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Organizational Transformation Through Knowledge-Management

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1. Introduction

Organizational transformation is commonly understood as fundamental change of the organization, meaning a shift in the organizational basic assumptions or frame of reference (Levy/Merry 1986, Kilmann/Covin 1988, Blumenthal/Haspeslagh 1994). The capability to cope with such transformational processes seems to get more and more important as the complexity and dynamic of the organizational environment is considered to increase. In the time of hypercompetition (D´Aveni 1994) change mastery is likely to become the central strategic resource, the core competence (Barney 1991) of the successful organization. Following this general point of argument - without discussing, whether the proposition of increasing environment dynamics is a mere chimera - leads to the question what organizations could do to improve transformational processes. The answer requires an appropriate understanding of what is changed in organizational transformation and how these change processes can be described. This paper stresses two propositions:

1. Organizational transformation is connected with a fundamental change in the organizational knowledge-base. Therefore the creation of new organizational knowledge becomes the crucial strategic factor.

2. Knowledge creation is not an individual but a genuine collective process. Therefore the management of organizational communication is turning out to become the most important issue in improving transformation processes.

2. Organizations as knowledge-based systems

In order to understand organizational transformation it is necessary to comprehend, how the object of change (i.e. organizations) can be grasped. Therefore the first question to answer is, what turns an organization into an organization or to put it in a different way: What makes up the identity of an organization?

Organizational identity

In modern system theory (Luhmann 1995) identity can be described as the difference or boundary between an organization and its environment. As opposed to organisms or material objects, an organization boundary is not physical. Instead it is immaterial and therefore organizations are more or less unstable and permanently jeopardized in their existence.

This immaterial boundary is built up through system-specific sensemaking (Weick 1995). Through specific decision-rules, routines, norms and values organizations make sense out of the complexity inherent in their environments - they reduce environmental complexity for themselves in order to get able to act. Organization have a „sense-" or „cognitive-boundary" to their environments, meaning that organizational members can differentiate between actions and communications belonging either to the environment or the organization. This system-specific sense is represented in the cognitive maps of the organizational members (Weick/Bougon 1986). Organizational members therefore know what kind of actions and communications of other members can be expected and which cannot (Luhmann 1995).

To put the argument further, organizations should be understood as „thinking systems" (Sims et al. 1986), which means that they must have a specific knowledge-base (Duncan/Weiss 1979) to differentiate them from the knowledge of their environments (i.e. knowledge of other social systems). For example organizations have specific knowledge how to efficiently develop a new product and get it on the market. Yet, competitors in the environment might use totally different strategies.

Organizational knowledge can be further described as knowledge, which 1) is accepted by the organization and 2) is relevant for the organization. Acceptance stresses the point that knowledge does not imply absolute truth, but instead a constructed or relative truth. Knowledge is a social construction of reality (Berger/Luckmann 1966). A new perspective on reality is condensing to knowledge only, when it is accepted by a social system or community. Otherwise new perspectives are classified as foolishness.

In fact many new theories even in natural science had to fight against established paradigms (e.g. Einstein´s theory of relativity) and only reached the status of knowledge because they were getting more and more accepted by the prevailing social systems (Kuhn 1970). To reach acceptance by a social system generally depends on the power structure of this system. Or in a more abstract view: Only new constructions of reality, which are perceived as in some way stabilizing the cognitive boundary between organizations and their environment in the future, will have a good chance to get accepted.

The second criterion for organizational knowledge is relevance for the social system. Only knowledge which is somehow useful for the organizational performance becomes part of the organizational knowledge-base. There can be knowledge which is accepted by the system (e.g. the cooking qualities of a CEO from a computer company), but has no influence on organizational performance and therefore will be classified as knowledge belonging to the environment.

Both criteria, acceptance and relevance, make clear why knowledge of organizational members is not the same as organizational knowledge. In some areas organizational members know more in others they know less than the organization. The first is possible because people are members of several social systems and therefore have knowledge, which is different form the organizations they work in. The later happens because organizations divide labor. Therefore knowledge is specialized. Because it is also historically developed, not every member can or should internalize the whole knowledge of the organization.

From this point of view, organizational identity is more than a nexus of individual treaties (Aoki et al. 1990). There are specific emergent factors, as the historical development of the organizational knowledge-base, which cannot be explained by the knowledge of actual members. Organizations are capable of storing experience over time, going beyond the cognitive structures of actual members. They have a sort of memory which can be described in simplified terms as performance standards and operations to fulfill these standards. Whereas the first one is often referred to as organizational culture (Schein 1985), the second one is more connected to the concept of organizational routines (Levitt/March 1988; Nelson/Winter 1982). Cultural standards and routines survive actual members and are therefore crucial for stabilizing the boundary between the organization and its environment, meaning that organizations do not loose their identity even if there is fluctuation in membership.

Consequences for organizational change

The consideration of organizations as knowledge-based systems brings out a new perspective on organizational change processes. The first point is that organizational environments are not determining or forcing organizational change. Since the organizational knowledge-base differs from organization to organization - otherwise they would not have different identities - it is likely that their knowledge about changes in the environment and inherent risks or opportunities is not the

same. That means organizations, which are competing in the same market, can have totally different perceptions of the environmental characteristics they are facing. For example whereas one organization considers customer behavior as merely unpredictable, the other might state that it has good data how customers react on specific marketing policies.

How an organization actually views its environment depends on former experiences which are represented by the organizational knowledge-base. The knowledge-base determines how the environment is perceived and whether there is need for organizational change.

This point of view contradicts to change theories, which perceive the environment to play a dominant role in triggering organizational change processes, as the "evolutionary theory" (e.g. Nelson/Winter 1982) or the "population ecology theory" (e.g. Hannan/Freeman 1989). Not the environment itself, but the perception of environment is crucial for organizational change. If it is argued that organizational crisis are necessary for organizational change (e.g. Laughlin 1991; Bartunek/Louis 1988) this point may be right, but it only can be subscribed, if it is taken in mind that crisis are not forced by „objective" environments, but are constructed by the organization itself. Transformation is an endogenous process: the organization decides whether to change or not.

The organizational knowledge-base plays two roles in transformations. On the one hand the organizational knowledge determines whether and how change processes get started, on the other hand it is itself subject of these change processes. The last one means that organizational transformation can be described as change in the organizational knowledge-base. Organizational knowledge as precondition and result of transformation is in some way paradoxically: How can a radical change in the organizational knowledge-base take place at all, if all change processes depend on the existing knowledge-base. To solve this paradox, we have to refer to the system capability of reflection. This means looking at the organization from a distance, in order to be able to dissociate in mind from the social system and question whether the actual knowledge-base is appropriate to ensure the organizational identity in the future.

Especially Hedberg (1981) has mentioned that organizations must have the ability to discard their knowledge, because changing environments make it necessary to unlearn "old", in the perception of

the organization inappropriate, knowledge. Therefore reflection or inquiry (Argyris/Schön 1996) is the most important requirement for organizational transformation.

Fundamental reflection is a risky process, because more or less organizational identity is analyzed and sometimes even is placed at disposal. The more radical organizations are willing to change, the more they risk loosing their identity and finally falling apart. Therefore for organizations aiming at radical change it is of upmost importance to have trust not only in leaders, but in the organization as a social system (Luhmann 1979; Lane/Bachmann 1996) to get along with these radical change processes. In other words trust in the organizational learning capability is necessary to compensate unlearning. Learning is at least of the same importance as is unlearning.

But even if an organization has the trust to involve in transformational change, the question of how organizations can initiate and improve reflection, is still remaining. To answer this question we are suggesting to get a closer look at the knowledge creating process in general.

3. The knowledge creating process

As we have argued above, knowledge has nothing to do with absolute truth. It is rather a social construction of reality, which is accepted as temporary truth by a social system (Dixon 1997). Therefore knowledge is not an individual, it is a collective category. Knowledge must be somehow reasonable. Without social acceptance constructions of reality will not get in the status of knowledge. They remain nice ideas, abstruse theories or just stupid thoughts.

In the following it is proposed that knowledge is not only a collective phenomenon, but also the creating process of knowledge is a genuine collective one. For the creating of new knowledge, as will be shown below, reflective communication processes are crucial. This is argument is contrasting with psychological learning theories, which like Bandura (1977) are describing knowledge creation as an individual process, though conceding that it takes place in a social context.

Implicit and explicit knowledge

To get a distinct understanding of knowledge creation we will suggest to differentiate between implicit and explicit knowledge. Like Polanyi (1962; 1966) has argued, there is knowledge, which

cannot be expressed in words and therefore remains tacit: We know more than we know to say. The question which on firsthand arises is: Why can we be sure that there is such thing like implicit knowledge, if we are neither able to see it nor to communicate it? The answer lies in the insight that we can not directly observe implicit knowledge, but that we can notice the functioning of this knowledge in our empirical world. Although the content of implicit knowledge is not describable we can realize the successful application of this knowledge.

That can be illustrated on the knowledge about playing chess. Even though the mere explicit knowledge of the best chess computer in the world widely excesses the explicit knowledge of the world chess champion, it lasted until 1997 that the IBM computer Deep Blue could closely beat the world champion Kasparow for the first time. If we only compare the explicit knowledge it is pretty astonishing that this did not happen long time before and that the computer did not win by a landslide. Obviously the superiority of the computer in the explicit knowledge could be compensated with the implicit knowledge (e.g. the feeling for a specific position an the chess board) of the human being.

Therefore we can infer that implicit knowledge develops through experience, through practical use of explicit knowledge. It can be assumed that the more intensive these experiences are, the more distinctive the implicit knowledge gets. Because of this complex experience-bounded development implicit knowledge can only be stored in the brains or cognitive maps of human beings an not in machines. Computer-based expert systems are not reaching the full (i.e. explicit and implicit) knowledge of human experts. This also illustrates that knowledge management can not be grasped as a mere technological task.

Implicit and explicit knowledge over a specific issue presumably always do complement one another. Referring to the example above, a chess player has a lot of explicit knowledge (e.g. the knowledge about opening rules) but at the same time he plays with intuition without figuring out all future possibilities for the next moves. Implicit knowledge develops complementary to explicit knowledge. This complementary relationship makes it possible that social acceptance could be reached. Through acceptance of the explicit knowledge the complementary implicit knowledge will be integrated at the same time.

Patterns of the knowledge creation process

The creation of new knowledge is essential for organizations to keep their competitiveness in a changing environment. When in the perception of the organization, results of actions do not match expectations, they will probably characterize this deviation as a problem and will be eventually looking for new knowledge to solve the problem. But how do they know, what to search for? The explanation requires the integration of implicit knowledge. Through implicit sensitivity for the kind of problem the organization is facing, future solutions will be suspected (Polanyi 1966). Former experience serves as intuitive attention on specific perspectives and search directions. Implicit knowledge determines the path on which organizations are trying to solve the problem, i.e. the way of looking for new solutions.
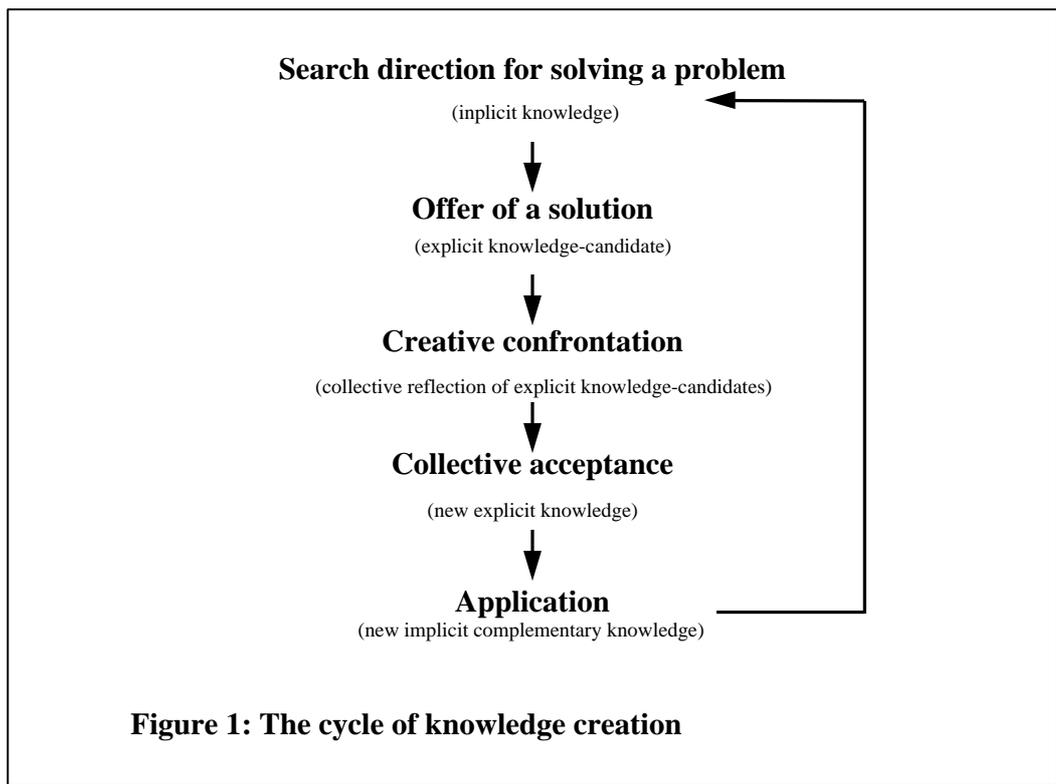
It is important to make clear that implicit knowledge is only the precondition for the development of new knowledge. We do not agree with Nonaka/Takeuchi (1995), who have argued that implicit knowledge is the major source of new knowledge. If implicit knowledge is converted into explicit knowledge Nonaka/Takeuchi consider the result as new knowledge. Instead we take the stance that in this conversion process nothing new will be developed, its only to get already possessed knowledge from one stadium into another. What was tacit, becomes conscious.

Therefore we propose that for the creation of new knowledge new explicit constructions of reality must be offered to a social system. Explicity is a necessary precondition to develop new knowledge. Explicit constructions can first be seen as candidates of knowledge, and then must be admitted to a collective reflection process. In a reflective communication processes they will be further developed or transformed through confrontation with old knowledge structures, which eventually leads to collective acceptance of new explicit knowledge.

Only through communication and in dispute with the existing knowledge new knowledge is created. Communication already plays a role in the process of getting new ideas. If an „individual" is trying to create a new idea, it is at least through a hypothetic or proactive examination of opposing arguments. Language, as a social category, is fundamental for developing new constructions of reality. Altogether, we can describe the whole process as a social and not an individual one.

Knowledge creation through a communication process does not imply that a consensus is necessary. Decisive is only organizational acceptance and this depends on the course of negotiations, which is usually structured through the power resources of the members. Either knowledge creation does not mean that one member presents a new idea and the others will take a vote, if this should get into the status of knowledge for the social system. Ideas put in the communication process can and usually will be transformed through collective discussion, so that the result of these processes mostly differs form the original idea.

After new knowledge has been accepted on the explicit level, implicit knowledge as complement will be developed through the use of this new explicit knowledge. The implicit knowledge itself is again the precondition for getting new explicit knowledge. In the end a cycle of knowledge creation can be developed that allows a permanent building up of new knowledge. Figure 1 portrays this model.

Search direction for solving a problem
(inplicit knowledge)

Offer of a solution
(explicit knowledge-candidate)

Creative confrontation
(collective reflection of explicit knowledge-candidates)

Collective acceptance
(new explicit knowledge)

Application
(new implicit complementary knowledge)

Figure 1: The cycle of knowledge creation

To induce fundamental change in the knowledge creating process, especially provocative constructions of reality must be communicated. This will lead to an extreme confrontation with the

old knowledge and therefore enforces radical rethinking of the system members in the negotiation process. But, is extreme confrontation probable? Presumably, radical rethinking takes place very seldom, because members of organizations tend to act in their role they are obliged to fulfill. They act as agents of the organizations so that they are in some way bounded to their socialized views. Therefore transformational change is relatively improbable.

But, organizations do not have any other option as to use or "abuse" their members to get new perspectives on a problem and develop appropriate solutions. Therefore, if they want to evoke transformations, they will have to build up frameworks, which enhances members´ motivation to involve in extreme confrontations - only members have the implicit knowledge through role-specific experience, which is needed to suspect future search directions for new solutions. Radical changes therefore need members, which can pass their role constraints and are tolerant towards totally different views. But, if fundamental change processes are not emerging continuously and are even improbable, how should such an inducing framework be designed to arise the probability of transformation?

4. Management perspectives

For transforming an organizational knowledge-base it is necessary to improve reflective communication in organizations and make it in results especially radical. Management, described in a classical way as subsequent process of planning, organizing and controlling with the primacy of planning (Weihrich/Koontz 1993), is, in our opinion, misleading for the management of transformation. It is not possible to plan or to impose organizational transformation, because of the inherent self-dynamic of these change processes. The suggestion that organizational transformation is a planned second-order-change (e.g. Levy 1986; Dunphy/Stace 1988) or a mainly leadership-driven top-down approach to get rapidly out of crisis situations (e.g. Tichy/Devanna 1986; Torbert 1989) is in some way ignoring the complexity of organizations. Like their environments organizations are complex as well. That makes it per definition not possible to predict future behavior.

To cope with complex environments organizations build up own complexity - although for differentiation reasons the organization complexity must be less than the complexity of the environment. Asby (1961) has described the organizational necessity of complexity as law of

requisite variety. Complex systems are characterized by many elements and many possible self-organized connections between these elements, which cannot all be realized at the same time. Therefore there are a lot of possible connections conceivable in the future (Luhmann 1995). Organizations also consist of several subsystems, which are connected to one another and have interfaces which cannot be fully controlled. For these structural reasons subsystems have relative autonomy concerning future behavior.

Instead of planned change we propose to speak of intended change, meaning that we are looking for management possibilities to make transformational changes more probable. Management therefore can be seen as giving an impulse to the system. Whether transformation actually occurs or not depends on the self-dynamic processes of the organization. But what kind of impulses should be given?

First it is possible to bring new radical ideas from the outside into the organization to provoke the organizational knowledge-base. These ideas could eventually be put in through benchmarking (Camp 1989), strategic allies (Badaracco 1991; Hamel 1991), change agents or exchange of members. Especially the bringing in of „misfit" new members might lead to confrontation with strange constructions of reality. But, for all transformational intentions the processing of these ideas in the organization is crucial. In the following we are discussing general possibilities to enhance reflectivity in the organizational communication process. Three basic starting-points are portrayed: 1. structure designing, 2. process intervening and 3. theme conducting. Its is important to keep in mind that all of these management actions can only shape the context for transformation and not impose radical change.

Structure Designing
Communication processes in organizations are strongly dependent from organization structures. These structures give a framework, when and what will be communicated. They are responsible for the formal power resources that are put into the negotiation. Should these communication processes improve reflection of own and other constructions of reality, in general as much as possible members should participate. Presumably, through many people many different perspectives get into the communication process, which enhance the probability of reflection. The more candidates of knowledge are offered and the more they provoke the existent knowledge, the more own positions

will be inquired - though of course, if negotiations are not blocked through bringing in formal power positions. Therefore traditional hierarchic structures, which are trusting in the superior authority of their leaders, might be less useful.

But, can it be turned around and inferred that totally anti-hierarchical, or as Weick (1977) has put it chronically unfrozen, organizations are best for creating new knowledge? The answer is „no", because organizations need some stability in their knowledge-base in order to keep their identity. Hierarchies guarantee that not everything is at the stake at all times. At least some hierarchy of people or better roles is needed for coordinating work and making decisions in conflict situations to keep the organization on an action level. Also, the hierarchy of roles stabilizes the essential hierarchy of rules through the task of control.

Only through the hierarchy of rules, it can be ensured that new knowledge is properly stored and systematized. Rules, which themselves present knowledge, have the purpose of giving members of organizations a point of reference concerning their role-specific perceptions and actions. Hence, knowledge has to be put into hierarchical order. In case members are facing conflicts of aims, clear rules, what to prefer, ought to exist. Only through rules (i.e. structure) uncertainty of the actions of other members will be reduced - though uncertainty cannot be extinguished in complex systems. These rules also help to make it more expectable for organizational members how new knowledge can be attained.

Therefore, not anarchistic but heterarchic systems can be suggested for knowledge-creating organizations. Heterarchic systems can be described as consisting of relatively autonomous subsystems, which have specific potentials. Therefore the institution of leadership can be negotiated and depends on the problem the organization is trying to tackle. The structure of heterarchic systems is therefore not rigid, but plastic (Taschdjian 1979). It is a kind of fluctuating hierarchy, meaning that hierarchic structures are only temporarily and are build up functionally to the specific problem- solving competence and not through perpetuated power structures. Heterarchy should not be mixed up with anarchy, where you have no hierarchy at all. It is a structural configuration, which allows to change leadership. With changing problems the functionality of the prevailing competence will change and so will formal power resources.

Such a heterarchic structure could have a double effect on knowledge-creation: 1. members get confronted with many different views, because their roles and projects are changing and 2. members have to renew their competence over and over again, if they want to keep up their influence. Whereas the first point emphasizes context factors the second lines out motivational factors.

A definite implementation of the heterarchy idea can be found in teamnet organizations (Lipnack/Stamps 1993), where members participate in several projects at the same time and are changing projects over time. To induce not only small but transformational changes it could be useful to keep project groups especially heterogeneous. Then members will be forced to find a common basis for communication first, which usually works through exchange of current knowledge. This leads more or less to an explication of differences in the construction of realities and subsequently to an inquiry of the organizational knowledge-base - of course only, if the members have social competence. Instead, homogenous groups are presumably presupposing same understandings of reality and therefore they are not really challenging their own opinions. In a similar way Janis (1982) has described this kind of phenomenon as groupthink.

In summary, it mainly depends on the members, what they make out of certain structural context factors, so that eventually, but not probably, a bureaucratic organization can be much better in transforming its knowledge-base than a teamnet organization.

Process Intervening

Process intervening is directly concerned with the communication process and aims at a reflection of the communication style, which is used in the organization or its subunits. Of upmost importance is the attention to so called defensive routines (Argyris 1990). These routines represent a form of communication, which tries to avoid critical and conflict-oriented discussions and therefore avoid reflection.

They can easily be seen in the form of „killerphrases" (e.g. "we have always done it this way") or in a more subtle way in "clever" communication policies, such as bluffing with not serious data, impressing with self-confidence or making prior arrangements. These defense patterns already often routinized and unconsciously become part of the communication process, so that productive reasoning is impossible. As methods to overcome these routines, Argyris suggests training with

simulations of real (i.e. already happened) conversations to illustrate the inconsistencies between what is espoused and what is actually thought.

It is doubted, whether defensive routines can be totally dissolved. Members of an organization want to realize personal objectives, which are in some way different from organizational objectives. They are using defensive reasoning to keep their power resources for pushing through own interests. Even, if such defense patterns are detected and frankly addressed by other members, there are superordinated defensive routines (e.g. "under my leadership there has always been a warm atmosphere") exist, which make sure that the defensiveness of reasoning is not discussible and therefore bypass and cover up defensive patterns.

Due to the general problematic of conflicting interests between members communication tactics will not be totally avoidable, even if special moderation techniques and conversation training are used. Therefore we will always have and actually find obstructions of reflection in every organization. This explains, why organizations do not change, even when they perceive bad results. They keep their knowledge, although their expectations were heavily disappointed. For example, they hold on a marketing strategy, in spite of loosing market shares. Again, reflection is not imposable from outside. The self-dynamic prevents in some way well-directed interventions. The willingness of organizational members is needed for reflective communication.

Transformation can therefore also be characterized as motivational problem. Members must have the perception that through a transformation process not only the organization, but also they themselves could profit.

Theme conducting
The last possibility of managing knowledge-creation, which is discussed in this paper, concerns the distinct topics raised in communication processes. From this view, it is about restricting the contents of communication and predetermining a thematic frame. Therewith, processes of reflection could be concentrated on desired subjects. To manage this frame requires a hierarchical authority, which has to confirm the relevance of certain subjects in advance and conducts the communication process for concentrating on these subjects.

Yet, theme conducting must be used very carefully to reach desired effects. In a misleading application hierarchy constraints the freedom of communication for organizational members very strongly and therefore does not allow any creativity or inquiry at all. Consequently, just the opposite of what was intended is brought about. To force certain topics into the discussion will rather release resistance than productive reasoning. Also, if topics are presented in a one way direction from teacher to students in education seminars for organizational members, innovation will hardly be possible. What is needed is more interaction between participants and no lectures on for example leadership techniques.

For the above reasons the task of theme conducting should be described as ensuring that problems once detected have a good chance to get into discussion. If we consider that topics are emerging "naturally" in the mind of organizational members due to the role-specific mismatch of outcomes to expectations, discussion subjects must not be found but made public by leaders. To wait for topics emerging through role-specific experience also has the advantage that organizational relevance is more or less given, because members perceive new subjects as agents of the organization.

Therefore, knowledge-management should enable an organizational publicity even for at first sight very strange ideas - a lot of organizations have departments of internal public relations, who could enforce this. Without giving especially "misfit" ideas the chance for publicity the probability of transformation and a real renewal of the organizational knowledge-base is rather small. This of course implies risk, because old „beloved" behavior, thinking and hierarchy is on stake. This way the old identity of the organization will eventually be destroyed. Hopefully to get something better.

5. Final remarks

The problems of organizational transformation cannot be fully described by finding appropriate leaders to react very fast on crisis situations. Organizational transformation is not only a leadership matter, instead it is pointing out the more substantial problem of redefining organizational identity. This identity is given by the organizational knowledge-base. Therefore transformation-management means more or less knowledge-management. But, management does not mean planning a target and controlling results afterwards. Complex environments and organizations make it impossible to exactly predict future change processes. Planning and controlling through optimized imposed instruments is becoming a myth, if self-dynamics are the crucial factor for transformation.

Therefore theorizing about transformation brings out new understandings of management at the same time. Only a transformed description of management recommendations enables to create frameworks, which enhance the probability of organizational transformation. We think this takes time as every transformation does. And, to take time needs most of all trust in the learning capabilities of the social system.

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