

6. Uncertainty Absorption

I

If we are to decide between alternatives, to indicate one variant rather than another, we need information. In addition to the alternative, something else is therefore needed: a choice between a marked and unmarked domain of possibilities - a difference that makes a difference, that helps decide the decision. The reverse is also true: a decision generates the element of surprise that can be communicated as information.¹ The decision is then itself communicated as information, which can prompt further decisions. In this sense, we can describe the autopoietic interlinkage of decisions as information processing.

But what is the purpose of transforming information into information? And how does a system that undertakes such processing relate to the environment? Classical organization theory would have answered this question with the concept of purposive or means-end rationality.² Purposes, on the one hand, and limited resources, on the other, are seen as providing the system with interpretational guidelines for information processing and reducing the complexity of the environment for intrasystemic operations to an extent that allows them to be organized. We shall be discussing this from the point of view of purposive programming.³ But reference to means-end or purposive orientation is no adequate answer to the very general question of how in organizations decisions are transformed into decisions, and thus how information is transformed into information. Firstly, for many organizations it does not apply (or only if we define the purpose of the organization almost tautologically - by saying, for example, that the purpose of courts is to administer justice); and, secondly, the asymmetry of the relationship between ends and means and the relative insensitivity of ends to a choice of means are in turn only introduced by decisions and monitored by decisions. A theory that understands organizations as operationally closed systems reproduced only through the communication of decisions has to explain the connection between decisions in more general and different terms.

We therefore replace the concept of means-end orientation by that of uncertainty absorption. March and Simon introduced this concept into organizational

studies - albeit originally to describe one variable among many, with the result that the theoretical potential of the concept was not fully exploited.⁴

Uncertainty arises where knowledge and ignorance occur at the same time; it is due to this difference. Both knowledge and ignorance are social constructions,⁵ produced in the system that uses them. In the case of social systems, we are thus dealing with communicated meaning produced by communication for communication. In the case of organized social systems, uncertainty arises because decisions serve to call up decisions.

To a certain extent, uncertainty absorption can be attributed to persons.⁶ But it mainly takes place in social relations, namely always when a decision orients itself on another.⁷ It is only putting it differently if we describe organizations as systems in which decisions observe other decisions.⁸ In other words, the term uncertainty absorption describes the succession of decisions, the decision process. The absorption of uncertainty is thus built into the decision process itself; it is nothing other than a requirement of its sequentiality. The decision itself is a compact communication, which at least implicitly also communicates its reasons, its justification, and the effort involved. But in the ongoing communication process, it can be treated only as a decision in a specified context of alternatives: as a decision for this and against that.

The autopoiesis of organizational systems thus operates through uncertainty absorption. Uncertainty absorption is accordingly only another term for the intrasystemic generation of information, and, as we have seen,⁹ information not about the environment (not as intrasystemic copying of environmental states of affairs) but about the improbability of systemic restrictions on the scope of other possibilities.

In keeping with organizational research, we can thus explain that it is not possible to eliminate the paradox of observation and the paradox of communication, and why not. On the one hand, uncertainty can be absorbed only through the constative components of communication. After all, something determinate has to be said, even though a great deal of indeterminacy might hide under the ambivalences and in the "gestalt" reference of communication. On the other hand, it cannot be denied that this happens in order to direct follow-up communication. In the ordinary course of events, this makes sense. In individual cases it may be delayed through psychiatrization, deconstruction, or simply through queries that address, in particular, the constative or performative aspects of communication; but this, too, can take place only in forms that repeat the problem, which in turn absorb uncertainty autopoietically.

Uncertainty absorption presupposes knowledge as the context of its own mode of operation, knowledge that is available to the organization itself regardless of what individuals know.¹⁰ The knowledge of the organization naturally also includes knowledge about what people who could be questioned could know. For this very reason, however, organizational knowledge cannot

be reduced to personal sources. It is stored as the result of learning processes within the organization itself and can be presupposed upon the activation of communication (otherwise intimate knowledge about other people would be needed to judge what they can understand).

If we apply the concept of uncertainty to the difference between knowledge and ignorance (and thus to the form of knowledge), this also makes clear that it is not to be understood, as in the colloquial meaning of the term, to be a dysfunctional state to be remedied as far as possible. On the contrary, enduring and repeatedly generated uncertainty is the most important resource for the autopoiesis of the system.¹¹ Without uncertainty, there would be nothing left to decide; the organization would come to an end in a state of complete self-determination and would cease to exist for lack of activity.

Since ignorance can be produced and combated only with the aid of knowledge, all organizations, indeed all cognitive systems as such, orient themselves on what they have already achieved. "An organization can never know what it thinks or wants until it sees what it does."¹² This also means that a want of knowledge cannot be reduced by knowledge but only by decisions, which for their part can naturally concern the direction and method of seeking for knowledge. Only by means of decisions can a forecastable future be produced.¹³ Uncertainty absorption is a decision process.

But if the absorption of uncertainty is a decision process, this means that the process also has to include the prospect of future decisions, thus regenerating the uncertainty that it eliminates. In more abstract terms, we also see that it is only with the aid of a memory function (Spencer-Brown) that a reentry can be generated, or that a non-trivial machine (von Foerster) comes into being only by the output of the system being reintroduced into the system as input. A linear concept of time would suggest that a certain measure of experience is necessary to structure the future and to maintain one's composure in the face of uncertainties. But this is a highly simplistic way of seeing things. The theory of self-referential, recursively operating systems also draws attention to the circumstance that the *difference* between certainty and uncertainty or between knowledge and ignorance is produced only by recursivity; this means, not least of all, that its production and reproduction are specific to the system.

In fact, the difference between knowledge and ignorance is also reproduced as a *difference* in everything that happens. The absorption of uncertainty merely lends the difference between knowledge and ignorance a different, less disturbing form. But, particularly in organizations, we often note that ignorance is deliberately generated or maintained at other places, and that precisely this serves to absorb uncertainty, because in the knowledge of others' want of knowledge one can put forward communications of one's own that one would otherwise not have ventured. Similarly, one can also be interested in one's own ignorance because it can also later serve as proof of innocence (not

having been informed is among politicians' most frequent excuses). Cooperation in organizations requires a highly developed, well-considered art of ignoring; here, too, the rules of calculation apply in the mode of "would happen if..." One has to know what consequences knowledge would entail to be able not to know it. Apart from this special case of produced ignorance, the experience or the suspicion that manipulated information is involved is standard knowledge at all higher levels of the hierarchy.¹⁴ In general, managers do not seem to think much of normative models of rational decision-making; at any rate they do not apply them but immediately look for solutions in a terrain familiar to them, taking into consideration only alternatives that appear to be easy to accept or reject.¹⁵ And, finally, it should be noted that the generation of optimism about unattainable or contradictory goals can be a precondition of political consensus without which nothing can be achieved.¹⁶

In somewhat more usual terms, we can say that no decision can be based on complete information. The burden of a lack of information is the condition for wanting to decide. If one has complete information, no decision can show itself to be a decision.

This has nothing to do with the mental disposition of those involved, nothing to do with felt or recognized uncertainty.¹⁷ The fact that uncertainty is absorbed without it being noticed contributes a great deal to the functioning of organized work, to avoiding stress, and to establishing a psychological "illusion of control,"¹⁸ which, however, is not unproblematic from a risk point of view. Since the absorption of uncertainty in organizations is a social process in which external presentation and internal dependencies need to be taken into consideration, certainty is pretended if only because constant insistence on uncertainty would make work more difficult for others.¹⁹ Whether those involved participate mentally - or as so often, take a rather distanced or cynical attitude toward their work in order to relieve the strain on themselves²⁰ - what is communicated is confidence in the information processing capacity of the system. The system lives from overestimating itself, indeed, often from fictions that prove useful, and which, uncontrollable in origin, are passed on²¹ - for instance, the fiction that an expert is competent, that corporate advice provides a sufficient basis for making decisions,²² or that consensus is attained if a decision is approved. And good information that confirms expectations and the chosen course is passed on more willingly than bad news.²³ Such self-overestimation may in some cases produce a need for correction, but it persists if only because it is constantly renewed. If doubts arise, they are mitigated by reduction to particular situations and possibly persons. If something goes wrong, mistakes will be sought - and found.

Organizational uncertainty absorption necessarily arises from one decision informing another, and is hence taken to be a difference that makes a difference.

Vice versa, every communication of information is a decision, for resolving to communicate this information has to be decided above all with due consideration of what would happen were it not to be communicated. This shows what decision-making performance is involved in, for example, aggregating data, bookkeeping, or corporate accounting systems, and what problems result from the information thus prepared "forgetting" too much and very often coming too late.²⁴ The issue also arises of how and to what extent it can be ensured that irritations are not only experienced and forgotten, that they do not "seep away" mentally, but are transformed into communicated information without the system being overloaded with warnings and follow-up responsibilities. We need think only of the written records in big medical institutions that might contribute to diagnosis, where the individual doctor's memory of particular cases can no longer be consulted.

Through the autopoiesis of the system, all this becomes decision and hence contributes to the absorption of uncertainty, which, as we will see, can also increase uncertainty. Even if a decision has to be formally iterated - for instance, when it is rejected by a superior or set aside by a higher court - it is never a question of copying; the decision to annul informs us that repetition is required, and the repeated decision, because it is experienced as iteration, is never the same as that which is to be iterated. Only what has been forgotten could purely by chance be repeated in the strictest sense; but this will be a rare and unnoticed occurrence.

It is correspondingly normal for the information processing that has led to the preceding decision not to be repeated. In this respect, however, practice can vary from case to case. A person subsequently dealing with the matter may, for example, be obliged (or feel himself to be obliged) to draw attention to conspicuous mistakes and to steer things in the opposing direction. But then uncertainty absorption itself runs counter to the expected process. The decision to do this and to suggest further examination (have you considered that a powerful group is behind this application?) itself absorbs uncertainty, and it can obviously be practiced only in exceptional cases and only with reasons being stated, for otherwise the process would become circular and grind to a halt. And there is no time for this.

And even if uncertainty absorption cannot be avoided, its occurrence can be anticipated - for example, in the form of observing communication difficulties and the need for simplification, without which communication would not function. "The truth could not ordinarily be conveyed by stating it exactly," states one author with a great deal of experience in administration.²⁵ This is why, in administrative organizations with highly developed decision awareness, we find much attention being paid to language and much effort being invested in smoothing communication by omitting incidental remarks, unnecessary details, and unconfirmed but crucial conjectures. "Hence, the speaker

must often be dishonest in statement from his own point of view in order to achieve honesty of result, although he ceases to be aware of it."²⁶

Such reflections have meanwhile been elaborated into a special field of research that draws on sociolinguistic, semiotic, and rhetorical sources.²⁷ Detailed linguistic analysis has shown that and how communication protects itself against ubiquitous uncertainty without renouncing the possibility of indicating uncertainties *specifically* when it is felt to be necessary. It operates with standardized labeling, with repetitions of what is already known in changed situations, with metaphors, with trivialities, in an effort to skate over possible doubts. It generates a genuine appearance of definiteness to prevent questions being asked; or in order to keep control over what is useful in the way of further communication. Otherwise than the tradition of rhetoric would lead us to assume, it is not a matter of tricks occasionally employed but a necessity lying in language itself, a continuous protection against irritation with the proviso of self-provocation.

Only against this backdrop of everyday self-evidences can deliberate or also communicatively negotiated maneuvering with language occur, up to and including ironic adaptation to what we nowadays call "political correctness." But irony is also chosen as a form for absorbing uncertainty. It reveals double meanings together with the indication that they should not be gone into.²⁸ In this context we find the not infrequent decision not to communicate a decidable decision, thus a decision not to decide, because the inevitable absorption of uncertainty this would involve would strengthen suspicions or existing conflict lines through contradictory interpretations of the "real intention" behind the decision.

II

Uncertainty absorption connects decisions with decisions, but does not connect every decision with every other decision of the system. Organizations are thus complex: they cannot link up every element with every other element; they can only establish selective connections.²⁹ We can also understand this necessary selectivity as the need for a system memory.

By "memory" we mean that the system has to discriminate between forgetting and remembering, and, whether in the short or longer term, has primarily to sort out what it can forget in order to regain capacities for processing information.³⁰ The main achievement of memory is therefore forgetting, and remembering takes place only indirectly through the inhibition of forgetting. A theory of memory must hence explain that and how the inhibition of forgetting is conditioned.

This happens always in the present, and normally as comprehension of the current state of the system as known and familiar, and thus apt to

continue without any problem. Only exceptionally (once again: exceptionally) are meaning components required that are dated or in some other way provided with an indication of their "pastness." This is particularly important when inconsistencies would otherwise occur in the present. A certain decision has been made in the past; if one felt that it had to be made now, this would bring confusion to what is to be done at present. In relation to time (and to space), the memory thus serves to iron out inconsistencies that, given the high complexity of information processing, would bring the system to a halt or radically reduce the capacity for processing. Time-indexed memory can in turn (for another observer) provide correct or incorrect recall. For their part, correct memories are only an exception to an exception to an exception that inhibits forgetting.

In any case, the system memory is not a special capacity, not an outdifferentiated competence for only occasional use, for instance, to eliminate doubts (just as there are no special "memory cells" in the brain in which matters past are stored). The memory participates in all operations (in this context: decisions) of the system; otherwise these operations would be quite unable to recognize that they are decisions, nor would they be able to assign themselves to one specific system (and not another). Like the God of the theologians, memory works everywhere and nowhere in a specific fashion in all operations of the system.³¹

So much can be said in general terms. As far as organizational systems are concerned, the memory connects to the absorption of uncertainty that links decisions with decisions. It forgets the uncertainty on which everything is based to the extent that it does not feed into the decision itself as doubt or as proviso for change. But it also forgets the innumerable lead-up decisions (the invitation to the meeting, the unsuccessful attempts to get certain matters accepted); it therefore suppresses most of what contributes to the autopoiesis of the system.³² On the whole (leaving aside private memories), it recalls only what has been taken into account as premise for making further decisions. Through decisions, the system gives a form to environmental influences that can be remembered in the system without also having to recall the underlying environmental situation. A good example is double-entry accounting in business, which does what no mental memory (including that of the individual businessman) could ever do, while on the other hand forgetting what is retained as particularly striking in the individual memory. Uncertainty absorption and the ongoing reshaping of decisions into decision premises are two sides of the same process: and in both regards subsequent decisions decide whether memory is to be used and reproduced.³³ This is why all recording systems, such as registers and electronic databases, operate with the proviso that they be actually used, which becomes more and more unlikely as complexity grows. Only continuous reimpregnation produces what performs the function of

a memory, accompanying and inspiring all operations and providing them with identification.

Above all, remembering decisions is facilitated, if not enabled, by the organization's ability to remember the positions and, via these positions, the persons who did the deciding. If the course of uncertainty absorption cannot be traced in terms of positions and persons, the memory typically chooses to forget. In this sense, the organization primarily has a memory for people, nurtured by gossip and rumor. This may prove fatal for the individuals involved as persons; but for this very reason this structure of memory is also a motive to keep working on the memory of the system, to develop a "policy" of discriminating between forgetting and remembering, which is often borne by individual awareness and communicative forbearance. In other words, the memory itself remembers. Only against this backdrop can we understand what is recorded and filed, what can - if need be - be denied, and what is not put on record at all, but respects the future in the sense that it is assigned no place in the past but forgotten.

On the other hand, the memory of the organization, even if it is oriented on the identity of persons and imputes consistent behavior to them, remains a social memory. It has to be guaranteed by reiterating the frame of reference of communication, and what must be prevented is that too much material worth remembering is available only in the mind. The social memory would then dissolve, disintegrate, and be available only mentally. Although it could be retrieved in communicative procedures with a great deal of effort, there would be no guarantee that different individuals would remember the same thing. The past can be reconstructed on the basis of individuals' awareness only in very exceptional cases, only with respect to special problems, and not in the form of organizational memory that participates in all decisions.

Since memory is used in ever new situations and develops continuously, it must be understood as an *inventive* mechanism. Even recognition and iteration is in new situations a new operation, and whether it is chosen or not is determined not by the past alone but also through the involvement of memory. We could say that everything that happens with the participation of memory modifies what is familiar and known. Since the memory can forget, it affords all the necessary freedoms for this modification.

We now see somewhat more precisely *how* an organization is able to generate system-specific time by separating past and future and, in one and the same selection process, connecting them as different time horizons.³⁴ Only with the help of its memory can the organization read alternatives into its past and structure its future by setting differences without being hampered too much by "truth values."³⁵ At the same time, the organization can clearly use the marking of decisions to secure its memory doubly against forgetting. This happens firstly through a narrower concept of decision, whose other side is

consigned to oblivion as routine behavior. But it happens above all through the selection of a special sort of decision premise, which, although put into effect by individual decisions, is intended as a rule for an indeterminate number of further decisions. Since regulatory decision premises often have hierarchical connotations and regulate the system top-down, the system, thanks to the form in which its memory is re-impregnated, also calls itself to mind as a hierarchy without having to justify doing so.

III

We have assumed that uncertainty is absorbed when decisions are linked to decisions. This starting point needs to be modified, not calling it into question but supplementing it. In every organization (as in everyday life), situations, operations, and complexes of operations are typified in many ways. Examples of this typification are the conference, the request for information, the submission of a draft proposal for co-signing, setting homework for schoolchildren, obtaining peer reviews before deciding to publish an article, admitting new patients to a hospital, returning a defective product for repair, or completing a form. Rhetoric has recently begun to call such typifications "genres."³⁶ Cognitive psychology speaks of "schema," "script," "cognitive map"; and in economics we find the concept "indicator."³⁷ What we are dealing with are varying restrictions on behavior that are appropriate within a particular type. In selecting a type, we therefore choose a framework that is limiting but does not determine what decisions are made when using the type, for example, when completing a form.

The choice of type can be normatively prescribed, for instance, a court hearing or staff council participation in certain decisions; but it can also be left open and then more or less impose itself for practical reasons. When decision processes are more or less routine, they therefore take place as a succession of type choices and not simply as a chain of individual decisions. They are, as it were, two-track occurrences, in which framing by type already creates sufficient certainty and dedramatizes the deciding. Those involved gain a certain distance from the content, they proceed in the normal run of things and rarely take recourse to the corresponding figures.

Moreover, most complex types - for instance, the conference, the surgical operation, the school lesson - can, where necessary, be broken down into subtypes until the type practically merges with the decision and leaves only marginal uncertainties. The certainty that the type provides lies in its repeatability with varying content. One can and must learn the types that come into question in order to know what mobility they offer and what risks one runs of making the wrong impression - for instance, when a candidate in an oral

examination begins to read a prepared text and has to be put off his stride through the normal question and answer game.

Types of this sort work only because and as long as everyone involved knows them. Deviations from what is usual can creep in and themselves become usual - for example, when an examination begins with "statements" by the candidate on previously agreed topics. However, one of the main sources for the development of new types and the disappearance of older rituals is likely to lie in technological developments. Working with computers, with medical engineering, or with educational films in schools automatically leads to new standardizations.³⁸ At this level, too, there is therefore organizational "learning"; it is an empirical question, to be answered differently from case to case, whether new types expand or reduce the decision-making repertoire.

Finally, it should be noted that such types are initially not officially introduced decision premises but can be stipulated as such. This then amounts to regulation of the decision-making *procedure*, opening up other possibilities for learning, namely those that do not "creep in" but have to be introduced by decision.

IV

The contribution a decision makes to absorbing uncertainty can be described as its *responsibility*.³⁹ In this sense, responsibility is something that is happening all the time and that can be attributed as a mistake at best only secondarily to a decision-maker. Only where this is the case and where it can be expected does it make sense to speak of accountability. Accountability always has to be tailor-made for persons, for decisions themselves do not last. Nor can bodies, groups, or teams that decide by a majority be made accountable (which could explain the popularity of these forms of organization). This person-related customizing of accountability means that it always encompasses too much and too little - too much because a person functioning repeatedly and in the long term as decision premise⁴⁰ is always more than a single contribution to decision-making; too little because the information processing network cannot be exhaustively described in terms of single persons.

The difference between responsibility and accountability draws attention to the limits to organizational self-regulation; and to the possibilities (and again limits) of organizational learning. Mishaps can teach an organization to transform responsibility into accountability - albeit at notoriously high cost, because information processing now also, if not primarily, focuses on the factors that could prompt the updating of accountability.

If we could manage to measure information in keeping with the standard guidelines of information theory regarding the possibilities they exclude, we could also measure responsibility. Responsibility would be the information

value of a decision. In the practice of organized collaboration, however, this at best points to the problems of the context that determines the possibilities information chooses among. A great deal of effort - of latent, only implicitly communicated and often opaque endeavor - lies in the definition of this framework, in the alternatives still open. On the one hand, a decision can stake out its own discretionary power by reference to binding previous decisions: that only a given sum of money was earmarked, or that the law excluded certain attractive solutions to problems, diminishes the information value of the decision. Such limitations often lead to the decision-maker expressing and communicating the decision in terms of dissatisfaction with himself. On the other hand, possibilities overlooked in the course of the decision process can be discovered, suppressed possibilities brought to light, or, finally, further possibilities invented to expand the decision-making framework and increase the weight of decision attribution. In the "micropolitics" of organizations,⁴¹ differences of opinion about such frameworks and their social and temporal instability play a considerable role. Even if the decision clearly communicates its option, its information value, or its meaning, the responsibility for it can remain controversial. This selection accompanies the decision like a shadow, just as the hero in antique tragedy shapes his fate through his actions; and future decisions can be influenced by the fact that, although the decision is accepted, its assessment depends on the framework conditions.

In short, from a "micropolitical" point of view, information is interesting as a form, that is to say as a difference that has another side to it. It excludes this other side but, in so doing, includes it in the decision, and passes it on with the decision. At the level of explicit communication, uncertainty is absorbed by the decision opting for *this* and not that. One can make do with this, and normally does so. But the "*and not that*" can endure for some time in the meaning horizon of the decision process. The form of closed contingency remains contingent. In other words, there are possibilities that are constructed and introduced into the system memory only because consideration of them is excluded in the decision process. To a certain extent, the organization thus remains sensitive to what it has excluded or omitted. And in the course of events there may be occasion to come back to it.

Normally, however, the possibilities selected are favored. They serve as points of departure for further decisions. In the process, they can be corrected, can be developed through learning in the organization, can, for instance, be further processed in terms of the rule/exception schema, thus gaining complexity. By contrast, rejected possibilities remain unchanged; they gradually become abstract, at any rate not complex. We could even say that the rejected possibilities bind the system much more strongly precisely because they can no longer be corrected, can no longer be changed in the process of learning.⁴² They determine the "structural drift" (Maturana) of the system much more strongly

than the possibilities accepted, which can be modified by subsequent decisions. From this point of view, it is a useful maxim always to decide in such a way that the decision enlarges the system's scope for decision-making.

V

What is described as uncertainty absorption in the theory of operationally closed organizational systems is often treated in the literature under the heading "power."⁴³ At first glance, the two expressions seem to mean the same thing; but they point in different directions. Uncertainty absorption stresses the processual aspect. This concept also fits better into a systems theory that sets out from constructivist assumptions and stresses that the relationship of a system with its environment can be only referential and not operational. The power concept, by contrast, focuses attention on a definitive, determining cause that is to be assumed and can be localized in the system or in the environment.⁴⁴ What is involved is the attribution of responsibility, thus also the discharge from responsibility or finally the determination of the position that has to be worked upon if one wishes to influence the decisions of the system.

If we choose the power-theoretical description, everything depends on proposing a sufficiently discriminating and differentiating concept of power. If, because the system is in a certain state, one is satisfied to conclude that this must have been brought about by power (or "symbolic force," or what have you), all one can offer is a double description of the phenomena. From the point of view of conceptual economy, we can manage without such a concept of power.⁴⁵ It covers only ascribed power as one of the possibilities for those involved to explain the state of the system.⁴⁶ Its sole merit could be that it points to the contingency of all factual states of affairs under the motto: other power holders, other conditions. If we seek limitations and hope to find them with reference to the system's formal hierarchy of positions, the same applies. Such a power concept is simply superfluous. Or we would have to distinguish it from the exercise of formal powers, but the theory would then soon prove empirically untenable. For, however we now define power, anyone familiar with the internal milieu of an organization - like any sociologist versed in the subject matter - well knows that the power profile of an organization does not coincide with the formal super- and subordination of positions.

One way out could be to take a narrower view of power and define power potential as the possibility to threaten overtly or covertly with negative sanctions.⁴⁷ This also makes the classical political and legal objections to the unregulated exercise of power comprehensible. For power as the power to threaten extends to areas of activity that have nothing to do with the context to which this power owes its existence. Thus, the threat of physical violence or

dismissal or the disclosure of unpleasant information can be used to push through all sorts of “extraneous” wishes. But it is to be assumed that “threat power” in this sense plays only a small role in organizations. In a complex, circularly networked, self-referential system, too much reciprocity is involved to allow threat power to be exercised without harm to whoever exercises it. The power of the superior to assign work under the threat of dismissal in the event of disobedience confronts the power of the subordinate to deny cooperation in cases where the superior has to rely on it. What accrues in the way of power resources, which is likely to be considerable, can therefore hardly be deployed openly and for precise, verifiable purposes. The system disciplines, indeed suppresses the open use of power and reduces the power game to attempts to cushion contacts through mutual consideration and to avoid friction that could provoke reactions. Within organizations, but also in relations between organizations, it then seems advisable to suspend the use of power and to transform mutual dependencies into islands of cooperation in good faith, whose resilience, however, is limited.⁴⁸ For this very reason, we have to return to the level of “micropolitics” if we wish to examine where and how the exercise of power comes up against limits in the prospect of self-damage.

However, this diagnosis - valid under normal circumstances - does not hold true in situations that can be defined as crises and that thus call for exceptional measures. Then one can show where the power lies. But experience also shows that the deployment of power can change at best marginal zones of the system, whereas in-depth effects in almost all system structures are prevented by resistance or are left to slow processes of adaptation, in which initially latent countervailing power diverts the impulse for change into channels acceptable to it.⁴⁹

These brief reflections show that taking the “power” perspective tempts one to address wide ranging topics such as uncertainty absorption and structural change, or to explain decisions in terms of decision premises, without really guiding experience and research accumulated in this field by a single concept. This is not to deny that identifying power relations and exercising sufficient circumspection about what can be afforded or risked can, from a situational point of view, prove very helpful strategically. But it must also be said that this game requires insider knowledge difficult to capture in sociological studies. We shall, therefore, stick to the concept of uncertainty absorption without trying to replace it by assumptions about power and the distribution of power in the system.

VI

The fact that uncertainty absorption happens always and everywhere in the system, because decisions could otherwise not be linked to decisions, does not

spare us the question of how it is distributed within that system. That the measurement of information in the system has to reckon with a socially and temporally unstable framework does not yet explain whether there can be conventions that allow us to infer that some decisions absorb more uncertainty than others. But even if this is so, we cannot assume that the distribution of contributions to uncertainty absorption in the system is random or purely ad hoc; we can rather expect or perhaps even conclude that the distribution (e.g., in the sense of a hierarchical order) is itself used as a resource in the self-organization of the system.

In the autopoietic system, such conventions are also products of the system, thus "autological" rules, which are ultimately sustained by being themselves due to uncertainty absorption. The assignment of information differences can therefore be handled seriously only with irony, and conventions are designed to include their own infringement or what it is that they exclude.⁵⁰ We could also say that the framework of the possible is constructed, deconstructed, and reconstructed within the framework.⁵¹ Nevertheless, the system does not rely only on current uncertainty absorption but also on differences in the information value, importance, and responsibility for decisions thus constructed, if only because the system does not have the time to constantly call the distinctions it uses into question.

In a traditional sense, differences in the process of uncertainty absorption are described as differences of *authority*. By taking recourse to authority, the communication process refers back to itself. It is supposed that, if queried, the decision can be so well justified by reference to its sources of information that it appears reasonable; but for this very reason one can spare oneself the query and replace it by credit, that is to say, by authority.⁵² By authority we thus mean not a special ability of a charismatic or articulate personality, but an assumption abbreviating the communication process, which can be made for a wide variety of reasons.

In past times, especially in the organizations of the nineteenth century, one had to reckon with social stratum components, which were gradually replaced by certified academic competence. Then, however, selection for higher schooling and university studies was strongly influenced by a person's social stratum, a tendency that began to weaken only in the second half of the twentieth century. Especially in the public service, personnel are recruited and paid in terms of grades, so that the claim to competence in judgment, however long one's experience in the job, is visibly reproduced. The possibilities of promotion within the system therefore come up against clear obstacles in entry and pay level ceilings. To some extent, this model is also copied in the private sector - albeit with less need for university graduates, greater stress on intra-systemic training, and better career opportunities, accompanied by greater uncertainty about the duration of membership in the organization. Conditions

vary so strongly from country to country and from organization type to organization type (police, schools, newspaper offices, local authorities, etc.) that we cannot go into any detail at this point. What is of interest is, first, whether this support for authority from correlation with stratification and with school and university education (which is now freeing itself from dependence on social origins) is decreasing, and second, what the consequences are for easy uncertainty absorption.

Traditionally, authority was seen as resting on two coordinated pillars, and was therefore also able to take presumption relatively far. Firstly, a great deal could be explained and communication could be kept more succinct than is usual today; and, secondly, queries were discouraged (except in the form of zealous indications of things that might have been overlooked) where class and educational barriers had to be overcome. Where personal relations were relatively stable, informal cooperation could nevertheless develop - in administrative organizations, however, not so much in the form of clearly defined working groups but rather in hierarchical position structures.

If we assume that authority in organizations could always rely on this sort of societal subsidization without it becoming a subject of debate, it would seem that drastic changes have taken place. Whoever now invokes authority puts it at risk. Changes concern firstly the disciplining of communication through stratification, then the relevance of education for jobs, and finally a factor that we could call the expiration date (or "half-life") of experience.⁵³ The possibilities of invoking experience in communication and thus saving oneself further argument have considerably diminished, for example, for parents with their children, and thus between generations, but also for loan officers or financial consultants in banks or sales representatives in relation to their markets, or government officials in relation to their political environment. The turnaround time of knowledge, and of ignorance, is shortening without our being able to assume that the world is better known. Only the onus in communication is shifting - at the cost of seniority values such as authority and experience.

But the pure facticity of uncertainty absorption remains, and with it the need for the recognizable ordering of contributions and responsibilities. The network itself absorbs uncertainty. As ethnomethodologists have repeatedly pointed out, this happens already in everyday culture and, *a fortiori*, in specific milieus such as organizations through tacitly accepted rules that limit queries. Without having to refer to clearly formulated directives, one knows what would be "too much." There are narrow limits to what can reasonably be expected, and in this context differences in rank come to bear, as do such distinctions as oral/written. Nevertheless, time-consuming forms of negotiation on outcomes can ensue.⁵⁴ In the process, ignorance is translated into freedom, namely into the freedom conceded to the partner to accept or reject, because he has the best access to the relevant knowledge. However, this, too, requires points of departure in

distributed competencies and responsibilities. The ordering of competence may then replace authority and at the same time impose an individual and place-related style of uncertainty absorption - at the cost of commitment to the overall interest of the organization, the firm, or the state. As complexity and intransparency increase, one keeps oneself to oneself and accepts the decisions made elsewhere.

Where consensus is required, it is requested and granted in the form of explicitly communicated consent - with or without modifications to the proposed decision. In the communication process, *agreements* thus come about and are documented; however, they do not presuppose that anyone abandons his convictions or is willing to stand up for implementation of the decision against resistance or in the face of unexpected difficulties.⁵⁵ Agreements, therefore, serve more or less to give form to conflicts, which can then be resumed under new premises and for new reasons. To a certain extent, they replace the preceding past through new historical points of departure and can thus facilitate changes to the decisions made, if they do not prove successful and no one is in favor of retaining the solution found; if they are only temporary arrangements, made until further notice, this also makes it easier to consent. They require neither changes in the opinions expressed during negotiations nor reasonable insight. No one can or has to be expected to behave either reasonably or unreasonably. It suffices to take account of a still uncertain future in which, should the need arise, different decisions can be made.

Finally, agreements mark the boundaries of systems and the boundaries of subsystems. They connect and separate from those with whom agreements are considered unnecessary or impossible. In this sense, agreements follow the lines of system differentiation. But if we were to examine the limits to the need for agreement and the practice of reaching agreement, we would presumably also discover subsystem differentiations that are not provided for in the organizational plan.

In the light of these reflections, it is advisable to look for a structure concept that corresponds to the process concept of uncertainty absorption, and that is at the same time broader than the concept of hierarchy. For this purpose, Herbst proposes the biological concept of "directive correlation."⁵⁶ One arrangement "directs" others when it facilitates and supports the fulfillment of tasks by other positions, thus relieving them of the burden of information processing and, hence, responsibility. From a structural point of view, such directive correlations exist in more or less standardized, expectable form, but we find them in both vertical and horizontal communication channels and both top-down and bottom-up in the hierarchy. They give uncertainty absorption a typical form; one does not then need to re-invent it from case to case, but can stick to "procedure" that is then protected even if expectations are disappointed in particular instances. And because of the structure of the overall system, which

provides only the communication channels (positions, addresses), what uncertainty absorption relies on in individual cases can be left open.

Even if organizations describe themselves as hierarchies, one can assume that directive correlations come to bear *de facto*. It can be useful not only to accept this fact as a deviation or as “informal organization,” but also to recognize that the real work of the organization is done in this manner. Instead of observing only deviations, we would also have to assume officially that the structure of the organization consists in these directive correlations and that the hierarchy with its emergency powers of formally binding decision-making fulfills only an auxiliary function. Such weakening of hierarchy would, if recognized, also serve to admit more diverse irritation in the system.

VII

In the forms of responsibility and accountability, the system directs its own attention to the problem of uncertainty absorption. Typically and continuously, reflexive processes unfold processes of second-order observation. In practice, this happens not simply in the form of certainty and uncertainty being generated in relation to certainty and uncertainty. Little would be gained if certainty that uncertainty exists were to be established in the decision process, or if constant doubt were to be cast on assumptions believed certain. In practice, the problem tends to be tackled in terms of disposition over knowledge and ignorance.

On the one hand, there is a widespread practice of generating uncertainty in others - notably by supervisory positions, but also when a preferred variant is to be established as the only sensible one and communication about alternatives suppressed. The choice between alternatives is typically made on the basis of information density rather than rational comparison. What is known and can clearly be imagined deserves preference - unless one wishes to delay decisions and therefore wants more information.

However, just as noteworthy is the other case where the decision-maker keeps himself uninformed in critical regards to avoid having responsibility ascribed to him. Already in the old reason of state theory, the advice to dissimulate knowledge played a considerable role. Under certain circumstances, knowledge generates an undesirable obligation to decide. In this context, too, the state of consciousness naturally plays no role. On the contrary, only whoever knows or suspects what is to be known can avoid taking cognizance of it. In this instance, too, the problem is fully on the level of communication. As a counter-strategy, attempts may, under certain circumstances, be made to force unwelcome knowledge on the decision-maker and thus maneuver him into a situation he would rather avoid. Zeal and circumspection are among the possibilities for gaining unpopularity,

even if the decision-maker who has been put under pressure cannot take revenge ad hoc. In manipulating one's own and others' knowledge and ignorance, one therefore runs a special sort of risk. Whoever fails to recognize this, in other words, whoever is unable to act at the second-order observation level in the "what would be if.. ." mode, can hardly be said to have the qualities needed for taking part in intricate processes of uncertainty absorption.

VIII

That a system can dispose only over its own operations follows from the requirement of operational closure. The system (the system itself!) can do nothing to change this. But this does not mean that the system can observe only itself. On the contrary, in the principle of operational closure lies an irresistible impulse to base observation by the system on the difference between system and environment, which means to structure the observations of the system primarily through the distinction between self-reference and other-reference. As we have seen, this is why the closure of the system is the precondition for its openness; not only in the sense that this system *can* observe its environment but that it *must* observe it if it is to establish a relationship with itself.⁵⁷

But how can the system observe an environment that cannot be accessed through its own operations? To a considerable degree, the system manages to do so by assuming against the facts that during a longer process of uncertainty absorption the environment remains constant, if information to the contrary does not impose itself. In other words, a sort of temporal "*ceteris paribus*" clause applies on the assumption that the world itself naturally always stays the same. Furthermore, the inaccessibility of the environment appears to be the source of all internal uncertainty, and if this is so, observation of the environment by the system is likely to play a major role in intrasystemic uncertainty absorption. For the system, disregarding the fact that certainty/uncertainty are constructions of the system, the environment is seen as the main source of all uncertainty,⁵⁸ whereas its own contribution is taken rather to be the risk of error and fallacy. This, in turn, affects the process of uncertainty absorption. The ability to present environment successfully in the system is likely to be a first-class source of authority, however uncertainty is absorbed via the environment at the boundary positions⁵⁹ of the system. This also means that these boundary positions are often in close interactional contact with systems of the environment. They represent and inform in two directions and in this function can only to a limited degree be controlled by their own organization. What they offer their system as excuse, as it were, is interactionally negotiated uncertainty absorption.

In the classical model of the organization, the function of uncertainty absorption is assigned to the hierarchical apex of the organization. The owner of the business is seen as able to learn the right prices from the market owing to (more or less) perfect competition, as able to accept any risks as capital risks,⁶⁰ and accordingly able to manage the business successfully. And one could just as easily imagine that the apex of the political apparatus had power because it disposes over the means of force or generates it in processes of political

negotiation under the conditions of electoral democracy and then, with due regard for the law, formulates the program according to which it is to be exercised. In both cases, the apex guarantees for its apparatus or administrative staff (*Verwaltungsstab*, as Max Weber put it) the conditions for their reproduction in an environment that it does not need to know but only to shape. A residue of unresolved malfunctions may remain, which have to be reported to the top so that they can be analyzed for information. But this is true for every machine. Management, risk assumption, and uncertainty absorption coincide. For a good thirty years now this machine model has been criticized by organizational sociology.⁶¹ Neither does it match the empirical findings of organizational research nor are the assumptions of such a centralist organization theory about the environment realistic.⁶² However, this must raise the question of how uncertainty in relation to environmental conditions is absorbed

instead. A great deal of uncertainty absorption has been discovered in horizontal relations, together with the supposition that less arbitrariness prevails in horizontal communication than in vertical communication or that expertise or milieu knowledge come to bear more effectively.⁶³ There is no denying that organizations continue to be hierarchically structured and that binding instructions are issued and obeyed; but the problem has shifted to the question: What instructions? Modern production planning of the complex sort has, for example, to take account of so many different environments - sales markets, financial markets, technical possibilities, supplier efficiency, fashion, and what competitors are planning - that the centralization of the necessary knowledge and thus the centralization of uncertainty absorption are excluded, and other ways to plan coordination have to be considered, such as the simultaneous and step-by-step concretization of planning in different divisions of the organization, which observe the various environments but have to be ready to reach agreement internally. Such conditions exclude the adoption of plans on the basis of central assumptions about the environment, to be subsequently carried out with minor, ad hoc corrections. And the question is then whether a hierarchy suitable for the up-down conveyance of binding instructions is also suitable for conveying the necessary environmental knowledge (whatever its quality as "knowledge") bottom-up in the same channel.

Such situations, increasingly typical, make it appear advisable to take recourse to more abstract concepts like boundary position⁶⁴ or uncertainty

absorption or directive correlation. But this also makes it difficult to abide by assumptions still widespread in organizational sociology, for example, that uncertainty absorption correlates with power in the system.⁶⁵ This is not a matter of course and does not result from the requirement of uncertainty absorption as such. We can therefore argue only conversely that power can develop only where a decision-maker can dispose over *others'* uncertainty about their decisions. Even if power continues to be hierarchically ordered, this does not mean that uncertainty is concentratedly absorbed at the top, nor does it mean that power is withdrawn from the power holder through diffusion of uncertainty in the system and at its boundaries. One may retain power, but not know how and to what ends one should use it.

It can accordingly be assumed that, with the diffusion of uncertainty in the system, the power organized in the formal hierarchy is not obsolete but that how it is practiced changes. It is neutralized neither by power from below nor by power working on it horizontally: it merely becomes a special source of uncertainty with which one has to come to terms. If agreements are to become effective, one has to gain the support of the competent superior at the appropriate level. And precisely when no one, superior included, can know what the one and only right decision is, the superior, too, has discretionary leeway to adequately fulfill supervisory duties. The organization needs someone who can ascertain the facts and legitimate this ascertainment.⁶⁶

Parallel to these analyses, which set out from the social structures of the distribution of authority and power, psychological studies have shown that uncertainty absorption does not proceed in obedience to the directives that theories of rational behavior would propound. It neither follows the rules of statistics, nor does it seek to ensure the greatest possible utility subjectively expected. In everyday life, one overestimates, for example, the importance of particularly striking information or information that is known or easier to obtain than that which can be gained only at great effort and cost.⁶⁷ We could say that, in absorbing uncertainty, in assessing uncertainty, probability, and risk, one does the best one can. The possibility of constructing causal links between available data or the possibility of gaining a narratable story seem to be more important than the reliable reconstruction of probabilities. Both causal relations and stories provide forms of communication that clarify something by withholding their premises, which could contradict it. Causal relations are based on a preliminary selection of matching causes and effects, which could also be differently sorted. And stories are "interesting," because in the form of singularity and uniqueness they convey a generalizable message.⁶⁸ We thus have to do with paradox-resolving forms of communication, and this explains their contribution to the given case of uncertainty absorption.⁶⁹

The framework for decisions is accordingly constructed with an affinity for decision-making from the outset. The organization guides itself, as it were, by

the problem of uncertainty absorption, and constructs knowledge and ignorance, uncertainties and risks *under the guidance of this problem*.

IX

That communication alone is available for the functions of uncertainty absorption is an implication of our theoretical approach. Individuals may well eliminate their uncertainty through perception and on-the-spot inspection; but this has no social relevance if the information they gain is not communicated. However, this does not yet tell us what forms of communication are particularly suitable for tackling the various problems of uncertainty absorption.

In Max Weber's bureaucracy model, the written word was held to be the predominant form of communication. This may well be true when it comes to drawing up programs and providing a uniform draft as a basis for decision-making. In the financial system, too, writing is the predominant means of uncertainty absorption: not the calculation but only the balance is communicated, and this includes possibilities for auditing. If, by contrast, we look at how executives spend their time, we have the opposite impression. Their communication is mainly interactional, that is oral, and this seems to be the case with both intrasystemic and external communication.⁷⁰ More than is generally believed, the culture of organizations is an oral one. Face-to-face interaction with "turn-taking" and the possibility, as well as the obligation, for immediate reaction clearly offers considerable advantages for ongoing uncertainty absorption - for establishing both consensus and dissent. That the results are put down in writing is not excluded, but minutes typically contain only the outcome, not the process of absorbing uncertainty.

From case to case there can be very different reasons for preferring the spoken word. Communication may be too illegal to risk a written record. Or there may be reasons for keeping the authorship of an idea anonymous. Or one would first like to test how a proposal is accepted before admitting to it. For these and other reasons, it is important for the system to have the *difference* between oral and written communication at its disposition, and to be able to choose which form to use within this difference.

On the other hand, interaction is naturally time-consuming. To a limited degree, this is offset by the fact that disposition over and the duration of interaction varies with social status, so that superiors can decide whether, for whom, and how long they are available for such interaction. Nevertheless, the demands on time are considerable and little time is left for personal reflection. It could be assumed that this is compensated by a sort of condensed experiential knowledge, which can be neither recorded in writing nor explained, but which contributes to reproducing the mystery of authority and decision-making competence.

Finally, it should be noted that there are also communications that are suitable for neither writing nor speech but have to use non-linguistic forms of perception, and in this context acoustic rather than optical channels. This is typically the case for alarm signals, which, depending on the sort of organization involved, can be sent on more or less probable grounds: fire, disaster, enemy attack, etc. Alarm signals are of use only if they trigger special programs whose implementation requires no or little communication. They have to be highly standardized and well prepared, and their rare occurrence must not lead to their meaning and programs being forgotten.

X

The concept of uncertainty absorption describes organizations as social systems, which, in a world that is opaque to them, transform uncertainty into certainty. The organization thus settles for a world that it has itself constructed and in which it believes because it is the outcome of its own decision-making history. But this is only the one side of the coin. The other is that this happens through decisions, which guarantees the constant regeneration of uncertainty. A decision reverses the direction in which time is determined. It turns an already unalterable past in which nothing more can happen into an open alternative that still has to be decided on; and in return it sets a difference by which the future is to be observed and introduced into the decision in structured form. To the extent that the organization risks losing its way in self-deception, it also enhances its sensitivity to new irritations. But does this self-sensitization suffice? And from what perspectives could an external observer (for instance, organizational sociology) address and answer this question?

For a start, it should be remembered that the social system organization can be produced and reproduced only in a society, thus only within an all-inclusive social system, which for its part has always generated and updated a reality construction.⁷¹ This commitment to constructive guidelines from society is now stressed by the so-called institutional theory of the organization.⁷² However, within this general world construction (which, incidentally, cannot be expected to find consensus or even dubious reinsurance in a "life world"), organizations generate special operational correlates, special semantics, and special distinctions with the aid of which they observe the world. We could speak of a concentrated and specific capacity for reflection, which further breaks down the usual world data (e.g., on people's known needs or peculiarities), thus increasing uncertainty on the state of affairs, so that decisions - that is, decisions by the given organization - become necessary. Consider, for instance, how military organizations imagine future wars, or how schools assess the performance of students, or how manufacturing and service organizations sound out their special markets, or political parties probe

the willingness of the electorate to reward political platforms with votes - although all this is neither given nor can be ascertained. Regardless of all societal (or as one now also says, cultural) conditions, organizations thus act at their own risk with regard to their own reality constructions.

In the realm of increase that organizations construct as their world, the problem of transforming uncertainty into certainty thus remains, and hence the problem of whether the irritability of the organization suffices to control their world construction - to control it not against the real world but against the resistance of operations of its own to operations of its own. After all, the results of uncertainty absorption can be combated only through decisions, thus only through the absorption of other uncertainties; and historical situations continuously arise in which one questions one's own achievements without ever being able to go back and start over again. Much criticism of bureaucracy seems to relate to the fact that organizations abide by their own assumptions about the world more strongly and more enduringly than the external observer can comprehend. We can develop this assumption into the hypothesis that organizations trust their self-made certainties particularly when high uncertainties have to be coped with and they cannot see what could be done beyond what has been done.

This holds particularly true for two sorts of case, which can also coincide and reinforce one another:

- (1) when the organization has to reckon with typical *opponents* or *competitors* and has set its sights fully on winning or losing within this framework; or
- (2) when high *risks* have to be dealt with and this is managed through specific strategies without the feared disasters materializing. The question is then whether organizations with their decision-making network can register changes in the parameters of hitherto successful uncertainty absorption and abandon self-made certainties without being able to replace these certainties with anything else but uncertainties. Various types of case are conceivable. One could ask what happens with the certainty that one had about an opponent if the opponent bows out or if defining him as an opponent becomes increasingly contrived and costly. The difficulties facing politics after the end of the Cold War, with the associated uncertainties about a new international order or disorder and the parallel problems in the internal affairs of state organizations, offer ample illustrations. Another question that arises when difficulties or other negative experiences occur is whether efforts to carry out the original project are stepped up because it at least offered certainty as an accepted undertaking, or whether it is abandoned. The quite usual overstepping of initial budgets suggests that the uncertainties of a change in course are willingly avoided, but the question would require more precise studies on case types.⁷³

The solutions proposed typically point to the necessity of leadership.⁷⁴ This often happens with regard to the problem of innovation. But innovation is only a nice-sounding name for the problems we are discussing.⁷⁵ Whoever calls for innovation can act rhetorically even if he meets with resistance. In fact, however, it is a matter of replacing certainty by uncertainty; and leadership is required insofar as a sort of substitute certainty can be found in leader personalities until uncertainty absorption gets back on its feet and delivers reliable results. But whatever role increasingly strong leadership plays, the organization needs time to regain lost certainties in the wake of far-reaching structural changes.⁷⁶ From the point of view of uncertainty absorption and from the standpoint of manager careers, innovation has to be judged a pretty foolish undertaking - unless a tried and tested solution is already at hand and the problem to be solved is defined accordingly; or during the process of innovation the organization is allowed to discover what this means.⁷⁷

There are certainly organizations that have more to do with opponents and risks than others. On the assumptions we have just outlined, the problem in such organizations of the instability of uncertainty absorption and the fictionality of the reality constructions that result would come to a head. On the one hand, this can mean that the characteristic qualities of the system type organization come to bear more conspicuously and with greater effect on the environment.⁷⁸ On the other, it could lead to such organizations having a greater need than others for a "philosophy of uncertainty absorption" and thus having to set up second-order self-observation. A term with a long tradition for this is "critique." But, like "innovation," this might be too strongly tied to expectations of improvement and then all too easily made subject to proof. The theory of operationally closed systems, with its derivatives such as cognitive constructivism and uncertainty absorption, does not go as far as this. But it tries to secure an analytical level from which to investigate whether and how organizations can reflexively apply uncertainty absorption to themselves.

Given this view of the problem and its theoretical construction, it could be advisable to replace the unreserved endorsement of innovation (in a positive sense) by the recommendation, in view of the uncertainty absorption that is operating anyway, to maintain and cultivate the irritability of the organization. On the one hand, this is a paradoxical principle, for irritation is the renewal of uncertainty. On the other hand, paradoxes also fall under this recommendation, for the communication of paradoxes is precisely, in this sense, irritation. This does not in any way exclude innovativeness. And it does not mean that a preliminary decision on its extent and radicalness has been made. Irritation means only the regeneration of uncertainty for special reasons, thus renewing a mix of orientation on structurally determined expectations of the system and perception of new types of requirement, hence a mix of self-reference and other-reference grounded in given situations. Irritation first has to be processed

within the system as information: a difference that makes a difference. Only then can decisions be made about innovative structural changes and their extent, or about radical innovations. But irritation pays off not only in the form of innovation but especially because it compels decisions and leads to tested and rejected innovations ("for which the time is not yet ripe") being stored in the system memory.

XI

If the variables uncertainty absorption and power correlate, because power makes uncertainty absorption possible or because uncertainty absorption generates power, we can assume that the power structure of a system provides the opportunity to observe this process. To put this in more precise terms, the power structure of a system gives the system the opportunity to observe uncertainty and, thus, its own future. At any rate, the concrete contours and interest contexts of power distribution provide indications of how power will be exercised, and this will determine how the system prepares itself for a still indeterminate future. The less indication the environment of the system gives of the future of the system, the more important this possibility becomes.

The classical theory of the organization had assumed that both in the economy and in politics organizations are governed by their particular environment - through politically consolidated rule, or through the owners' interest in making a profit. But it is difficult to see how such direction from *outside the organization* could develop. The systems-theoretical analysis of societal functional systems such as the economy and politics tend to give the impression that surplus possibilities and corresponding uncertainties are generated there. This is, at any rate, to be expected if the formation of such systems presupposes decoupling from the environment, outdifferentiation, operational closure, and self-referential operation. In the economy, for example, this is true for self-regulation through the fluctuation of money prices and currency rates. In politics this is the case for electoral democracy and for the projection of the binary schema "right" and "left," which proposes the future in the form of oscillation. Politics tied to ends necessarily becomes despotism. Organizations that form in these functional systems can therefore not be understood as means or "staffs" (Max Weber) for an externally formed will. On the contrary, they are necessary because this is lacking; and because the immense surplus of possibilities that arise through the outdifferentiation and autonomy, as well as the operational closure and self-referential operation, of the functional systems have somehow to be put into shape. For this and only for this reason, organizations have to adopt a hierarchical structure because this is the best way of coping with the uncertainties of the environment.⁷⁹

If a systems-theoretical analysis of the societal functional systems gives cause to switch from "governance" to "uncertainty," the analysis of organizations will have to follow suit. Max Weber's insight that organizations have become the inescapable fate of modern society remains. Only the explanation changes. Organizations are accordingly concerned not so much with equipping a will and the corresponding interests assumed to be extraneous to it; the problem is rather how to cope with the uncertainty in orientation that is continuously reproduced in the functional systems outdifferentiated in society. This, and only this, is why an organization needs a hierarchical order for its internal power relations.

Notes

1. We must therefore distinguish between knowledge and information and, accordingly, between a knowledge society and an information society. A society can only be described as an information society if it constantly surprises itself through decisions. See Niklas Luhmann, *Entscheidungen in der "Informationsgesellschaft,"* Ms. 1996.
2. See Niklas Luhmann, *Zweckbegriff und Systemrationalität: Über die Funktion von Zwecken in sozialen Systemen (1968),* Frankfurt 1973.
3. See Chapter 8 below.
4. For the original formulation see James G. March and Herbert A. Simon, *Organizations,* New York 1958, 165: "Uncertainty absorption takes place when inferences are drawn from a body of evidence and the inferences, instead of the evidence itself, are then communicated." March and Simon stress above all the link between this variable and influence and power in organizations. Cicourel provides very similar analyses with regard to protocols, registration, and documentation in organizations. See Aaron V. Cicourel, *The Social Organization of Juvenile Justice,* New York 1968; idem et al., *Language Use and School Performance,* New York 1974, 300 ff.; idem, Notes on the Integration of Micro- and Macro-Levels of Analysis, in: Karin Knorr-Cetina and Aaron V. Wildavsky (eds.), *Toward an Integration of Micro- and Macro-Sociologies,* Boston 1981, 51-80. The concept of reduction of ambiguities in organizing is seen as crucially important by Karl E. Weick, *Der Prozeß des Organisierens,* Frankfurt 1985.
5. See Michael Smithson, *Ignorance and Uncertainty: Emerging Paradigms,* New York 1989.
6. Arthur L. Stinchcombe, *Information and Organizations,* Berkeley 1990, esp. 32 ff. defines uncertainty absorption as a "skill."
7. If we set out not from decisions but from permanent positions, the process of uncertainty absorption could also be described as the transformation of input into output. See Federico Butera, *Il castello e la rete: Impresa, organizzazioni e professioni nell' Europa degli anni '90,* 2nd ed, Milan 1991, 155 ff. for the special case of research and development divisions.
8. See, e.g., Michael Masuch and Perry LaPotin, *The Disorder of Organizational Logic - Makework Among Members of Bureaucratic Organizations,* in:

- Massimo Warglien and Michael Masuch (eds.), *The Logic of Organizational Discorder*, Berlin 1996, 163-182 (164).
9. See Chapters 2-3, p.
 10. See Helmut Willke, Dimensionen des Wissensmanagements - Zum Zusammenhang von gesellschaftlicher und organisationaler Wissensbasierung, *Managementforschung* 6 (1996), 263-304.
 11. In a similar vein, G.L.S. Shackle, *Imagination and the Nature of Choice*, Edinburgh 1979, sees psychic processes ("thought") - decision-making - as "exploitation of unknowledge" (74, 140). Without ignorance of the future, one could not envisage any alternatives ("rival choosables").
 12. See Karl E. Weick, Re-Punctuating the Problem, in: Paul S. Goodman and Johannes M. Pennings et al. (eds.), *New Perspectives on Organizational Effectiveness*, San Francisco 1977, 193-225 (195).
 13. See also Shackle op. cit., e.g. 15 f.
 14. James G. March goes so far as to assume that this is why managers do not apply theories of rational decision-making that leave this factor out of account (and could they do so?). See: Eine Chronik der Überlegungen über Entscheidungsprozesse in Organisationen, in: James G. March (ed.), *Entscheidung und Organisation*, German translation. Wiesbaden 1990, 1-23 (7 f.). Recent developments in electronic information technologies also appear not to have changed anything in this regard. See, e.g., Dirk Hoppen, *Organisation und Informationstechnologie: Grundlagen für ein Konzept zur Organisationsgestaltung*, Hamburg 1992.
 15. See Paul C. Nutt, Types of Organizational Decision Processes, *Administrative Science Quarterly* 29 (1984), 414-450. From this, Nutt infers that innovation is not very probable. We could perhaps also conclude that the uncertainty thus absorbed will quickly turn up again.
 16. For a case study see, e.g., Leon H. Mayhew, *Law and Equal Opportunity: A Study of the Massachusetts Commission Against Discrimination*, Cambridge, MA 1968. See also Vicki E. Baier, James G. March, and Harald Saetren, Implementation and Ambiguity, *Scandinavian Journal of Management* 2 (1986), 197-212 with further references.
 17. The opposite view is more common. See, e.g., Robert B. Duncan, Characteristics of Organizational Environments and Perceived Environmental Uncertainty, *Administrative Science Quarterly* 17 (1972), 313-327.
 18. See Ellen J. Langer, The Illusion of Control, *Journal of Personality and Social Psychology* 32 (1975), 311-328; idem, The Psychology of Chance, *Journal for the Theory of Social Behaviour* 7 (1977), 185-207; Lyn Y. Abramson and Lauren B. Alloy, Judgment of Contingency: Errors and Their Implications, in: Andrew Baum and Jerome E. Singer (eds.), *Advances in Environmental Psychology* vol. 2, *Applications of Personal Control*, Hillsdale 1980, 111-130 (115 ff.); Shelley S. Taylor, Adjustment to Threatening Events: A Theory of Cognitive Adaptation, *American Psychologist* 38 (1983), 1161-1173.
 19. See Joanne Linneroth, The Political Processing of Uncertainty, *Acta Psychologica* 56 (1984), 219-231, with the warning to make more uncertainty public.
 20. See Klaus A. Ziegert, Courts and the Self-concept of Law: The Mapping of the Environment by Courts of First Instance, *Sydney Law Review* 14 (1992), 196-229.

21. Vgl. Chester I. Barnard, *The Functions of the Executive* (1938), quoted from the Cambridge edition 1951, 314 ff., or Robert Dubin, *Human Relations in Administration*, 2nd ed. Englewood Cliffs, NJ 1961, 433 f.
22. See Günter Ortmann et al., *Computer und Macht in Organisationen: Mikropolitische Analysen*, Opladen 1990.
23. See Abraham Tesser and Sidney Rosen, The Reluctance to Transmit Bad News, in: Leonard Berkowitz (ed.), *Advances in Experimental Social Psychology* 8 (1975), 193-232.
24. This raises highly topical organizational issues about the more concrete and simultaneous meshing of corporate accounting with business transactions and the relevant decisions. After all, the information must not necessarily wait for sums to be done, let alone balance sheets prepared, before it is taken into account.
25. See Chester I. Barnard, *The Functions of the Executive* (1938), Cambridge, MA 1951, 319, quoting an "expert in publicity."
26. Barnard op. cit., 319. And Barnard explicitly stresses that this has nothing to do with moral insincerity, and thus not with any infringement of a personal code of sincerity, but arises from, as it were, the technical conditions of efficient communication. Anyone who enjoys older literature can find all this in Baltasar Gracián, as well.
27. For a brief overview, see Barbara Czarniawska-Joerges and Bernward Joerges, How to Control Things with Words: Organizational Talk and Control, *Management Communication Quarterly* 2 (1988), 170-193.
28. On the age of this concept within a specific rhetorical traditions, see Norman Knox, *The Word Irony and Its Context 1500-1755*, Durham 1961. It was not until the eighteenth century that, in parallel to the decline of training in rhetoric, the concept and thus the form of irony took on a more general meaning. The Romantics lauded the "logical beauty" of its form (Friedrich Schlegel, *Kritische Fragmente* 42, *Werke in zwei Bänden*, Berlin 1980, vol. 1, 172), while in the everyday practice of communication, irony tended to be irritating and its innocence doubted.
29. See also Niklas Luhmann, *Haltlose Komplexität*, in idem *Soziologische Aufklärung* vol. 5, Opladen 1990, 59-76.
30. For neurophysiological systems, see Heinz Förster, *Das Gedächtnis: Eine quantenphysikalische Untersuchung*, Vienna 1949.
31. "Of course we know that this memory is everywhere, that it is realized in the structure of the interconnection schema and in the operational modalities of all nodes of this network," as Heinz von Foerster puts it in *Gedächtnis ohne Aufzeichnung*, in idem, *Sicht und Einsicht: Versuche zu einer operativen Erkenntnistheorie*, Braunschweig 1985, 133-172 (168 f.).
32. However, it should be noted that much of what is omitted from the decision-making memory in this fashion is preserved "undated," as "organizational culture," and hence, even in the way memory operates, limits how and what can be communicated in future presents. We shall be coming back to this.
33. See Heinz Förster op. cit. See also idem., *Quantum Mechanical Theory of Memory*, in: idem (ed.), *Cybernetics: Transactions of the Sixth Conference*, New York 1950, 112-145.
34. This takes up what has already been said. See above 140 ff. (4/IV.).
35. See also Heinz von Foerster, What Is Memory that It May Have Hindsight and Foresight as Well? in: Samuel Bogoch (ed.), *The Future of the Brain Sciences*.

- Proceedings of a Conference held at the New York Academy of Medicine*, New York 1969, 19-64; German translation in Heinz von Foerster, *Wissen und Gewissen: Versuch einer Brücke*, Frankfurt 1993, 299-336.
36. See Carolyn R. Miller, Genre as Social Action, *Quarterly Journal of Speech* 70 (1984), 151-167; JoAnne Yates I Wanda J. Orlikowski, Genres of Organizational Communication: A Structural Approach to Studying Communication and Media, *Academy of Management Review* 17 (1992), 299-326; Carol Berkenkotter I Thomas N. Huckin, Rethinking Genre from a Sociocognitive Perspective, *Written Communication* 10 (1993), 475-509.
 37. On the literature see Roger Schank I Robert P. Abelson, *Scripts, Plans, Goals, and Understanding: An Inquiry into Human Knowledge Structures*, Hillsdale, NJ 1977; George A. Akerlof, The Economics of Caste and of the Rat Race and Other Woeful Tales, *Quarterly Journal of Economics* 90 (1976), 599-617.
 38. See the example of electronic mail in Wanda J. Orlikowski and JoAnne Yates, Genre Repertoire: The Structuring of Communicative Practices in Organizations, *Administrative Science Quarterly* 39 (1994), 541-574.
 39. On this and on older literature, see Niklas Luhmann, *Funktion und Folgen formaler Organisation*, Berlin 1964, 172 ff.
 40. See Chapter 7 below.
 41. In the sense of Tom Burns, Micropolitics: Mechanisms of Institutional Change: *Administrative Science Quarterly* 6 (1961), 257-281. See also Horst Bosetzky, Machiavellismus, Machtkumulation und Mikropolitik, *Zeitschrift für Organisation* 46 (1977); Henry Mintzberg, *Power In and Around Organizations*, Englewood Cliffs, NJ 1983, esp. 171 ff.; Willi Küpper and Günther Ortmann (eds.), *Mikropolitik: Rationalität, Macht und Spiele in Organisationen*, Opladen 1988; Günther Ortmann, *Formen der Produktion: Organisation und Rekursivität*, Opladen 1995.
 42. This is indeed the view taken by Philip G. Herbst, *Alternatives to Hierarchies*, Leiden 1976, 81 note 1.
 43. To put it in very broad terms, uncertainty absorption is power because it determines the state of systems. More precisely, we could say that uncertainty absorption bestows power because other positions in the system are dependent on how uncertainty is handled. See, e.g., Michel Crozier, *Le phénomène bureaucratique*, Paris 1963; David J. Hickson et al., A Strategic Contingencies Theory of Intraorganizational Power, *Administrative Science Quarterly* 16 (1971), 216-229; C.R. Hinings et al., Structural Conditions of Intraorganizational Power, *Administrative Science Quarterly* 19 (1974), 22-44; Michel Crozier and Erhard Friedberg, *L'acteur et le système: Les contraintes de l'action collective*, Paris 1977, 20 f. Even if this theory can explain how (ascribed) power comes about, the really interesting question remains unanswered, namely what power that has arisen in this way can be brought to. Does it lead to anything more than particular politeness in dealing with those who can decide about uncertainty?
 44. See, e.g., Mintzberg, op. cit. Power is defined in correspondingly vague terms as "the capacity to effect (or affect) organizational outcomes" (p. 4), and the attribution problem (the power of attributing!) is not addressed.
 45. This same is true if we replace the concept of power by that of interest. For not fully comprehensible reasons, James March sees differences; in explanation

through power but not in explanation through interest he sees a “tautological expression of the unexplained variance in a decision-making situation” - op. cit. (1990), p. 7.

46. The relevant literature then practically delegates responsibility for the power concept to respondents, and takes this to be empirical research. See, e.g., Mayer N. Zald (ed.), *Power in Organizations*, Nashville Tenn. 1970; Gerald R. Salancik and Jeffrey Pfeffer, The Bases and Use of Power in Organizational Decision Making: The Case of a University, *Administrative Science Quarterly* 19 (1994), 453-473; idem, Who Gets Power - and How They Hold on to It: A Strategic-Contingency Model of Power, *Organizational Dynamics* 6 (1977), 3-21.
47. See Niklas Luhmann, *Macht*, 2nd ed. Stuttgart 1988
48. For a case study see Martin Gangiulo, Two-step Leverage: Managing Constraint in Organizational Politics, *Administrative Science Quarterly* 38 (1993), 1-19.
49. See, e.g., Jitendra V. Singh and Robert J. House and David J. Tucker, Organizational Change and Organizational Mortality, *Administrative Science Quarterly* 31 (1986), 587-611, with the distinction between “core changes” and “periphery changes.” See also Jacques Delacroix and Anand Swaminathan, Cosmetic, Speculative and Adaptive Organizational Change in the Wine Industry: A Longitudinal Study, *Administrative Science Quarterly* 36 (1991), 631-661. For more detail on the problem of structural change, see Chapter 11 below.
50. See Jean-Pierre Dupuy, Zur Selbst-Dekonstruktion von Konventionen, in: Paul Watzlawick and Peter Krieg (eds.), *Das Auge des Betrachters: Beiträge zum Konstruktivismus: Festschrift Heinz von Foerster*, München 1991, 85-100, or, in somewhat different vein, idem, Les paradoxes de l'ordre conventionnel, in: Michel Amiot et al. (eds.), *Système et paradoxe: Autour de la pensée d'Yves Barel*, Paris 1993, 107-123. Karl-Heinz Ladeur, Von der Verwaltungshierarchie zum administrativen Netzwerk? Zur Erhaltung der Eigenständigkeit der Verwaltung unter Komplexitätsbedingungen, *Die Verwaltung* 26 (1993), 137-165 (142 f.) suggests understanding this conventionalization as self-fulfilling prophecy and to use the concept in the analysis of modern public administration.
51. Crozier and Friedberg op. cit. (1977), 147, speaks of “colonisation de l'organisation par ses relais.”
52. See the definition of authority as “capacity for reasoned elaboration” in Carl J. Friedrich, Authority, Reason, and Discretion, in: idem (ed.), *Authority (Nomos I)*, New York 1958. See also Herbert A. Simon and Donald W. Smithburg and Victor A. Thompson, *Public Administration*, New York 1950, 189 ff. on the “authority of confidence” and how it relates to hierarchy. See also T. Heller, Changing Authority Patterns: A Cultural Perspective, *Academy of Management Review* 10 (1985), 488-495.
53. Criticism of obsolescent experience is, however, not particularly new. It is already to be found as criticism of the authority of the old in the sixteenth century in the light of numerous technical and agricultural innovations, better schooling, and the spread of printed books. See Keith Thomas, *Vergangenheit, Zukunft, Lebensalter: Zeitvorstellungen im England der frühen Neuzeit*, German translation Berlin 1988. Berlin 1988, p. 65.
54. See Crozier and Friedberg op. cit. 143 f.

55. See already Chapter 3-3 on overestimation of the need for "consensus." See also Nils Brunsson, *The Irrational Organization: Irrationality as a Basis for Organizational Action and Change*, Chichester 1985; idem, *The Organization of Hypocrisy: Talk, Decisions and Actions in Organizations*, Chichester 1989, with the thesis that highly motivated willingness to act can be achieved in "irrational" organizations. On conventional agreements see Alois Hahn, *Verständigung als Strategie*, in: Max Haller et al. (eds.), *Kultur und Gesellschaft. Verhandlungen des 24. Deutschen Soziologentages, des 11. Österreichischen Soziologentages und des 8. Kongresses der Schweizerischen Gesellschaft für Soziologie in Zürich 1988*, Frankfurt 1989, 346-359 (with basis in empirical studies on modern families). On workable agreements, which do have necessarily mean consensus, see George J. McCall and J.L. Simmons, *Identities and Interactions*, New York 1966, esp. 140 ff.
56. See Philip G. Herbst, *Alternatives to Hierarchies*, Leiden 1976, 32 ff. with reference to Gerd Sommerhoff, *Analytical Biology*, London 1950. See also idem, *Logic of the Living Brain*, London 1974, 73 ff.
57. See Gotthard Günther, *Cognition and Volition: A Contribution to a Cybernetic Theory of Subjectivity*, in idem, *Beiträge zur Grundlegung einer operationsfähigen Dialektik vol. 2*, Hamburg 1979, 203-240 (212): the distinction of living subjects from their environment forces them to assume an active role in relation to this environment.
58. Organizational sociology long shared this view. See, e.g., Tom Bums and G.M. Stalker, *The Management of Innovation*, London 1961; Richard M. Cyert and James G. March, *A Behavioral Theory of the Firm*, Englewood Cliffs, NJ 1963; F.E. Emery and E. L. Trist, The Causal Texture of Organizational Environments, *Human Relations* 18 (1965), 21-32; Shirley Terreberry, The Evolution of Organizational Environments, *Administrative Science Quarterly* 12 (1968), 590-612; Robert B. Duncan, Characteristics of Organizational Environments and Perceived Environmental Uncertainty, *Administrative Science Quarterly* 17 (1972), 313-327; Husseyin Leblebici and Gerald R. Salancik, Effects of Environmental Uncertainty on Information and Decision Processes in Banks, *Administrative Science Quarterly* 26 (1981), 578-596 (already taking stronger account of self-generated uncertainty). For early emphasis on self-generated uncertainty, see James D. Thompson and Arthur Tuden, Strategies, Structures, and Processes of Organizational Decision, in James D. Thompson et al. (ed.), *Comparative Studies in Administration*, Pittsburgh 1959, 195-216.
59. On this concept see Niklas Luhmann, *Funktion und Folgen formaler Organisation*, Berlin 1964, 220 ff. For the American discussion see Howard Aldrich and Diane Herker, Boundary Spanning Roles and Organization Structure, *Academy of Management, Journal* 2 (1977), 217-230. Typically, discussion on the subject treats this concept as concerned with subordinate roles and does not take sufficient account of the fact that top positions in particular are typically boundary positions and often spend most of their working hours on external contacts.
60. Still often cited: Frank H. Knight, *Risk, Uncertainty and Profit* (1921), 7th reprint Boston 1948.
61. See Chapter 1-2 above.

62. On the political system see Renate Mayntz and Fritz Scharpf, *Policy-Making in the Federal Bureaucracy*, Amsterdam 1975; Renate Mayntz, *Soziologie der öffentlichen Verwaltung*, Karlsruhe 1978, esp. 60 ff. Much research on the possibilities of politically controlling the administration, on problems of "implementation" and "implementation deficits," has its point of departure in the inadequacies of the classical model. See Renate Mayntz, *Regulative Politik in der Krise?* in: Joachim Matthes (ed.), *Sozialer Wandel in Westeuropa: Verhandlungen des 19. Deutschen Soziologentags Berlin*, Frankfurt 1979, 55-81; idem. (ed.), *Implementation politischer Programme*, Königstein 1980; idem. (ed.), *Implementation politischer Programme Teil II*, Opladen 1982.
63. See Henry A. Landsberger, *The Horizontal Dimension in Bureaucracy*, *Administrative Science Quarterly* 6 (1961), 299-332 (308 ff.) with the then-fashionable recommendation of "management by exception." See also George Strauss, *Tactics of Lateral Relationship: The Purchasing Agent*, *Administrative Science Quarterly* 7 (1962), 161-186.
64. The literature on this concept takes account of both position-immanent conflict and role stress, and of influence through the channeling of information, but it pays too little attention to beneficial uncertainty absorption. See, in addition to the literature listed in note 4 above, int.al. William Foote Whyte, *The Social Structure of the Restaurant*, *American Journal of Sociology* 54 (1949), 302-310; Ross Adair, *The Indian Health Worker*, *Human Organization* 19 (1960), 59-63. Robert E. Spekman, *Influence and Information: An Exploratory Investigation of the Boundary Role Person's Basis of Power*, *Academy of Management Journal* 22 (1979), 104-117; Robert A. Friedman and Joel Podolny, *Differentiation of Boundary Spanning Roles: Labor Negotiation and Implications for Role Conflict*, *Administrative Science Quarterly* 37 (1992), 28-47.
65. See March and Simon op. cit. 165, who, however, also point out: "Both the amount and the locus of uncertainty absorption affect the . . . influence structure of the organization". See also Crozier and Friedberg op. cit. (1977), 20 f. For more detail, see section 5 above.
66. This, too, is one of the variables identified by March and Simon. See op. cit. 166.
67. See Amos Tversky and Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, *Cognitive Psychology* 5 (1973), 207-232; Daniel Kahneman and Paul Slovic and Amos Tversky (eds.), *Judgment under Uncertainty: Heuristics and Biases*, Cambridge 1982. See also R.E. Nisbet and L. Ross, *Human Inference: Strategies and Shortcomings of Social Judgments*, Englewood Cliffs, NJ 1980.
68. We also offer this reflection as background analysis of the modern semantics of "interesting." On the paradox concealed behind this, see also Joanna Martin et al., *The Uniqueness Paradox in Organizational Stories*, *Administrative Science Quarterly* 28 (1983), 438-453. In modern literary criticism, the distinction between interesting and uninteresting arose in the eighteenth century in connection with the modern novel written for commercial exploitation (and no longer under the conditions of patronage). Here, too, the point of departure of this code is that the story suggests unique events that nevertheless allow the reader to draw inferences with regard to one's own life. See, e.g., Gerhard Plumpe, *Ästhetische Kommunikation der Moderne* vol. 1, Opladen 1993, 22 f., 156 ff.

69. See Nancy Pennington and Reid Hastie, Evidence Evaluation in Complex Decision Making, *Journal of Personality and Social Psychology* 51 (1986), 242-258; idem, Explanation-Based Decision Making: Effects of Memory Structure on Judgment, *Journal of Experimental Psychology: Learning, Memory, and Cognition* 14 (1988), 521-533.
70. See Henry Mintzberg, *The Nature of Managerial Work*, New York 1973, oder Warren J. Keegan, Multinational Scanning: A Study of the Information Sources Utilized by Headquarters Executives in Multinational Companies, *Administrative Science Quarterly* 19 (1974), 411-421. According to Keegan, sources of information in "general management" are 71% "human" and only 18% "documentary." In finance the figures are 44% and 66%. See also H.E. Dale, *The Higher Civil Service of Great Britain*, Oxford 1941, 157 ff.; Fritz Morstein Marx: *Amerikanische Verwaltung: Hauptgesichtspunkte und Probleme*, Berlin 1963, 126 ff.
71. Now a classical treatment: Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality*, New York 1967.
72. It is not very clear that a special theory is required, and it can be explained only in history of science terms, namely the overly strong isolation of the field of research the organizational sciences address. See Chapter 1-6.
73. See, e.g., Barry M. Staw, Knee-Deep in the Muddy: A Study of Escalating Commitment to a Chosen Course of Action, *Organizational Behavior and Human Performance* 16 (1976), 27-44 - a simulated decision game (investment) with the result that accountability requires keeping to the original goals at greater expense (bad for all problems with cost overruns). But see also Barry M. Staw and Frederick V. Fox, Escalation: The Determinant of Commitment to a Chosen Course of Action, *Human Relations* 30 (1977), 431-450 with doubts about the lastingness of such escalation.
74. See, for one example of many, Philip Selznick, *Leadership in Administration: A Sociological Interpretation*, Evanston, IL 1957.
75. Under this label, the topic has long preoccupied organizational science on the assumption that innovations are a necessity and that this is a matter that should be furthered. See, e.g., Chris Argyris, *Organization and Innovation*, Homewood, IL 1965; Victor A. Thompson, *Bureaucracy and Innovation*, University of Alabama 1969; Gerald Zaltman et al., *Innovations and Organizations*, New York 1973; George W. Downs, Jr., *Bureaucracy, Innovation, and Public Policy*, Lexington, MA 1976. Some of the theoretical problems are transferred to methodological problems with the aim of discovering the special characteristics of particularly innovative organizations through comparative empirical studies. See, e.g., George W. Downs and Lawrence B. Mohr, Conceptual Issues in the Study of Innovation, *Administrative Science Quarterly* 21 (1976), 700-714.
76. Nowadays this is more discussed than in the past under the heading of "disruptive change." See Terry L. Amburgey et al., Resetting the Clock, The Dynamics of Organizational Change and Failure, *Administrative Science Quarterly* 38 (1993), 51-73.
77. See James G. March, Footnotes to Organizational Change, *Administrative Science Quarterly* 26 (1981), 563-577; Paul C. Nutt, Types of Organizational Decision Processes, *Administrative Science Quarterly* 29 (1984), 414-450 (445 f.).

78. For an analysis of political parties from these points of view, see Niklas Luhmann, Die Unbeliebtheit der politischen Parteien, in: Siegfried Unseld (ed.), *Politik ohne Projekt? Nachdenken über Deutschland*, Frankfurt 1993, 43-53.
79. Economists, in particular, are aware of this. See, e.g., Jay B. Barney and William G. Ouchi (eds.), *Organizational Economics*, San Francisco 1986, 12: "Whenever any environmental uncertainty faced a firm, the firm would adopt some form of vertical integration."

