that it helps to reduce complexity, without fully eliminating it.

Therefore, the research objects in this case are concrete systems and the ways in which they practically aid in sustaining communication (p.94). Looking for a problem of reference, i.e., one that is resolved by a given element, coincides with looking for an answer to the question of how exactly a specific element helps to deal with complexity: does it reduce conflicts? Does it simplify self-descriptions? Does it save time? The options are manifold, but the identification of this problem is guided by theory and therefore not arbitrary. Moreover, identifying one function of a specific structure limits the possible functions of further structures. Once a problem is identified, in a second step one looks for possible solutions that have not been implemented in the observed organization and which thus remain contingent possibilities. Functional analysis stresses that there are multiple solutions for one and the same problem. Therefore, different solutions can be compared based on one specific problem that they are able to solve. These solutions are then regarded as functional equivalents. Different structures, however, may have the same function, but different side effects. This implies that they cannot easily substitute for each other. As a consequence, if the researcher focuses on one problem as a point of reference, a wide range of alternatives can be found, but if it is observed that a system deals with many problems, the range of appropriate solutions is reduced.

Various *methodological procedures* are appropriate for functional analysis. When searching for functional equivalents at the structural level, participant observation, narrative interviews or problem-centered interviews can all be



used, because they allow the researcher to observe how autopoiesis unfolds. When looking for equivalents at the semantic level, document analysis, content and discourse analysis would all be appropriate. The *findings* one can expect from this analysis are not precise correlations between causes and effects, but comparisons between very different phenomena starting from an abstract problem of reference.

One example is a study by Cristina BESIO (2009) on research projects. The “research project” is such a widespread structure in scientific organizations that it is normally not called into question. In the managerial semantic, projects are considered a form which allows research to be organized both efficiently and flexibly. This study questions those assumptions. The critical examination is guided by a theory of organizations in which they are described neither as rational systems capable of optimizing goals and means, nor as systems able to adapt to their environment in a flexible manner. Organizations are systems of decisions which persist as long as they can successfully connect all ensuing decisions to previous ones. This is only possible if they can develop complexity-reducing structures. Projects are a specific kind of structure that set specific goals, assign resources to those goals and define deadlines. In this way, projects bundle temporary resources together with goals. Which problems do they solve? Relying on an analysis of written documents from ten research projects and on interviews in which researchers are asked to reconstruct project-related decisions, several functions are individuated. The analysis of written documents (project proposals, meeting protocols, reports etc.) delivers basic project data and allows the project development to be traced at the levels of form and content. The interviews do not aim to uncover individual commitment or satisfaction related to project work. They focus instead on organizational structures and the links between structures and single decisions. Subsequent project phases are identified; for each phase, the characteristics, roles, and problems of different typical project structures (e.g., deadlines or milestones) are placed at the center of the interview. Additional topics include the links between the respective project and parental organization(s) or external structures. Questions are also posed about alternative forms of organizing research. Comparing different interviews, the content analysis allows the researcher to highlight several functions and risks of different projects in different organizations.

A particularly interesting finding is that by combining different structures for a temporary period, projects act as buffers. A project allows a research group to concentrate for a limited period of time on specific goals; other tasks become less relevant as a consequence. Moreover, as coordination is delegated to the project team, the influence of the hierarchy is reduced. One side effect is the fragmentation of research. Another important point is that while a project plan does not guarantee a rationalization of research, it introduces distinctions which can be used as reference points for reflection. During the project, researchers can discuss

their initial hypotheses, while hypotheses excluded from the outset of the project have little chance of being integrated into the subsequent project phases. This causes researchers to cling to their earliest objectives, even to an exaggerated degree. Starting from these functions, one can search for functional equivalents to projects. This search does not entail structures which might make research more rational or flexible, but structures which would act as buffers or reference points for reflection.

### 3.6 System/environment

An important advantage of systems theory is that it is a theory of society and therefore fully equipped to address issues of the relationship between organizations and their social environment. Systems theory emphasizes that the organizational level must be clearly distinguished from other communicative levels, particularly from the functional systems of modern society. For systems theory, distinguishing between these levels is an essential prerequisite for the observation of their interplay, which follows in a second step. Systems are assumed to operate autonomously, but in a way that imposes reciprocal limits on the complexity of the other levels. When considering organizations and functional systems, both types of systems have their own internal structures that enable them to solve their specific problems. At the same time, through the way in which each system solves its specific problems, it offers reference points to other systems to tackle their own (BAECKER, 1999, p.318). For example, the market cannot determine the decisions of individual corporations; however, operating in a market environment provides a certain landmarks (e.g. available capital or the number of competitors) which corporations have to address. On the other hand, the decisions of specific corporations, e.g. about production or marketing, will irritate the market.

The autonomy and the interplay of different systems are basic assumptions which escape empirical verification or falsification. However, at the level of organizational analysis, it is possible to observe empirically how different organizations relate to their environment. Organizations act within a complex framework defined by functional dynamics. Nevertheless, they remain autonomous and interpret their environment in a specific way, which leads to unforeseen decisions. The *research objects* which permit the observation of these specific interpretations are organizational semantics applied to describe the environment and, at the structural level, coupling mechanisms, i.e. structures which different systems use as references in their own autopoiesis and which therefore are relevant to more systems than one (LUHMANN, 1997). These mechanisms are the channels through which systems can consider complexity of other systems and permit external irritations. Particularly interesting is that not only an empirical analysis of the interplay between organizations and functional systems, but also of the ways in which different functional systems irri-

tate each other through organizations can be conducted (LIECKWEG, 2001). Organizations can serve as “intermediaries.” They themselves are moreover the forms which canalize irritations and therefore shape the relationship between functional systems.

The *methodological procedures* here are the ones mentioned above for structural and semantic analyses. The difficulty of this type of empirical research is that different system dynamics must be taken into account. In the way of *findings* one can observe reciprocal conditioning. Whereas other approaches to studying inter-system relationships demonstrate little explanatory power when it comes to how systems influence each other while maintaining their own identity, this task can be accomplished through the empirical observation of structural coupling.

An example of coupling mechanisms can be seen in the “conversation circles” described by Michael HUTTER (1989), in which talks involving corporations, courts, chambers and patent offices were held to discuss pharmaceutical patents. Examples for these circles are committees within industrial associations, or mixed working groups which develop and stabilize starting from face-to-face interactions between different organizations. Conversation circles reside at the interface between economic and legal system and are specialized in the interaction between the two entities. How is this possible, given the different logics typical of economic and legal communication? In conversation circles, different communication forms meet. That is to say, the same issue is handled with the different codes of economy and law. In this sense translations take place.

Conversation circles have the function of providing reciprocal sensors for the economic and legal systems. However, of particular interest to Michael HUTTER is the question of how the economy influences the legal system. Empirically, he studies the development of specific patent laws in different countries over the years by the means of an analysis of written documents and interviews with representatives of several organizations. He shows how economic chances and problems are transformed into legal suits. The analysis reconstructs the history of single patent laws and observes which different system logics are involved in the documents produced or in the discussions and negotiations which took place (as they are reconstructed from interview partners). Guided by systems theoretical assumptions, Michael HUTTER asks the following questions: Are the applied criteria of an economic nature (e.g., related to costs, revenues or competition)? Or do they represent legal reflections (such as comparisons to similar suits or regulations in related sectors)? Are there translation attempts? Under which conditions do they succeed? These questions act as categories for gathering the material and constitute the framework of the analysis. Based on the author’s results, a distinction can be made between an influence phase, in which the economy “irritates” the legal system, and an information processing phase, in which the legal system processes the irritation and either adapts it to existing laws or changes the estab-

lished rules. During the influence phase, circles are essential because they canalize discussions, set the agenda and define which contributions are allowed. These circles allow the legal system to interface with economic developments in a specific way and subsequently process the information gained based on internal criteria.

## 4. Discussion

The main objective of this paper was to show how Niklas LUHMANN's systems theory not only has a strong conceptual framework that opens new horizons for organizational studies, but also provides a complex and sound methodology capable of steering empirical analysis. Basing our discussion both on theoretical considerations as well as selected examples, we have attempted to show how empirical studies inspired by systems theory can stimulate new inquiries into the realm of organizational life. We hopefully have provided the researcher inspired by systems theory with valuable tools for research design aimed at capturing various aspects of organizational life: while remaining vigilant as to the need for a sound fit between methodology and theory, we have identified methodological pillars which, alone or in combination, can guide the empirically oriented researcher. These pillars can be found in structural and semantic analysis, in the observation of contingency, in the analysis and explanation of trivialities, in functional analysis, and, finally, the exploration of coupling mechanisms. With these tools, we have also presented methodological procedures which can be used to collect and analyze data: chains of decision can be grasped through interviews with organizational members, participant observation, conversation analysis, or also objective hermeneutics. The analysis of semantics can resort to techniques such as document analysis, content analysis, frame analysis, and discourse analysis. Those same methodological procedures are also suitable for focusing analysis on the observation of observers, i.e., second-order observation. The identification of trivialities can be facilitated through secondary analysis or participant observation. Functional analysis of structures can rely on participant observation, narrative interviews, or problem-centered interviews; functional analysis at the semantic level can be conducted through document analysis, as well as content and discourse analysis. Those procedures can also steer the analysis of coupling mechanisms.

Because the results of this scientific observation can also be of interest for practitioners such as politicians, stakeholders, and – as we suspect – above all managers, in the following we summarize the main points that could be of interest for managerial practice. In other words: we conclude by addressing one of the remarks frequently heard by organizational scholars – perhaps most often directed toward systems theoretical approaches – in relation to their research, namely: “so what?”

- 1) An initial, basic suggestion is to take the autopoiesis of social systems seriously. If every theoretical reflection “helps to change the observation of the practice from proximity to distance” (HAFEN, 2004, p.227), systems theory exhorts us to keep in mind that managerial strategies or actions cannot steer, but only “irritate” an organization’s development.
- 2) By the means of system theory one is forced to consider the construction of meaning as a central element of organizations. Systems theory is certainly not the only theory which enables this kind of analysis. Several constructivist approaches in organizational theory have a similar focus (e.g. sense-making or narrative approaches). The difference is that while these theories often stress the relevance of semantics, culture and so on, they tend to neglect the strength of formal structures. For systems theory both are relevant. Hence, from the perspective of systems theory, researchers have the analytical tools to investigate the functions of culture, but also to inquire as to the continued relevance of hierarchies and bureaucracy despite strong criticism of these forms stemming from organizational theory.
- 3) Analyzing functional equivalents could prove to be a promising managerial instrument. This perspective trains the observer to look for new and more abstract criteria of comparison, to compare different solutions for the same problem and to shed light on their side effects. In many cases this method forces the researcher to question the functions of “taken for granted” structures (again: these could be trivialities). Sometimes the task requires a good deal of creativity on the part of the researcher, but often insights into functional equivalents can be stimulated by gaining as much “insider knowledge” as possible. Through the functional method, discounted or passed-over options, blind spots and so on can be reintroduced in the organization, thereby potentially serving as an important source of irritation.
- 4) Entertaining and experimenting with the idea of distinctions is also important because it allows managerial practice to become aware of the fact that managers are both observed by the rest of the organization and must also independently determine what and how the rest of the organization observes. In a nutshell: managers can learn to operate at the level of second-order observation (BAECKER, 2007, 2000) and to become aware that more important than a precise analysis of actual decisions processes is a scrutiny of the schemes which led to one decision instead of another.
- 5) Systems theory permits a complex analysis of the environment (BAECKER, 2000). As a theory of society, it delivers descriptions of different social dynamics: not only economical, but also political, educational, and cultural dynamics and so on. Even the interactive dynamics of face-to-face communication can be taken into consideration (VOGD, 2009). Moreover, an analysis of coupling mechanisms can demonstrate the specificity of these dynamics, as well as the irritations they sustain and those they exclude. Influence of one sphere over the other is never unidirectional: society has an

impact on organizations while different organizational structures can have different consequences for other social instances.

Taking into account the points above might help both organizational scholars and managers to realize that systems theory offers a fascinating perspective of observation. However, this poses the question of *how* scientific findings can actually resonate with practitioners. Of course, we do not aim to provide an exhaustive reflection on the relationship between theory and practice in this space. Nevertheless, we feel that some notes on this point could be useful in the context of this paper. As a matter of fact, if on the one hand practitioners direct high expectations toward scientific studies, the answers they receive from researchers' analysis are often not the ones that they expected. As such, it is often difficult to put words into practice.

At the end of his monograph on organizations Niklas LUHMANN includes a few words on the distinction between theory and practice (2000a, pp.473-474). According to systems theory, theory and practice are separate. Organizational theory develops in the realm of scientific communication, whereas organizational practice belongs to organizations as autonomous systems. Nevertheless, theory can analyze practice and it can do this at best when it frees itself from the constraints of the practice (p.474). Theory can offer unexpected and surprising interpretations of practice precisely because the researcher is an outsider, freed from typical practical concerns dominant in organizational settings. How can theory then become interesting and relevant for practitioners and their everyday dealings? An answer to this question requires a step back and a specification of some conceptual relationships. While different systems such as science and organization are autonomous, they are capable of "irritating" each other. One of the typical forms in which science can irritate organizations is through "consulting." In systems theoretical terms, consulting is actually a form of structural coupling between different systems (LUHMANN, 2000b, p.393). Through consulting, scientific knowledge becomes embedded in different environments of modern society. However, since organizations are autonomous systems, knowledge is not transported directly from science to practice, but as a result of this knowledge transformation, new interpretations of problems and contingencies are created. The extent to which consulting actually effects practical information-processing depends on the specificity of the context and on the type organizations involved. Based on these assumptions, the concept of (direct) "knowledge transfer" is misleading and should be avoided.

This perspective is confirmed by empirical studies on management and transfer. For example, Carol WEBB (2009) investigated the sense making and learning patterns of individual managers by drawing from the principles of complexity theory in work-focused diaries. For this purpose, thirteen managers were asked to record their daily practices in diaries. During the course of the project, they were given relevant literature to consider and, furthermore, asked

to reflect on the act of journaling itself. One can interpret the results of Carol WEBB as follows: Even if managers are aware of concepts such as complexity, reflection or paradoxes it is difficult for them to import those concepts into their strategies because they are immersed in their everyday problems and routines. Everyday professional situations are far too varied to expect that concrete instructions for individual cases could possibly be deduced from theoretical considerations (HAFEN, 2004).

As Paul CARLILE (2004) has argued, every attempted knowledge transfer must overcome three types of boundaries: syntactic, semantic and pragmatic boundaries. Syntactic boundaries occur where shared and stable syntax or language ceases to exist; semantic boundaries are in play when interpretive or semantic differences of the world, measurements or outcomes arise; pragmatic boundaries mean that different contexts are characterized by different practices. For systems theory, an irritation has consequences when a system is able to integrate the new knowledge into its language, i.e. into its semantics and practice. When two systems are structurally coupled, only mutual irritation, and not transfer or control can be expected. Ultimately, such irritations mean that any one system can never be completely dominant over another system. The result is a loose coupling of cognition and action (LUHMANN, 2000a, p.474).

In conclusion, we would like to reiterate that, contrary to much current scholarly opinion, systems theory possesses a very strong empirical side and could even be a fruitful instrument to irritate management practices. Unfortunately, the full potential of this theory for empirical research and consulting has not yet been exploited. Thus, in our opinion, empirical research and practical application could play a crucial role in improving and refining system theory itself and helping it to remain a fruitful sociological theory in the future.

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