Revealing the hidden dimension:

Externalizing implicit knowledge through narrative analysis

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I. Collective learning through narratives

Organizations can be understood as complex sets of multiple, often conflicting interpretations, reflecting the different ways of how people make sense. Individuals view and interpret events through a set of beliefs and assumptions which are often subconscious and rarely examined or questioned. If members of an organization make sense of organizational experiences in a different way, they will have different versions of the same events. These different interpretations are expressed through different stories.

By explicitly surfacing conflicting definitions of a situation and exposing the perspectives of a wide range of organizational characters apparent in different narratives, the discussion of the apparent differences can be initiated. Acting as mirrors of human experience, stories thereby facilitate a shift in perspective, showing people how to look at reality in a different way or suggesting alternative realities (Forster et al., 1999) which can result in new learnings (Cash, 1997). The confrontation of narratives can therefore help reveal new lines of thought and generate alternative responses to the future (Gold, 1996).

II. A special consideration of metaphors

Organizational members often intuitively use metaphors, while the reason for the choice of a specific set of metaphors becomes only clear after further reflection on the similarities between the metaphors and the target domain described. Underlying understandings about a situation are often shaped and revealed metaphorically resulting in a particular vision of reality and in potentially appropriate actions within this framework. For example thinking of an organization in terms of a machine metaphor invites thinking about organizational change in terms of something "breaking down" and therefore "needing repairs" (Marshak, 1993)[1]. By

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[1] An excellent example of how conception is based on the implicit metaphorical systems used to comprehend and engage reality is given by Smith/Simmons (1983). The authors conducted research in an organization described by its members as a "Rumpelstiltskin" organization. Following this tale imagery, the researchers started to retrace characteristics of the fairy tale in the researched organization, attributing organizational actors to the roles in the fairy tale. As developments unfolded, they could identify various phases and processes in the organization's history that paralleled the tale. Yet, as the authors emphasize, the Rumpelstiltskin metaphor did not merely *reflect* the events occurring within the organization, but it also *contributed* to the creation of the company reality. Assuming the mental reality implicit in the Rumpelstiltskin tale made the group leader the repository of the group's mutual projections (Smith/Simmons, 1983). By using the Rumpelstiltskin image the

choosing certain metaphors over others, a certain perception of reality is not only described, but it is simultaneously prescribed as the way in which reality ought to be viewed and evaluated (Tsoukas, 1991). Paying attention to the metaphors and images organizational actors use can help to diagnose unarticulated assumptions and beliefs by which organizational members perceive, think and decide (Hughes, 1995). Such a conscious examination of metaphors and their meaning allows a shift from the unconscious and tacit to the conscious and explicit (Oswick/Montgomery, 1999), thereby giving voice to previously tacit perceptions.

This work attempts to evaluate the effectiveness of a narrative approach to collective learning based on metaphor analysis compared to more traditional methods of learning evaluations such as the formulation of lessons learned.

III. Overview of the empirical part

The following chapter briefly introduces the case company Telcotech. The description provides the basis to understanding the motives for the creation of their knowledge management initiative and depicts the setting of this project.

1. The Telcotech Company

Telcotech is a large electrical engineering and electronics company comprising eight business units. The current study focuses on Telcotech's Information and Communication Network business unit. The unit employs about 7000 people and aims to provide diverse corporate and carrier network clients with solutions for data and telecommunication applications. As a consequence of increasingly sophisticated customer expectations and shorter product cycles Telcotech realized that value in sales was increasingly associated with developing knowledge-intensive individualized solutions for their customers. This radical industry transformation from being a "Box Mover" that sells pre-specified telephone systems, towards being a "Solution Provider" that focuses on the provision of highly individualized knowledge-intensive data and telecommunication solutions, meant that Telcotech had to come up with timely solutions to customers' complex problems by tapping its spectrum of knowledge and experience.

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authors conclude that organizational members had become "victims of their self-created reality" which was implicitly built on the Rumpelstiltskin assumption.

Recognizing that the management of organizational knowledge was a precondition for future growth and competitive dominance, the unit had to ensure that selected core service activities, such as the timely provision of complex, integrated portfolios of products and services, would be shared. This implied that the sharing of localized knowledge took place across sales regions. Telcotech's top management decided to set up a task force mechanism, called the Knowledge Networking (KN) team, to foster knowledge sharing between the sales regions. The aim of this task force was to develop and implement a conceptual apparatus for knowledge sharing. The KN team focused for the development of the initiative on the German market and its six sales regions as a pilot project.

2. Methodology

To elicit the experiences and perceptions from the various Telcotech employees involved in Telcotech's knowledge management project, individual narrative interviews were conducted with twenty employees who had been involved with the project. Each organizational narrative conveyed a different perspective and evaluation of the Telcotech knowledge management project[2]. The interviews were conducted by a team of two researchers, with one researcher assuming the role of interviewer and the other assuming the role of note taker and process observer. Each semi-structured interview lasted between 45 and 60 minutes. Permission to record the interview was granted in most cases.

The overall interview structure covered the context, process and content of the Telcotech knowledge management project. Each interviewee was asked to tell the story of this project. Questions focused on the project in general (What happened? Why did this happen?), the interviewee's role in the project, the difficulties faced, the learnings and potential conclusions from the projects. The interviewer did not ask people about their use of metaphors or prompt them in any way to use metaphors. However, the open-ended questions allowed metaphors to appear naturally while people spoke about their project experiences.

To generate themes from the gathered interview data, this study adopted a grounded theory approach (Glaser/Strauss, 1967). The four themes evolving from the interview transcripts with Telcotech employees are briefly described in the following sections. The issues for reflection

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[2] To ensure the inclusion of stories from a great variety of organizational actors, interviewees were selected from a broad range of functions within Telcotech. This included individuals with high and low organizational status, employees at the centre and at the periphery of the Telcotech organization.

and discussion stemming from these themes are represented in the indented questions following each theme.

Theme1: Obstacles to the implementation of the KN initiative
Interviewees referred to the organizational structure and culture as "not conducive" to the implementation of the KN initiative. They additionally reported that in spite of the KN initiative there was no general change of consciousness in terms of organizational sensitivity towards knowledge.

Theme 2: Implementation difficulties
Interviewees were occupied with the question of why, in spite of the KN team's efforts, the KN initiative did not gain momentum. Explanations for this phenomenon ranged from the reluctance of the sales and service employees to collaborate with the KN team to the lack of user-friendliness, and the KN team's lack of knowledge about the needs of the sales and service employees in the regions.

Theme 3: Communication
The communication theme surfaced in different contexts in all interviews. One part of the comments focused on the difficult communication between the KN team and management, while the other remarks described a lack of communication of the KN initiative to the Telcotech employees in the regions.

Theme 4: The implementation approach
The interviews revealed different perceptions concerning the appropriate implementation approach for the KN initiative. The two main positions vacillated between a standardized top-down approach aiming at a broad recognition of the importance of knowledge management, and a differentiated bottom-up approach aiming at specific focus groups and their needs. The discussion of the temporal order of the launch of the four initiatives was also part of this theme.

The following stage was a one-day workshop with the interviewees aiming at a critical, reflective inquiry into the KN project. In the introduction to the workshop participants were told that the focus was on generating insights through a joint confrontation of and reflection on the development of the KN project. It was emphasized that the aim was to generate a real

dialogue on the themes emerging from the individual narratives. To support the reflection process, the author and a trained Telcotech insider who had not participated in the KN project, assumed the role of moderators. Participants of the workshop were additionally guaranteed that *individual* opinions expressed in the workshop would be kept confidential within that group.

At the start of the workshop participants were exposed to the themes generated by the interviews. Issues that had surfaced in the interviews, the nature and the context in which these situations occurred, were analyzed in order for them to understand the different meanings of the KN project. The participants then analyzed the themes and the different, predominant perspectives linked to these themes. They reflected on the organizational stories and the meanings of these stories, including similarities and differences as well as contradictions and inconsistencies.[3].

The focus then shifted to improving practice through reflection and dialogue. With their increasing understanding of the different perspectives, participants developed new understandings of the situation that could be derived from the different narratives. They developed explanations based on the surfaced differences in the narratives. As an outcome, lessons learned and their implications for management practice were jointly defined.

IV. Results

The following chapters analyze the outcome of the described approach and evaluate the learning generated through the case writing method. The analysis consists of three components: The first component is the narrative analysis of the interviews conducted with Telcotech members. Emphasis is put on the different categories of metaphors used by organizational actors. The second component is the analysis of the lessons learned defined by the Telcotech employees[4]. While the lessons learned describe learnings that have been explicitly defined by the Telcotech employees themselves, the narrative analysis focuses on revealing hidden aspects of the KN initiative that are implicitly conveyed through the use of

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[3] A similar study approach is well documented in Boyce (1995). In this application the researcher organized a so-called storytelling event where individual employees' stories of experiences in a particular organization were told. In a second phase participants identified the central themes of these stories and then jointly interpreted their meaning.

[4] The original lessons learned defined by the Telcotech employees can be found in the annex.

language and metaphors. The third and last part compares the levels of learning attained through the narrative analysis and the lessons learned.

1. Metaphorical themes

The aim of the narrative analysis of the Telcotech organizational narratives was to gain an understanding of the different reality versions developed by various organizational actors in the course of working on the Telcotech project. Based on these different constructions, the implications thereof for the KN project are discussed. The analysis furthermore considers to what extent the different theme categories reveal contradictions, tensions and dilemmas inherent in the KN project.

The following two theme categories were identified in the interviews and case narratives[5]:

- The description of the KN initiative
- The different approaches to implementation

Each theme category contains at least two sets of distinct metaphors. The following sections describe and analyze each of these themes, focusing on the implications of the metaphors for the development of the KN initiative.

1.1 The description of the KN initiative

Three main groups of description categories were identified: The first category attached positive connotations to knowledge and the KN initiative. The second category depicted knowledge and the initiative in a negative way. The third category was more descriptive without clearly classifying the initiative as either positive or negative[6]. Through the classification it became apparent that organizational group membership was the major factor of correlation in explaining differences in attitude. While the Telcotech management and the KN team used positive or neutrally classified metaphors to characterize the initiative, the regions depicted the KN project with metaphors expressing a negative attitude. The following paragraphs introduce the various metaphors found for each category, and discuss the implications of these disparate visions for the KN project.

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[5] A procedure of sorting per paragraph was followed, after which the collected metaphors were sorted in coherent theme groups clustered around recurring main metaphors.

[6] Two coders - the author and another researcher - independently classified all metaphors according to the attitude they conveyed towards the KN initiative, namely positive, neutral or negative establishing an inter-rater reliability of 96%.

1.1.1 Positive connotations of KN

Among the positive connotations of knowledge and the KN initiative, three main sets of metaphors could be identified. At the beginning of the KN initiative, the KN project was described by the KN team as the "spearhead" of knowledge management at Telcotech, emphasizing its leading position in dealing with the new issue. KN played a trend-setter role, giving it an exposed position within the organization, high visibility and a considerable amount of attention.

The management additionally depicted the KN initiative as part of the Telcotech strategy, calling it "one of its indispensable pillars". The demand that KN should be integrated into the Telcotech strategy was underlined by statements such as: "The management of our knowledge assets constitutes not only an indispensable pillar of our business, but should be seen as the central element of our strategy at Telcotech". This statement represents the KN initiative as a fundamental, stabilizing element for Telcotech. As such, the initiative is depicted as being of critical importance to the organization's strategy[7].

The Telcotech management and the KN team both engaged in an economic discourse about knowledge by comparing knowledge to an economic "good". In this discourse the recognition of the richness of employees' experiences was depicted as the basis of the initiative. "Practically every employee at our company possesses a rich portfolio of knowledge and experience. This resource can only be put to use with his or her active and voluntary collaboration." The portfolio comparison creates stock market associations. Similarly to stocks, knowledge and experience are depicted as valuables that generate return[8].

In line with the economic discourse, the Telcotech employees in the regions, regardless of appeals by the KN team, treated their knowledge as a valuable that they did not want to give away easily. Descriptions such as "Employees still tended to hoard their knowledge to the detriment of the company, rather than sharing it", testify to the fact that knowledge was treated as any other scarce input resource. Sales representatives are described as guarding themselves against "predatory colleagues" by hoarding their valuable knowledge, or by only sharing it through long-established contacts with colleagues within their region.

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[7] However, this did not manifest in a top-down drive by management to implement KN as would otherwise have been the case in strategy implementation. Employees were therefore also not obliged to engage in the KN initiative.

[8] Other descriptions, such as "facilitating the exchange of service-knowledge", or "leverage and re-deployment of the knowledge assets" fit into this economic discourse of knowledge as a valuable object that has to be exploited for Telcotech purposes.

It is noticeable that the metaphors used were not in line with the behaviour postulated by any of the parties involved. While the Telcotech management claimed that knowledge management was part of the Telcotech strategy, this claim did not manifest itself in an alignment of the entire organization with this part of the strategy. The KN team similarly claimed that knowledge was valuable, but did not really consider treating it as an economic "good", since it expected the field to share this value freely. It was only at a much later stage of the implementation process that it introduced an organizational incentive system that acknowledged efforts at knowledge sharing. Mere appeals to participate for the good of the whole organization, such as "my knowledge pays for Telcotech", did not convince the Telcotech members to engage in the KN initiative.

1.1.2 Negative connotations of KN

The Telcotech employees in the field, i.e. the targeted users in the regions, employed four main metaphors when describing the KN initiative. It was variously described as old wine, a luxury, an appendix and a green-field design: The comparison of the KN initiative to "old wine in new bottles" attributes the KN initiative with a lack of innovation and newness. The comparison implicitly depicts the KN initiative as being deceptive, since it was seen to pretend newness whereas it is just disguised practices of knowledge sharing that already exist within Telcotech. As a consequence, the KN initiative did not arouse any special attention or interest in the field. The "luxury" and "appendix" metaphors are additional expressions of this vision. Both metaphors depict the knowledge management initiative as unnecessary. This vision is in sharp contrast to the management's vision of the KN initiative as a "pillar" of Telcotech's future success.

When comparing the images of a pillar, a spearhead or an economic good as used by the management and the KN team, with the appendix, luxury and old wine metaphors used by the Telcotech employees in the field, it becomes clear that the KN initiative failed to effectively communicate the value proposition proposed by the initiative. As a consequence, the initiative was neither seen as new or innovative (old wine), nor as useful and efficient (appendix, luxury).

Another metaphor which provides further insight into the lack of enthusiasm for the KN initiative from the field, can be found in the description of the initiative as a "green-field design". This refers to the way in which the initiative was developed. It implies that the initiative was constructed without considering any established practices, or pre-existing customs to be found in the field. The image alludes to the fact that the field, i.e. the potential

users, was not sufficiently integrated into the design of the initiative[9]. From the perspective of the employees in the regions, the initiative had been developed at the headquarters, and did not sufficiently consider their regional concerns. This lack of formal involvement by the field in general, as well as the lack of input from the regional sales personnel regarding crucial features of the knowledge management initiative in particular, led to the perception of KN as not meeting the users' needs. The initiative was consequently seen as a "luxury" or "an appendix".

All four metaphors used by the employees in the regions depict a negative attitude towards the KN initiative. The descriptions range from hostility to indifference towards the KN project. The contrast in metaphors between employees and management reflects the difference in attitudes about the initiative and foreshadows the difficulties encountered during the KN implementation.

1.1.3 Other descriptions of KN

Two other discourses emerged from the metaphor analysis. The "networking" discourse describes the KN implementation in terms of the building of an organization-wide network, while the discourse of "care and education" depicts the KN initiative as a child-raising activity. While the former metaphor had been used by both the Telcotech management and the KN team, the latter discourse was only employed by members of the KN team. Both images share a very person-oriented approach towards knowledge management.

Knowledge Networking as a network

Driven by the vision that knowledge should be shared universally, the vision of building a network of knowledge sharing that would embrace all Telcotech employees, was created at the very beginning. The Telcotech management emphasized the objective of the project by stating: "We need to get our colleagues to build a network of knowledge sharing. The objective of knowledge networking is to create a network of knowledge sharing among all employees at Telcotech. We need to connect everybody with everybody else".

The network metaphor suggests that Telcotech employees share common interests which link them and create closeness between them. As illustrated by the internal knowledge sharing practices within the individual Telcotech sales regions, trust is an important factor if a network is to function successfully. The use of the network metaphor implicitly assumes the

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[9] The lack of integration of the actual users into the design of the initiative was jointly defined as an important lessons learned in the reflection workshop.

existence of such an underlying mutual trust among the organizational actors. Additionally, the implication of the network metaphor to include the entire Telcotech division alludes to a standardized approach to implementation[10].

Looking at the context in which the network metaphor is employed, it is noteworthy that the Telcotech management uses the network metaphor in connection with the economic good discourse: "Practically every employee at our company possesses a rich portfolio of knowledge and experience. We need to get our colleagues to build a network of knowledge sharing". The motivation for knowledge management in these two discourses is, however, very different: While the economic discourse focuses on knowledge management for profitability, the networking discourse emphasizes knowledge management to help employees to assist each other by establishing personal contacts. The employment of these two opposed discourses in the same context, leads to the hypothesis that the credibility of the network discourse is diminished through its overshadowing by the economic discourse. As the description of the existing knowledge sharing practices within individual sales regions suggests, knowledge management in the regions functions through long established personal contacts of trust. It can therefore be assumed that Telcotech employees working in the field are more susceptible to the network metaphor than to the economic metaphor. The employment of the economic discourse may thus have been detrimental to the network metaphor in as far as it did not carry much weight.

Knowledge Networking as child raising

The second theme in this category of descriptions is the care and development theme depicting the KN initiative in variations of a child-raising metaphor, and used predominantly by a majority of the KN team members. The case narrative picks up this imagery and compares the KN initiative directly to a child-raising activity: "Both processes (i.e. child-raising and implementing the KN initiative) were essentially preoccupied with giving birth to, promoting and nurturing a baby – often in environments that are not conducive to the development of a child". Additionally, interviewees referred explicitly to different stages in the development of "their child", talking about birth, a baby, infancy and adolescence. The consideration of the various stages of the KN initiative, accounts for the KN team's awareness

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[10] Without anticipating the analysis of the implementation theme, a consistence between the groups of metaphors and organizational groups can be recognized: The network metaphor was used by the same organizational actors, in this case the Telcotech management and the KN team, who also opted for a standardized approach of implementation.

of the initiative's developmental character, which highlights different needs and predominant issues at different stages of its development.

Turning to the interpretation of the child-raising metaphor, the following analysis focuses on the implications of the metaphor for the definition of the KN team's role in the initiative: The KN team's use of the child-raising metaphor suggests that it is they - as the team responsible for the KN initiative - who assume the parent role. This characterization of the initiative implies two aspects: Firstly, the image of the team as the actual child raisers of the KN initiative, points to the strong emotional involvement implied in the commitment of the KN team. Secondly, speaking of the KN initiative as child raising denotes the initiative's educational character. Picking up on the child-raising metaphor, the former KN team leader is explicit about the hard and soft factors involved in this education process: "As in raising a child, you need to educate by explaining and developing an understanding, just as much as you need to sometimes punish"[11]. The attribution of the parent role to the KN team depicts the team in a position of educational authority. As such an authority, it applies educational measures and decides how to instruct the rest of the Telcotech organization on the necessity of knowledge management. The imagery implies that the potential users of the KN tools are the addressees of the KN team's educational measures, denoting the KN team's intellectual superiority above that of other organizational members.

As seen during the development of the KN initiative, the child-raising metaphor is problematic in two aspects: The first aspect is that the metaphor breaks down when the parental authority of the KN team is examined. In terms of the educational measures at its disposal, the KN team broadly explained and communicated the KN initiative to sensitize organizational members to knowledge management. However, unlike a parent, the KN team only used force of persuasion and incentives to make Telcotech members participate in the initiative, but could not sanction any organizational members' "misbehaviour". Since the KN team had no penalty it could apply for failing to participate in the KN initiative, the team's parental role broke down when faced with the critical situation of getting the sales managers of the regions to provide time for presentation of the KN initiative.

The second problematic aspect of the child-raising metaphor lies in its implicit connotation as belonging to its parents. To point out a lack of support by other organizational members, the KN team depicted problems in the implementation phase of the initiative by pursuing the child metaphor: "While everyone wanted to stroke the KN baby, nobody wanted to change its nappies". This description refers explicitly to the reluctance of sales managers to provide time

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[11] This citation is drawn from one of the interview transcripts.

for presentations of the KN initiative in the regions. It implicitly claims that the "nappy change" could not be done by the KN team alone, but that it was a collaborative task with other parties, in this case Telcotech employees working in the regions. Yet, by positioning the initiative as belonging to "parents", e.g. a specific group within the organization, the full responsibility for the initiative's success was attributed to the KN team. The image consequently suggests that the baby's parents, i.e. the KN team, were to assume the task of changing the nappy. This implicit child-parent role attribution may have contributed to the impression that the involvement of others was not necessary, or even appropriate.

The implications of the child-raising metaphor anticipate a lesson that the KN team learned later in the implementation process and defined afterwards in the reflection workshop: The lack of integration of Telcotech employees into the initiative from its infancy, i.e. the conceptualization phase onwards, resulted in the Telcotech employees being neither ready nor willing to assume the parental role, since they felt that "it was not their baby", thus not their responsibility to take care of the KN initiative.

The following diagram summarizes the various metaphors used to describe the KN initiative and attributes the metaphors to the different organizational groups using them:
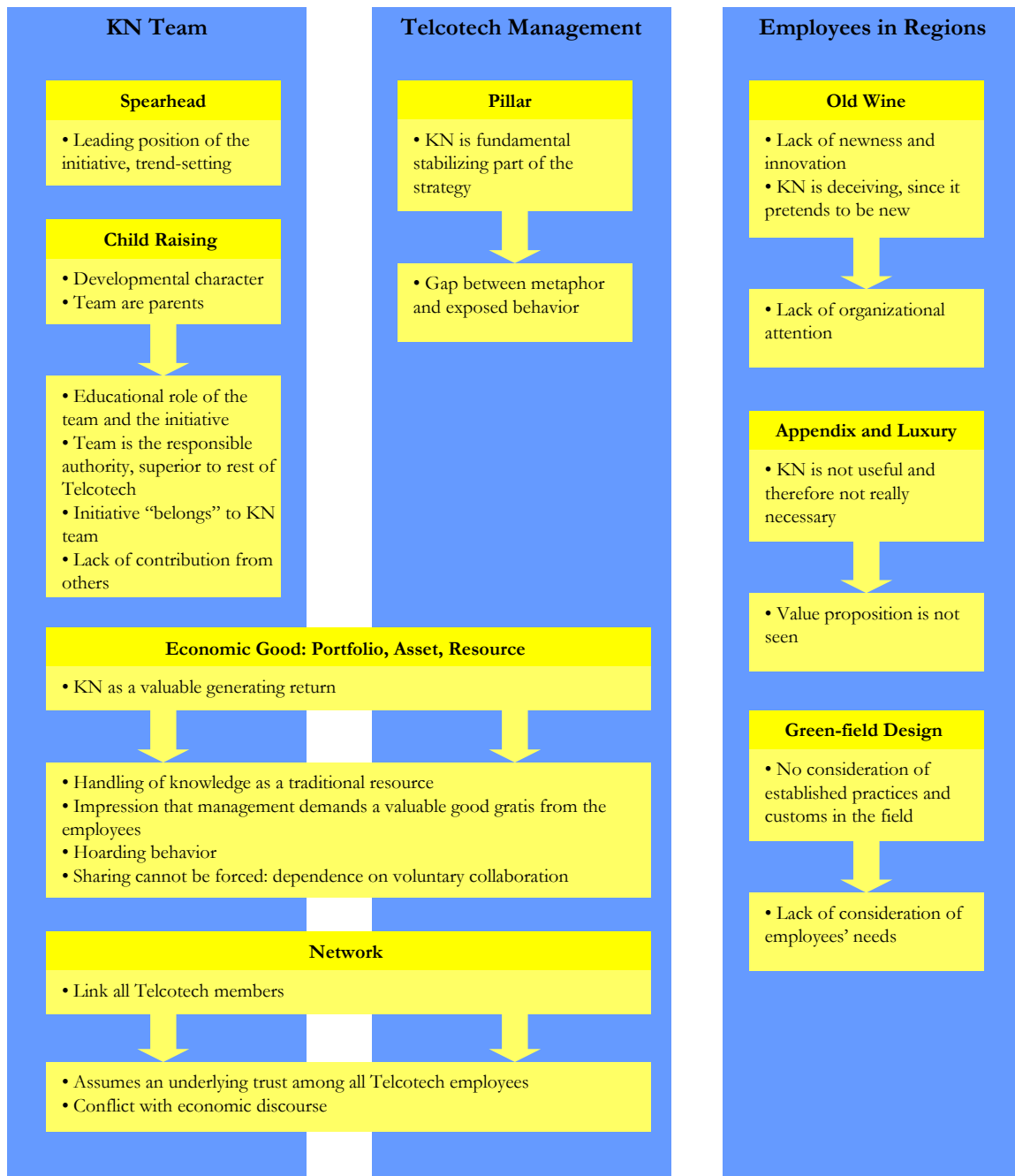
KN Team	Telcotech Management	Employees in Regions
Spearhead • Leading position of the initiative, trend-setting	**Pillar** • KN is fundamental stabilizing part of the strategy	**Old Wine** • Lack of newness and innovation • KN is deceiving, since it pretends to be new
Child Raising • Developmental character • Team are parents	• Gap between metaphor and exposed behavior	• Lack of organizational attention
• Educational role of the team and the initiative • Team is the responsible authority, superior to rest of Telcotech • Initiative "belongs" to KN team • Lack of contribution from others		**Appendix and Luxury** • KN is not useful and therefore not really necessary
Economic Good: Portfolio, Asset, Resource • KN as a valuable generating return		• Value proposition is not seen
• Handling of knowledge as a traditional resource • Impression that management demands a valuable good gratis from the employees • Hoarding behavior • Sharing cannot be forced: dependence on voluntary collaboration		**Green-field Design** • No consideration of established practices and customs in the field
Network • Link all Telcotech members		• Lack of consideration of employees' needs
• Assumes an underlying trust among all Telcotech employees • Conflict with economic discourse		

Figure 1: The KN Initiative

1.2 The different approaches to implementation

The examination of the interviews and the case narrative revealed two different approaches to the implementation of the KN initiative. Each approach is described by a distinct set of metaphors. The first approach, opting for a standardized implementation, is broadly depicted by religious metaphors. The second approach, opting for a focus on specific small target

groups, is described by war and illness metaphors. The following sections describe these two different approaches and discuss their implications for the Telcotech organization.

1.2.1. The standardized approach

The standardized approach describes the implementation of the KN initiative as a broad communication of the same knowledge management idea throughout the whole Telcotech organization. This approach does not differentiate between different groups of target customers within the organization. The following citation from the Telcotech management illustrates this position: "KN means evangelization of all employees, changing the mindset of the lethargic masses, and not cherry picking the individual groups". The comparison between the expansion of the KN initiative and the spreading of a religion is picked up in the Telcotech management's discourse on the KN implementation. Expressions such as "spreading the word of the initiative" or "spreading the KN message" surface in the management's discourse. Following this religious metaphor, the KN initiative is equated with the "good message" or the gospel. As is applicable to the gospel, this approach implies that everybody had to be confronted with the same message, thus the "standardization approach", since this message represents a universal truth.

The use of religious metaphors to depict the KN initiative, suggests that knowledge management has a mystic connotation. By comparing the initiative to the word of God, the initiative is up valued to something sacred, implying that this "God-given" word should not be questioned. As in a religious conviction, the KN initiative was seen as something that went beyond mere rational reasoning. Expanding the religious metaphor, the belief in knowledge management seemed to be driven by a power beyond a provable raison d'être, implying the necessity to believe in it unquestioningly in order for it to take full effect.

The role the KN team was supposed to assume in the standardized approach, was that of "preachers" and "knowledge evangelists" preaching the importance of knowledge sharing throughout the organization and evoking the benefits and promises of the KN gospel. Slogans such as "my knowledge pays for Telcotech" and other "evangelical appeals" were part of this approach in attempting to make employees realize that "any career advantages of hoarding knowledge were obliterated in the knowledge economy". The missionary character of the initiative suggested by the religious metaphors furthermore implies that organizational members needed to be "converted", since they are implicitly depicted as thus far ignoring "the

truth". Such imagery denotes a certain superiority on behalf of the KN team who, in contrast to the rest of the organization, understood and knew the KN message.

The implications of the religious implementation approach are far-reaching: By implicitly depicting the content of the KN initiative as something beyond discussion and critique, the KN team is portrayed as an ultimate authority on the KN subject. Due to the dogmatic character of the initiative, the team seems to enjoy an implicit protection against criticism. However, the employment of the religious metaphors may have contributed to the problems of justification and acceptance as later faced in the field from some of the targeted users of the initiative. The religious implementation approach of broad proselytization inherently carries the risk of misperception and lack of acceptance by the rest of the organization. The gospel in particular and religion in general, are not collaboratively negotiated concepts, but are based on commandments and dogma. Treating the KN initiative as the gospel, excludes a joint construction of the "good message", i.e. the KN initiative, by both the KN team and the field. A behaviour in accordance with the religious metaphors precludes a collaborative effort with the field, e.g. in the form of discussion and input from other parts of the organization, in the conceptualization of the initiative. By revealing a behaviour in accordance with the role of knowledge preachers, the KN team contributed to the later perceived lack of fit between the needs of the field and the initiative as conceptualized by the KN team. In a retrospective, self-critical comment the KN team members in the interviews referred to the religious conviction and missionary character by which the KN initiative was driven: "We wanted to convert everybody to Catholicism. The credo was everybody needs KN. However, there seemed to be fundamentally different needs and expectations within individual organizational groups as to what exactly KN would be needed for." The use of the credo metaphor expresses the strong conviction that the KN team attached to their actions, implying that the appropriateness of the approach was not questioned at that time. The comparison of the KN initiative to a missionary effort of trying to render everybody Catholic fits into the aforementioned strategy of evangelical appeals to convert organizational members. Such appeals represent general statements which do not focus on specific groups of audiences. This means that the question of immediate individual utility is not answered by these appeals[12].

Looking at the evolution of the KN project, it is important to point out that there were significant changes in the use of the religious metaphors over time. While the religious image

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[12] It may even seem to organizational members that statements such as "My knowledge pays for Telcotech" may primarily represent a "good message" for Telcotech, but much less for the individual Telcotech employee himself/herself.

for the implementation approach was coined by the Telcotech top management, and picked up by the KN team vocabulary at the beginning of the initiative, the KN team members changed their perspective of key success factors of the KN implementation. They moved from a standardized approach to a customized, focused approach of implementation. This change in the implementation approach was reflected by a change to a different set of metaphors to characterize the different way of implementation. However, while the KN team altered its perception of the appropriate implementation approach, the Telcotech management's outlook on the initiative did not change. The management continued to speak about the initial vision of the KN implementation as in an "evangelization approach", and did not adapt the new metaphors. The increasing divergence in the use of metaphors for the implementation approach reflects the problems of communication that surfaced at a later stage of the implementation between the management and the KN team[13]. The problem was aggravated by the fact that the KN team's shift in the implementation approach was not an explicit issue of discussion between the KN team and the management. A careful examination and deconstruction of the distinct sets of metaphors could have contributed to a better understanding of the differences in the visions of the implementation.

1.2.2 The customization approach

During the further progress of the KN project, the KN team's language shifted to the use of a different set of metaphors depicting a much focused implementation approach. Two themes describe this approach: The first is an illness theme describing the KN implementation in terms of a "virus infection", while the second is a war theme comparing the implementation of the KN initiative to a "guerrilla warfare tactic".

The "virus infection" theme likens the KN initiative to an illness that spreads consecutively. As the former KN team leader suggested, the KN virus should focus on small teams and their specific needs, referred to as "hubs of the total KN strategy". The hub metaphor suggests that the specific needs of these small teams were the means of connecting them to the KN initiative. To "infect" a team with the KN "virus", meaning to motivate and inspire organizational members to use and appreciate KN, they needed to be confronted with the concrete benefits of knowledge management for their particular circumstances. Once the benefits for a specific target group had been realized, the infected teams themselves were to

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[13] As later pointed out as a lesson learned by the KN team, a major challenge of the successful KN implementation was the widening gap between the management's perception of the initiative and the KN team's perception in terms of the implementation approach.

subsequently "infest other organizational members with the KN virus". Taking advantage of existing networks of collaboration, the virus was supposed to spread across teams that were already cooperating naturally.

In contrast to the standardized approach, the "virus infection" approach implies a stepwise implementation. Compared to the standardized approach, this process is more self-organizing, since it takes advantage of promotion through others. This stepwise implementation process is, however, slower in the beginning due to the time lag resulting from having to wait until concrete results are generated with the first initiatives. The process is then supposed to gain momentum and accelerate as a result of the growth of the "virus cells" throughout the organization.

The virus infection metaphor attributes positive characteristics to something which is generally perceived negatively. While in everyday usage the notion of a "virus infection" has the negative connotation of spreading an illness and therefore representing a threat to human life, it was, in the context of KN implementation, the KN team's deliberately chosen approach to deal with the Telcotech organization. The organization had to be infected for its own good - which is known to the KN team. The passing on of the virus was based on the KN team's conviction that it would result in a positive outcome for the organization.

Following this image, the KN team assumed the role of infectors who passed the KN illness on to the rest of the organization. By infecting the first teams with the virus, i.e. by motivating a specific target group to apply knowledge management, the KN team acted as an initiator of the initiative, but left the responsibility of spreading the initiative to other members of the organization. By attacking one specific target group in the organization, and trying to make this group susceptible to the KN illness, the KN team's role in this instance was far more focused in comparison to that of the "knowledge preachers" of the standardized approach.

The other theme used for the focused implementation approach, is that of guerrilla warfare: In contrast to the peaceful, non-violent and preaching approach of the standardized implementation strategy, guerrilla warfare represents a violent underground activity which needs small groups of fighters, in this case the KN team members, to succeed. Waging guerrilla warfare, similarly to implementing the KN initiative, has a connotation of being a dangerous enterprise for the participants. Their organizational mission, to change organizational attitudes and behaviour towards the treatment of knowledge, was seen as unpredictable and risky. In terms of the approach to waging this war, the guerrilla image

implies that there were few rules or guidelines that could be followed to guarantee the survival, and thus the success, of the KN initiative.

The warfare image depicts the rest of the organization as hostile: they were potent adversaries who had to be defeated by guerrilla tactics. The description furthermore indicates the minority position of the KN team within Telcotech. It presents the KN team as a small troop of fighters who could not count on much help from other parts of the organization. The war imagery suggests that in order to fulfil the KN mission, a high degree of violence against members of the own organization was inevitable. The implementation work of the KN team is compared to specifically aimed attacks on the Telcotech organization, aiming to defeat hindering forces in the organization. Simultaneously the use of the guerrilla warfare metaphor suggests functions of justification and legitimization. Portraying themselves as small group of brave fighters in a difficult situation when compared to the preponderance of the rest of the hostile organization that did not share their ideas, the KN team insinuated that any means to ensure survival had to be thought permissible.

The evolution of metaphors from an evangelizing metaphor to the virus infection and guerrilla warfare metaphor reflects the KN team's changed awareness of how to implement the KN initiative successfully. It also implies a shift from "soft" to "hard" measures. This evolution reflects the insight of later having to offer "hard", tangible and concrete benefits to motivate Telcotech employees to participate in the KN initiative. The preaching approach that focused on persuading the Telcotech members to participate through an appeal to their empathy and understanding was therefore replaced by violent measures of infection and war-like attacks[14].

In summary it can be concluded that the two sets of metaphors used to depict the implementation of the KN initiative, describe two distinctively differing approaches. The virus infection and the guerrilla warfare metaphors both depict a specific stepwise, concentrated, bottom-up approach of implementation that is focused on specific groups, while the evangelizing metaphor implies a broad, top-down approach that aims to simultaneously convert different groups of the organization to an identical KN message. The metaphors not only reflect these different approaches. At the same time the different sets of metaphors draw attention to the parallel existence of two incompatible metaphorical themes employed by two

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[14] The change of metaphors from non-aggressive to a rather high degree of violence, combined with a hostile connotation attributed to the rest of the organization, might also indicate an increasing degree of frustration felt by KN team members at this stage of the project.

different organizational groups, namely Telcotech management and the KN team. They foreshadow the difficulties in communication between these two groups, since they "do not speak the same language". The difference in metaphorical systems and vocabulary indicates that the two groups do not refer to the same codes, or share the same frame of reference. Besides, the different visions of the implementation approach are manifested in the differences in the marketing of the initiative throughout Telcotech. The following table summarizes the themes used to describe the KN implementation approach, and attributes the metaphors to the organizational groups using them:
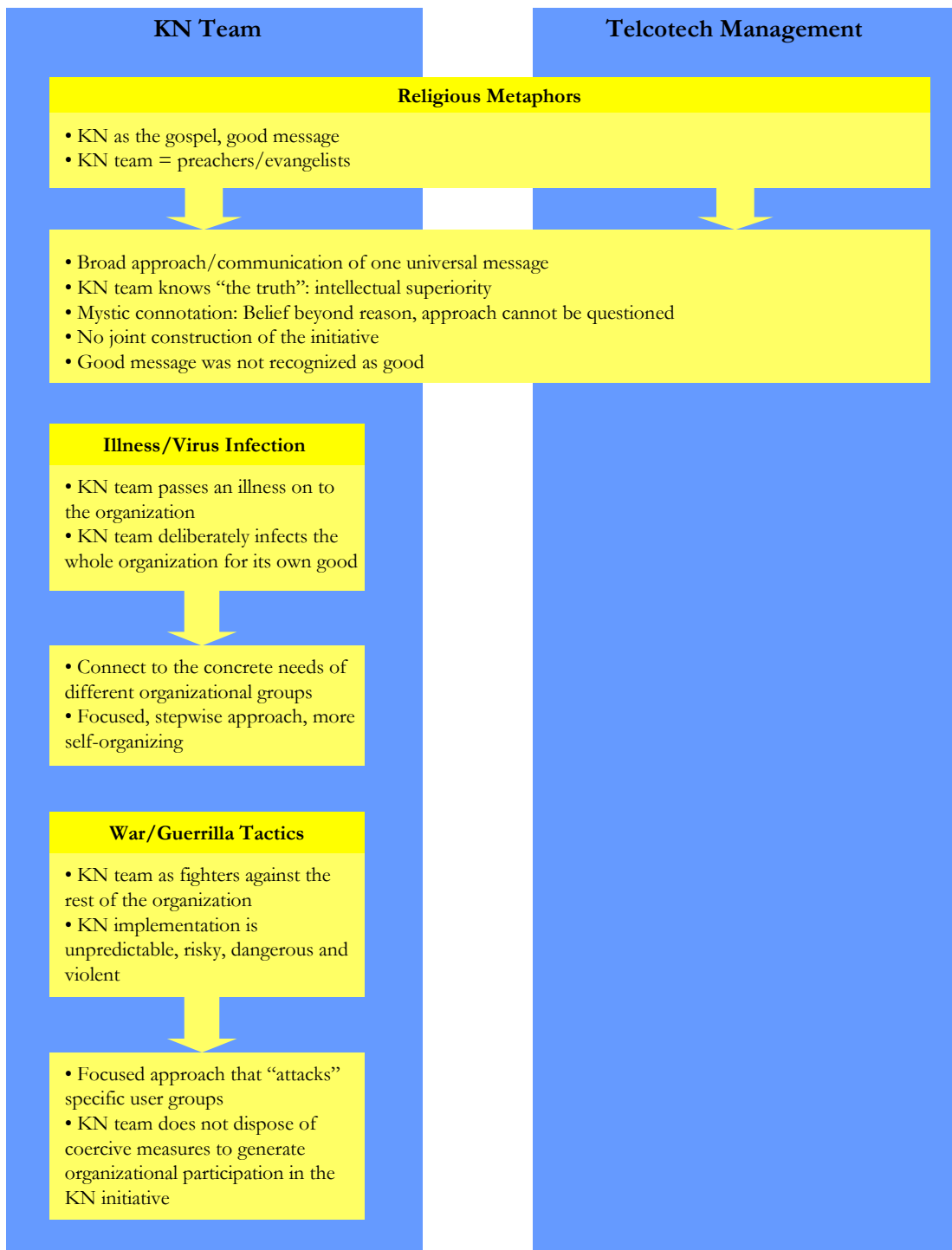
KN Team	Telcotech Management

Religious Metaphors
- KN as the gospel, good message
- KN team = preachers/evangelists

- Broad approach/communication of one universal message
- KN team knows "the truth": intellectual superiority
- Mystic connotation: Belief beyond reason, approach cannot be questioned
- No joint construction of the initiative
- Good message was not recognized as good

Illness/Virus Infection
- KN team passes an illness on to the organization
- KN team deliberately infects the whole organization for its own good

- Connect to the concrete needs of different organizational groups
- Focused, stepwise approach, more self-organizing

War/Guerrilla Tactics
- KN team as fighters against the rest of the organization
- KN implementation is unpredictable, risky, dangerous and violent

- Focused approach that "attacks" specific user groups
- KN team does not dispose of coercive measures to generate organizational participation in the KN initiative

Figure 2: KN Implementation Approach

2. Evaluation of the narrative analysis:

Analysing the different sets of metaphors learnings can be found on three different levels: The metaphors used reflect project developments, yet they also anticipate some of the retrospectively formulated lessons learned and contribute to double-loop learning:

2.1 Reflection of project developments

As shown in the previous analysis the different groups of metaphors correspond to the distinctively different perceptions of the initiative by particular organizational groups. The differences in connotations of the metaphors reflect the conflicting attitudes towards Telcotech's knowledge management initiative. This observation is consistent with the distinct differences in the depiction of the KN team. The metaphors used to characterize the KN team are as widely polarized between different organizational groups as the description of the initiative itself. The conflicts between different Telcotech organizational groups are reflected in the metaphors with which they give voice to their attitudes, experience and perceptions.

The change in the KN implementation approach is reflected by the change in metaphors used by the KN team to describe the implementation.

2.2 Anticipation of the lessons learned

By revealing the contradictions in metaphors, organizational tensions and project difficulties can be anticipated. Pointing this out to organizations may enable them to make more conscious decisions about using metaphors to enhance effectiveness (Cleary/Packard, 1992). Several examples of the anticipation of the lessons learned through the prevailing metaphors can be found in the Telcotech case, for example the change of metaphors used by the KN team to depict the customized implementation approach could have anticipated the difficult communication between Telcotech management and the KN team, since both groups no longer "spoke the same language".

A regular examination of the surfacing metaphors from an early stage of the project onwards would have foreshadowed later project developments, and would have left room for the implementation of measures to monitor those developments.

2.3 Double-loop learning through metaphors

The metaphor analysis of the Telcotech KN initiative provides an additional benefit: The detected metaphors help to reveal hidden dimensions of the KN project, allowing hypotheses, based on these dimensions, to be formulated about otherwise tacit dynamics of the project.

In Telcotech's case there are three hidden categories of insights that can be gained from these unarticulated issues. Firstly, metaphor analysis can help sensitize Telcotech employees to the detrimental effects of certain metaphors on organizational effectiveness. Examples of this would be the hypothesis that the child-raising metaphor as used by the KN team might have

been detrimental to gaining commitment from a wide range of organizational members, since it depicts the initiative as "belonging" to the KN team. Similarly, the use of religious metaphors to characterize the implementation approach might have hindered a collaborative definition of the KN initiative. Finally, the management's use of two contradictory discourses (the economic discourse and the networking discourse) may have been counterproductive. Based on the recognition of the implications of certain metaphors, measures can be formulated for a better communication strategy with more coherence.

Secondly, metaphor analysis can help reveal inconsistencies between talk and behaviour. An example of this is the Telcotech management's claim that the KN initiative was a pillar of the company strategy, while signalling through their behaviour that this was not the case. The revelation of the gap between the organizational actors' theories in use and their espoused theories offers the potential for double-loop learning.

Finally, metaphor analysis can contribute to the revelation of hidden, underlying organizational forces and their impact on the organization. In Telcotech's case the KN team's choice of implementation metaphors, implying a high degree of violence might have been used to trigger a discussion about Telcotech's organizational culture and why the KN team referred to violent measures when wishing to generate change.

The following part analyses the learning generated in the reflection workshop from the joint definition of lessons learned about the KN initiative. It focuses particularly on the discussion of the content of learning generated by this method, its type and level and sustainability[15].

3. Evaluation of the lessons learned

The lessons learned as defined by the Telcotech members in the reflection workshop, evolve around the four themes identified in the individual interviews. The specifically formulated lessons learned can be found in the annex.

3.1 Content and type of learning

As the detailed analysis of the lessons learned shows[16], the described approach is appropriate for producing self-reflection and self-critique. The level, on which this self-reflection occurs, differs. It can either occur as single-loop learning, or as double-loop learning.

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[15] The original version of the lessons learned as well as a description of the respective context can be found in the annex of this work.
[16] See annexe

The reflection workshop generated a series of double-loop learning lessons leading participants to question themselves, or important principles of their work. Examples of this type of learning include the KN team's new perspective of the Telcotech employees in the regions that has grown from seeing them as addressees of headquarters' ideas to partners in the design of the KN initiative, or the questioning of the initial KN implementation strategy that aimed to convert the entire Telcotech organization. These lessons question fundamental assumptions about the organizational functioning, e.g. how to implement change or what the recipes for success actually are.

Other lessons from the KN project are expressions of single-loop learning that focus on optimizing certain tasks of the KN project without questioning the task itself. An example of this would be how to improve communication with Telcotech management. Such lessons evolve around optimizing behaviour without questioning the prevailing frame of reference.

A critical examination of the insights of single-loop learnings can become the basis of double-loop learning. This can happen in three ways: Through the revelation of the hidden perceptions and mental models implicit in the single-loop lesson, through the detection of defensive reasoning and through the detection of hidden contradictions.

Single-loop lessons can form the basis of the revelation of implicit perceptions and mental models. An example of such a potential for double-loop learning would be the regions' lack of involvement in the design of the KN initiative which bespeaks of a hierarchical organizational culture that does not value feed-back from the bottom of the organization. The detection of these traits implicit in the descriptions can depict attitudes, mindsets and behaviours that are deeply rooted in the organizational culture. Being aware of these traits can give hints about potential barriers to change that are rooted in the culture. At the same time the analysis of such descriptions can become the basis for detecting defensive reasoning. For example, the implicit depicting of management as being unable or too stubborn to change the implementation strategy, in spite of the field's need for a differentiated implementation approach, implicitly attributes blame to management. The confrontation of this implicit meaning can represent a first step towards further critical introspection and a close examination of the relationships among different organizational groups. Potential changes of mental models about the self and other organizational groups can be triangulated with a change of language.

The detection of hidden contradictions can form the basis of the realization of unconscious contradictory behaviour and the questioning of its roots. For example, while on the one hand

some interview narratives suggest a more centralized, coercive organizational structure, others on the other hand simultaneously stress the importance of the voluntariness of knowledge sharing. This apparent contradiction regarding the appropriate strategy to promote knowledge sharing deserves further consideration and explicit discussion among different organizational groups.

4. Final evaluation of the method

Even though above statements do not provide an exact scale for measuring the degree of learning, it clearly indicates that the described narrative approach to joint learning from project experiences in general, and the reflection workshop in particular, provided the basis for collective double-loop learning. The metaphor analysis can become the basis for the revelation of inconsistencies between organizational talk and behaviour and other hidden, undiscussed aspects of the examined project. Through an examination and comparison of the metaphors surfaced in the various organizational narratives hidden meaning can be externalized. These interpretations can become the base for a process of collective sense-making and learning in which organizational members jointly refine their vision of organizational reality. With the participants having undergone a process of self-reflection, their defined lessons learned bear witness of an enhanced knowledge of themselves. When such a reflection process has taken place, and the cognitive modification of the organizational functioning is transformed into abstract knowledge and thereby made explicit – as it happened in the lessons learned- it is usually accepted that learning has occurred (Boyd/Fales, 1983).

ANNEX:

Lessons learned defined by Telcotech employees in the reflection workshop

Through reflection on the events recounted in organizational stories narrative can be a valuable source of insight into organizations. By determining the learning linked to the recounted event and by interpreting how and why the learning took place, stories help to reflect on experiences (Kaye/Jacobson, 1999). This involves examining in detail how the events unfolded towards success or failure and what factors relate to the outcomes. Through reflection on past events and their inherent learnings, people look for hidden principles to make the story transferable and applicable to other situations.

The lessons learned jointly defined by the Telcotech employees are presented according the following pattern: The first paragraph puts the lesson learned into the project context; the second paragraph is the copy of the lesson learned as formulated in the joint reflection phase while the last indented paragraphs represent the author's analysis of the formulated lesson.

Lesson 1: Communication with Telcotech management

While there had been regular feedback between the KN team and Telcotech management at the beginning of the KN initiative, this dialogue broke down during the later stages, resulting in damaging consequences for the entire project: Over time it had became obvious to the KN team that the initial claims about the potential of the KN initiative were too optimistic, yet management's outlook was still dominated by the very ambitious claims of the conceptualization phase. Since the top management's perception was not synchronized over the different phases of the implementation process, its view of the initiative became increasingly anachronistic as the initiative matured. The result was a widening gap between the management's perception and the initiative's reality.

Telcotech employees formulated the following lesson:

"Top management is a critical stakeholder in the management of knowledge. The successful implementation of knowledge management requires the formal consideration and management of the perception of the top management. It is thus important to "sell" knowledge management to this stakeholder, thereby evoking its benefits for the entire organization. To succeed in selling knowledge management to management, a good standing with top management, as well as credibility among employees on the shop floor is essential.

However, the quantification of the added value of knowledge management in general and the KN initiative in particular, is problematic, since the attempt to render knowledge management's worth tangible is often an elusive goal. Nevertheless, it is vital to communicate tangible benefits to top management, even if these benefits are only rough estimates and approximations, in order to obtain the legitimization and support of top management for knowledge management.

The continuity of communication is a decisive factor in the relationship with management. If the expectations raised in the initialization phase prove to be too ambitious, it is especially crucial to synchronize management's expectations and perceptions of the initiative with the individual phases of the implementation process."

- Telcotech members recognize the faults committed regarding the management of their relationship with the Telcotech management, self-critically commenting on their failure to synchronize the management's outlook on the KN initiative with their own.
- However, in spite of the acknowledged risk of raising expectations about the initiative too highly, the lesson learned represents a clear recommendation to nurture high expectations in management in order to get momentum for the initiative. This implies a conscious suggestion to first deceive management about the potential of knowledge management and then to correct management's distorted outlook in a stepwise process.
- In terms of learning evaluation, the lessons learned regarding the communication with the Telcotech management are examples of single-loop learning.

Lesson 2: Communication with Telcotech employees
Putting knowledge management on the top management agenda made the initiative a highly politicized issue. Telcotech employees consequently formally pledged their co-operation with the initiative. However, the initiative later proved to lack support from its target customers, due to a lack of true belief in, and thus commitment to, the initiative in the field. After the launch of the KN tool implementation, the field expressed concerns about the utility of the KN tools. Furthermore, since they had not been included in the conceptualization of the KN initiative, they did not feel any obligation to support the spreading and the promotion of the initiative.

Telcotech employees formulated the following lesson:

"Establishing communication with the field early on in the knowledge management initiative ensures the inclusion of the specific needs and concerns of the targeted groups and thus diminishes the risk of neglecting important features of the designed knowledge management tools. As a result, the probability of acceptance, and thus of return of the provided tools, is significantly increased".

- The mere description of the targeting of specific organizational user groups is an expression of single-loop learning by detailing how communication with the field can be done more efficiently.
- However, the self-reflective recognition of having badly managed the relationship with the field, questions the predominant attitude with which the Telcotech members in the regions had been treated. Instead of adhering to a hierarchical top-down approach that considers the gaining of top management's support as sufficient, and then driving the initiative through to the bottom of the organization, the KN team admits that this fundamental assumption about organizational functioning has to be questioned. This new vision implies a significant change in the perspective of how to implement change in the regions successfully.

Lesson 3: Implementation approach

Even though the overall global KN message was generally appreciated and understood throughout Telcotech, it did not lead to willingness by the Telcotech employees in the field to accept and implement the initiative there.

Telcotech employees formulated the following lesson:

"The initial aim of the knowledge management initiative, namely to develop a standardized KN approach that could be used by virtually everyone for virtually every purpose, implies a risk of a lack of customer focus. This means that the value propositions of a standardized approach are too undifferentiated and do not pay enough attention to the specific everyday needs of the different focus groups. On the other hand, a customized approach implies a risk of fragmenting the overall knowledge management initiative into a portfolio of highly specialized projects that seemingly lack a united doctrine with a low name recognition. The dilemma of the implementation approach thus evolves around the trade-off between accommodating the needs of individualized clusters of target customers versus the merits of a standardized approach with a higher overall organizational visibility".

- The discussion of the two fundamentally opposed approaches to implementation is an expression of a process of double-loop learning. While at the beginning of the initiative it had been taken for granted that a standardized approach, as stipulated by the management, was the correct way of implementation, this basic assumption, and recipe for success, was increasingly questioned following the reactions from the field. The result was a different frame of reference on how to deal with the regions.
- Yet, the lesson does not include an explicit reflection on the reasons for management's attitude or the implicitly negative perception attached to this attitude.

Lesson 4: Concentration on specific target groups

With the progression of the KN initiative, the KN team became conscious of the fact that within individual groups of the sales and service force there were fundamentally different needs and expectations as to possible KN applications.

Telcotech employees formulated the following lesson:

"To successfully implement knowledge management initiatives, it is crucial to focus on meeting the needs of the different target groups of employees in a custom-made way. This implies offering knowledge management solutions to individual clusters of employees by taking their individual conditions into consideration. As these individual clusters represent groups that already work together and share a particular professional interest, knowledge management initiatives in such a limited scope can additionally benefit from the feeling of mutual trust prevailing within these groups".

- The questioning of the initial assumption that employees in the field are a coherent group who share the same universal needs indicates a change in mental models of Telcotech employees in the field.

Lesson 5: Design of the initiative

Since the KN initiative did not solicit the input of actual users of the knowledge management tools in the design of the initiatives, the initiatives later proved not to fully address the needs of the target customers.

Telcotech employees formulated the following lesson:

"To tailor the KN initiative as closely as possible to the needs of the different target groups, the integration of representatives from each group into the design thereof is crucial. This has two effects: Firstly, it provides an understanding of the real needs of the potential users and thus increases the chances of constructing the most useful offer. Secondly, it creates ties between the KN initiators and their focus groups, thereby increasing the commitment of both parties, which is crucial for the implementation phase".

- While the KN team first relied on the hierarchical pressure to support the KN initiative team members recognized that authority-driven measures had to be replaced through a careful consideration of the users' needs and concerns.
- The lesson implies a change in the KN team's self-perception and in their perception of other organizational groups.
- However, the lesson does not discuss the organizational culture underlying the initial lack of integration of employees in the field.

Lesson 6: Tangible benefits

The KN team realized that without the communication of concrete, tangible benefits to the targeted customers, KN was difficult to implement and sustain. While several promotional activities were under way that gave incentives for sharing knowledge, their positive effects were often limited in duration.

Telcotech employees formulated the following lesson:

"To guarantee commitment by the various organizational user groups, knowledge management has to be connected to the day-to-day problems and needs of the individual employee. By addressing the concrete problems occurring on the shop floor, knowledge management offers its target customers direct, tangible benefits instead of some abstract message without an immediate connection to everyday practice. Initiators of a knowledge management initiative thus first need to listen to their targeted user group and focus on constructing immediate benefits for this group. If the immanent value proposition of the knowledge initiative is understood, the individual employee will be more receptive to his/her role in the overall knowledge management process. Since this sensitization is more difficult to attain if there is no actual or latent dissatisfaction within a potential user group, initiators of

knowledge management should first address target groups with a high potential leverage for knowledge management measures."

- As an expression of the shift in the relationship with employees in the field, the targeted employees are now designated as "customers". This changed mental map regarding the Telcotech employees in the regions and the role the KN initiators should assume in the implementation of the KN initiative, can be seen as the result of a "transformation in meaning perspectives" (Rigano/Edwards, 1998) leading to a redefinition of the self representation and the representation of others.

Lesson 7: Incentives

As the KN team recognized during the progress of the implementation process, target groups differ greatly with respect to their susceptibility to KN.

Telcotech employees formulated the following lesson:

"A consequence of the differentiation between the various target groups of the knowledge management initiative is to examine how the different target groups differ in terms of motivational factors for the support of the use of the KN tools. This implies adapting the communication strategy and incentive systems accordingly, instead of assuming a universal functioning of the field".

- This lesson learned regarding incentives is a logical consequence of the shift in the perspective on how to deal with the target customers in the field.

Lesson 8: Organizational structure as an obstacle

The Telcotech structure was found to be based on a model that proved anachronistic for the disclosure and re-deployment of knowledge.

Telcotech employees formulated the following lesson:

"Knowledge management requires the alignment of organizational structures to favour intra-organizational cooperation with the sharing of knowledge. An extremely decentralized structure of disparate independent regions is not conducive to an organization-wide knowledge sharing across regional and local boundaries".

- While this lesson formulates a single-loop learning insight about the necessity of aligning the organizational structure with knowledge management, it does not question the underlying assumption of this insight. The lesson explicitly attributes responsibility for project difficulties to others, in this case the regional organization. The lack of commitment to the implementation of the KN initiative by the regional sales managers is therefore seen as rooted in the freedom granted to the sales regions. This description implicitly suggests that a more centralized and coercive treatment of the regions, e.g. the Telcotech management ordering the regions to support the initiative, would have facilitated the KN implementation. This hidden, hierarchical top-down understanding of management expressed in the case description, is in sharp contrast with the explicit statement of the case that knowledge sharing cannot be ordered or mandated, but has to occur voluntarily since "knowledge is locked in the minds of the organization's employees". It indicates that in spite of the explicit recognition of the voluntary nature of knowledge management, there is still a prevailing, hidden assumption about the power of the hierarchy to bring about behavioural change.

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