

MASTER

Development of organisational thinking : an organisational change process inspired by chaos theory and dialogue

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Abstract

This thesis is an evaluation and reflection study on an organisational change process inspired by chaos theory and dialogue. The change process is analysed to find indications for a development in the thinking of individuals, groups and the organisation. A development of the thinking of the organisation will result in an organisation that is more reflexive and responsive towards the rapidly changing business environment of today.

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Management Summary

Introduction

This graduation project describes an organisational change process inspired by chaos theory and dialogue at Stork PMT. The progress of the change process is described, measured and analysed in order to find indications for a development in the organisational mind – the culture – of the organisation. This thesis is an evaluation and reflection on the change process and describes the process of diffusion of theoretical concepts throughout the organisation. This summary will give a short overview of the developments during the project.

Stork PMT

Stork PMT is a subsidiary of the multinational Stork and is situated in Boxmeer, the Netherlands. Stork is an international concern, specialised in technology-based production systems and services and achieves an annual turnover in 1999 of EUR 2.4 billion with more than 20,000 employees.

Stork PMT is world market leader in the industry of poultry processing equipment. The company employs about 500 employees. Since 1994 the organisation has been restructuring its production processes, within the framework of the TKK – Time, Quality, Costs – project. The project is inspired by the Dutch approach of Integral Organisational Renewal. Functional departments have been changed into self-managed teams. During this change process, special attention was paid to interdepartmental relationships.

Stork PMT is divided into four sectors. The Sector OOP is responsible for the quotation and order process, selling and organisation of new equipment. Sector INNOP is responsible for the Research & Development of new equipment. In addition, INNOP assists OOP with the specification of equipment during the quotation and order process. The sector Manufacturing is responsible for production, assembly, packaging and transport of equipment to the customers. And the sector ODP is responsible for the service and spare parts process. The organisational change process as it is discussed within this thesis involves employees from all sectors.

Graduation Project and Assignment

Where the organisational renewal activities in the last decade focused on the behaviour of the organisation, the renewal in the TKK process focuses on the thinking of the organisation. At PMT, due to the use of Integral Organisational Renewal and other renewal activities structures and processes of PMT have been developed in time. These activities have resulted in major benefits for Stork PMT over the years. But rapid market and environmental changes ask for an even more flexible and responsive organisation. The new direction in the TKK process, using the concepts of chaos theory and dialogue, is the next step in organisational renewal.

The renewal in the TKK process focuses on the *thinking* of the organisation, its culture. The goal of the new TKK process is to develop this culture, also indicated as “organisational mind”. The organisational mind (orgmind) is the sum total of beliefs, assumptions, premises, values, and conclusions mostly tacit members of an organisational system hold commonly as truth. A development of the orgmind would make Stork PMT better able to cope with its environment. The organisation would be able to change in a flexible and fast manner and make full use of the creative powers of its workforce. The ‘thinking’ of the organisation itself is the subject of change.

In short, the new TKK process focuses *not* on a change in behaviour of the organisation, but influences the *thinking* of the organisation. The theoretical inspiration is found in the chaos theory, and dialogue as a method is used to focus on the thinking of individuals, groups and the whole organisation.

Initially, the graduation project would focus on the development of a method for diffusion of the new concepts of chaos theory and dialogue throughout the company. The new concepts as they are provided by chaos theory and the method of dialogue should be incorporated into the day-to-day activities of everybody working at PMT. What became clear after some time, that it was impossible to design a method from the outside of the TKK process, like an expert would do. Such an approach would better take place from within the team itself. The project assignment changed to:

Project Assignment: Co-develop in close collaboration and co-operation with the TKK team a method for diffusion of the new concepts throughout the organisation.

The development of the method is therefore a collective design, in which the student has taken part and contributed. The student was integrated in the TKK team and has, together with the other members, the American consultant and the other TU/e researcher, developed a process for diffusion.

This thesis evaluates and reflects on this design by comparing it with the goal of the TKK process, to influence the thinking of the organisation. Therefore, this thesis focuses on indications of a development of the thinking of the organisation. The goal of the thesis can be described as follows:

Goal of this Thesis/Study: Evaluate the effects of the TKK process on the thinking of the organisation.

Theoretical Background

It's difficult to define a hard framework or definition of 'Chaos Theory', since it is more a way of thinking. First developed in the traditional sciences, chaos theory diffused into all kind of scientific disciplines and therefore also in organisational science.

Nowadays, the environment of organisations is changing rapidly - continuously and unpredictably - and organisations are confronted with turbulence and uncontrollable phenomena. Chaos theory shows that periods of relative stability, in which behaviour of systems is predictable, are alternated by periods of instability, chaos. These periods of instability are characterised by unpredictability and uncontrollability. The only way to survive from this period is by tapping the basic interior potential (orgmind), which gives organisations the ability to transform to a new state of order. In this new state of order the organisation is able to see through its complexity more effectively. It is assumed that in periods of instability, organisations should rely on the innovative character and creativity of its members. Old paradigms like control or, for example, cost reduction are of less use and an organisation may seek for other ways of dealing with uncertainty.

Chaos theory recognises that systems are complex, dynamical and non-linear, in which chaos and order co-exist, expressed in the notion chaord or a chaordic system. It offers some concepts in order to deal with aspects as uncontrollability, uncertainty and complexity within an organisation. Chaordic systems are characterised by five core principles:

1. *Consciousness.* The essential groundstate of the system is thought, not matter; Reality is anything one thinks,
2. *Connectivity.* Chaos verifies that the enterprise is both a whole and a part - a whole/part or a holon-no part can exist independently of the whole nor can any whole be sustained separately from its parts. Each part is by itself a whole and this whole is part of a bigger whole,
3. *Indeterminacy.* Chaos points out that in the dynamical complexity of the enterprise, every event is both cause and effect. The future is unknowable in advance,
4. *Dissipation.* Organisations are dissipative systems engaging in a cycle of both destruction and creation. Organisations endlessly 'fall apart' and then grow back together again, each time in a novel new form, ungoverned by the past,

5. *Emergence.* Systems strive toward ascending levels of coherence and complexity, made possible by its capacities for self-organisation.

These five principles together form a single indivisible conceptual whole. Consciousness determines if the system can 'jump' to a higher form of complexity. Emergents can develop within an organisation under the influence of the organisational consciousness, the orgmind. These emergents can help the organisation not to dissipate in a period of instability - the state of far-from-equilibrium - but to emerge to a higher form of coherence and complexity.

As already stated above, one of the aspects of Chaordic Systems Thinking (CST) is the concept of 'holons'. Holons are entities that are both wholes and parts of a greater whole at the same time. This minor difference is of major theoretical implication: it is not 'either...or', but 'both...and'. Holons are both autonomous and dependent structures at the same time. Another aspect is that of an 'attractor'. An attractor is a condition that forces a holon to repeat its typical pattern of behaviour, not always in exactly the same way, but every time within clear and specified boundaries. It acts as a sort of magnet, that imposes the holon to repeat the behaviour pattern over and over again.

Not all holons are equal: one whole/part is distinguished from another by the relative degree to which it taps its 'holonic capacity'. The higher a holon climbs on the ladder of knowing or consciousness, the greater its ability to apprehend reality. Holonic capacity is the holons ability to operate with greater mindfulness, expanded awareness, 'control-' and 'response-ability'. Control-ability is the degree to which a holon is able to influence future events and response-ability is the ability to respond to FFE conditions.

The orgmind is the 'container' of the holonic capacity of an organisation. Chaos suggests that by developing holonic capacity, an organisation is able to see 'the window of opportunity' when arriving at 'the edge of chaos'. Only then, an organisation is able to leap to a higher order of coherence (transformation) - a new stable dynamic which is however more complex and more effective- and therefore escaping dissipation. When the orgmind is developed in such a way, an organisation is able to transform itself - from within - to a totally new organisation, which can grasp the pace of our changing world. An organization can be seen as a holon - an entity that is both a whole and a part at the same time - possessing both an interior essence as well as an exterior surface. Chaos theory is meant to re-unite the interior with the exterior, because our attention has mostly been on the exterior.

The exterior is any objectifiable entity or process that can be described objectively and empirical observations making use of our senses or their extensions (the "IT"). The interior is are the processes that can't be studied using our senses, like the thinking process (the "I" and "WE"). Both interior and exterior have an individual and the collective dimension. A holon consists therefore of four quadrants (interior/exterior and individual/collective).

The outside of the individual can be described by, for instance, tasks, structures and the individuals behaviour. The interior of the individual is characterised by emotions, by feelings, so by awareness from within. This quadrant is about consciousness, subjectivity and truthfulness.

The outside of the collective can be seen as the noticeable structures and behaviour in an organisation like teams, meetings, etc. When individual and subjective thoughts are exchanged with other individuals, the result is a collective world view or commonly shared outlook. This is the interior of the group or organisation which is also indicated by the organisational culture or organisational mind.

Dialogue can be used to develop the interior of the individual and the organisation. The roots of the word 'dialogue' can be traced back to the Greek 'dia' and 'logos', which means 'through meaning'. One might think of dialogue as a stream of meaning flowing among and through a group of people, out of which may emerge some new understanding, something creative. Dialogue moves beyond any one individual's understanding, to make explicit and build collective meaning and vision. A typical dialogue process slows down the sequence of the following mental activities, so that we can become aware of them: reception of data, interpretations (perceptions), assumptions and conclusions. These four stages normally are carried out in an instant.

We have learned to see our assumptions as the truth, without testing so. Dialogue explores the four different stages explicitly with the aim to identify our assumptions, those things that are assumed or

thought to be. By learning how to identify or recognise our assumptions, we are able to identify inconsistencies in it.

There are three steps in a typical dialogue process: public reflection, meaning-seeking inquiry and open advocacy. In public reflection a person is speaking out in public a specific process, to better understand the meaning and dynamics of it. Listening is the key to interpretation and perception and other persons in the group are supposed to carefully listen to the public reflection. In meaning-seeking inquiry other members of the group ask for the thinking. It is about understanding where thoughts come from and by inquiry you get a better understanding of what the other is saying. In open advocacy a group member is presenting his or her thinking and asks for feedback from the other group members so that everybody can learn from it. Advocacy means expressing what you think, speaking from a point of view.

In a dialogue the intention is to combine pieces into a whole with no intended goal at the beginning. A discussion is aimed at a material end result (plan, measure, decision), but a dialogue is open-ended. Dialogue is aimed at the understanding of consciousness with the intention to develop shared meaning of the whole and to become more aware of well-established inefficient thought patterns.

Methodology

The goal of the TKK process is to development of the thinking of the organisation (the organisational mind of PMT), so that PMT is able to respond to the rapidly changing environment in a flexible and fast way. The concept of holon thinking is used to explore the organisational mind of Stork PMT. As is concluded from evaluation studies on Stork PMT that the activities that were organised to develop the organisation resulted in major improvements in the past. But, these activities have primarily developed the exterior of the organisation (processes, structures, competencies), whereas the interior stayed very much the same. The theoretical assumption is that if an organisation has developed its interior- *and* its exterior side, the spin-off will be even greater than when only parts are developed.

A research that is initiated from Eindhoven University of Technology (TU/e research) focuses on the development of the TKK process. The research method that can be defined for the TU/e research at Stork PMT is *action research*. Action research is characterised by the co-operation between the researcher and the organisation in reaching the same goal. As for Stork PMT there is a third party, a consultant who designs and executes the actual interventions (workshops and training sessions). The three parties together head towards one single goal, that of developing the organisational mind, with the result that PMT can better thrive in its environment. The change process is designed by a dialogue between these three parties. The TU/e research consists of three research modules: 1) the intervention module, 2) the justification module and 3) the evaluation module. The intervention module describes the planned interventions, which take place during the TKK process. The justification module describes the relation between the intervention and the expected effect. And the evaluation module is a description of the actual executed interventions. In the evaluation module is also searched for effects of the interventions on three levels: individual level (perceptions), on group level (performances) and on company level (production and performance measures). The TU/e research distinguishes four types of activities in order to measure the effects of the change process. First of all, a questionnaire is used to measure changes in behavioural patterns within the organisation. A distinction is made in existing behavioural patterns (as they occur within PMT) and desired behavioural patterns (as they belong to a chaordic organisation). The questionnaire is analysed using the Q-sort method. The analysis focuses on the consensus that the groups of people has on the questions that are asked which is an indicator for shared meaning and therefore on the development of the orgmind. Secondly, interviews were conducted that focused on the changes that occur within the individuals. The interviews were analysed and themes of the occurred changes were determined. The third research activity was the analysis of the training sessions to gain insights about short-term effects. Transcriptions of the training sessions were made and analysed both qualitatively and quantitatively. The fourth activity was a team evaluation that was held with the involved teams. This

meeting focused on the development of the teams in both process (way of communicating) and content (task of the team within the organisation).

The study of which this thesis is the result explores the assertion that *the TKK process will lead to a development of the interior of the organisation*. In order to explore this assertion, data and results of the TU/e research are used. First of all, the TKK process is described in the thesis in a general way. All meetings and training sessions belonging to the TKK process are described briefly. The TKK process is then analysed on two aspects: 1) the time spent on TKK from August 1999 till November 2000, and 2) the main subjects of the meetings of the TKK team. This is done to gain insights in the impact of the change process on the organisation and the main themes in the change process.

Besides that, the members of the TKK team were asked to state their critical incidents within the TKK process, moments that they remember as being significant for their and the teams learning process. As a result of that, two meetings of the TKK team are described in more detail using the method of the narrative. These meetings are described literally because it is assumed that then the dynamics of the real process are seen best. This concept connects to the principles of fractals that state that dynamics of the whole are present in the parts. The meetings are analysed by giving the interpretation of the researcher about the processes that underlie the conversations. The data and results of the TU/e research are used to determine the effects of the TKK process. Therefore, the questionnaire, interviews, conclusions of the short-term effects and the evaluation meeting are analysed within this thesis.

Interventions in the TKK process

The renewal of the TKK process starts in August 1999 with the founding of a new TKK team consisting of seven top managers and middle managers from all sectors of PMT. The motive for a new direction in the TKK process is the perception of the management is that improvements are stuck. Employees still don't take enough initiatives by themselves and are too much engaged in day-to-day activities. Management on the other hand is afraid to share responsibility, hardly ever delegates responsibility and doesn't want to lose control.

The period from September 1999 till November 1999, the TKK team participates in three training sessions in which the concepts of chaos theory and dialogue are explained. The change process is lead by an American consultant who leads the training in chaos theory and in dialogue. The team practices in dialogue exploring assumptions and behavioural patterns of both team and the whole organisation.

In February 2000 three new teams are involved in the TKK process. These are all existing teams with a specific task within the organisation. These teams participate in a workshop about chaos theory and in a dialogue training session. At the same moment, the TKK team deliberates about its strategy of spreading out the new way of thinking throughout the organisation.

In May 2000, again training sessions take place with the three experimental teams. This training session is focused on leadership and individual behaviour. HRM is also involved in the change process because of their possible future role of facilitators of the dialogue process. Within the TKK team the idea is born to organise a search conference, a gathering with of the whole company to search for a new future of PMT. Another striking event is the announcement of the merger of Stork with the additional effect that PMT is going to be sold. This was an indicator that things can change in an instant.

In the period June till August 2000 is used to further develop a strategy for the change process. During deliberations about the strategy the TKK team realises that they should start with a vision (What is deeply inside us and what drives us in our live and in the company). HRM starts with deliberations about the facilitators role. In August, another team is introduced into chaos theory and dialogue. In August it is decided to share the thoughts about the vision with the three experimental teams (started in February) in a vision conference. This conference is held in September 2000 and focused on the personal visions of the participants and the way to accomplish that vision within PMT.

Also in September, four new teams are introduced in chaos theory and dialogue. The vision conference focused on conversations about the personal visions of all the participants. Because the vision conference didn't have the results as was hoped for (a real deep dialogue), it was decided to hold a follow-up in

November 2000.

In October 2000, two members of the MT join the TKK team, bringing both teams closer together. As said, the second vision conference is held in November and with great success. The three teams that were involved in September have a dolphin training session. In November 2000 a meeting was held in search for future facilitators in which 30 people from already involved groups appear.

Analysis of the Interventions - Diffusion of the New Concepts

The workshops and training sessions as they have occurred within the TKK process have direct effect on the diffusion of the new concepts within the organisation. The method of diffusion is arisen out of the interaction of the parties in the TKK process. The consultant designed and executed the first three workshops about chaos theory, dialogue and dolphins. The first two workshops are given one after the other in a short period of time (one week). The third workshop is given after a two to four months. The fourth workshop - the vision conference - was designed by the TKK team in collaboration with the consultant and researchers. This workshop takes place approximately 6 months after the start-up of the team. All workshops last for one day. The structure that has arisen out of the TKK process in involving new teams is as follows:

- *Start-up: chaos theory workshop.* This workshop is based on explaining the five principles of chaos theory.
- *Start-up: dialogue training session.* Per team or group the principles of dialogue are explained and practiced.
- *After 2 to 4 months: dolphin training session.* This training is done with the same group of people that also did the dialogue training sessions. The focus is on individual behaviour.
- *After 6 months: vision conference.* The vision conference is held with more groups together and focuses on the personal visions and on accomplishing that vision in/with the organisation.

These are the activities that have evolved in the TKK process till so far and these will probably be the activities that every group of people that is going to be involved will go through. The groups can practice with the learned concepts after the training sessions have taken place, in their own regular meetings.

Besides that, the TKK process was analysed on both time spent on the process and on the main subjects of the conversations of the TKK team. In the period September 1999 till November 2000 a total of 256 full days were spent on *training* organisational members. The members of the TKK team gained the most training sessions. A total of 81 full days were spent on *organising* the TKK process. The American consultant was hired for 32 full days to support both the training sessions and the meetings in which the TKK process was designed/organised. A total of 337 full days were spent on the TKK process in this period. This is the time in meetings that is formally spent on TKK. The real amount of time spent on TKK goes way beyond this amount of 337 days.

An analysis of the subjects of the conversations that were held in the TKK team provides information about the process of organising this change in PMT. The TKK team from September 1999 till November 2000 addressed the issues 'strategy' and 'vision' most frequently. Besides these themes, the TKK team had numerous conversations about patterns within the team and in the organisation, as well as behaviour of the individual members. The results of the TU/e research were reported to the TKK team in the meantime, which offered an evaluation and reflection on the change process.

Effects of the TKK Process - Development of the Interior

Analysis and Conclusion of the Two Described Meetings of the TKK Team

Two meetings of the TKK team, one in February 2000 and one in September 2000 are described in full

detail within this thesis. In these meetings, critical incidents occur as was stated by the TKK team members themselves. These meetings are analysed to find indications for a focus on the interior within the meeting.

In the meeting in February 2000 there are three main themes: exploring of patterns, exploring of assumptions and focus on strategy. A first conversation is started but evolves into an exploration of the process of the conversation. At the start of the conversation the topic of the conversation is unclear and the impact of hierarchy and politics on the process is explored. The second conversation is dominated by a confrontation between three MT members in the TKK team. Assumptions that underlie the confrontation are explored and the whole situation is very unpleasant, but open. In the third conversation the American consultant leads a focus towards the future strategy of the TKK team.

The meeting of the TKK team in September 2000 starts with the statements that the point of no return, is passed because of the impact of the process on the thinking. Three themes dominate this meeting: behaviour at the vision conference, confrontation and feedback, and the future steps in the process. In evaluating the vision conference it is recognised and explored why the behaviour of certain TKK-team members obstructed the conference. The focus is on responsibility. The second conversation evolves into a confrontation between two TKK-team members, which is used to explore the pattern that others didn't react on that quarrel. Feedback about their behaviour is given towards the two persons involved in that confrontation. The atmosphere is tense, uncomfortable and filled with emotion. In the third conversation the new intervention period is planned. The construction of the schedule is difficult and a pattern of not being able to make a decision is broken.

Both meetings show the tendency to explore the interior (assumptions, processes that underlie patterns). The confrontations show that breaking these patterns or exploring assumptions can be very unpleasant and painful. However, TKK-team members state that these a great learning events for the individuals as for the team.

Analyses and Conclusions of the Questionnaire

The questionnaire was distributed among members of the TKK team (7 persons) and among members of a Control group (13 persons), just before a training period took place. The analysis of the questionnaire doesn't focus on individual questions, but on the persons who filled out the questionnaire. The Q-sort method is used to determine the level of consensus of both groups. Correlation and gamma are used as measures for this agreement. Consensus is an indicator for the existence of a shared meaning within the group, which is assumed to be an indicator for a shared meaning within the organisation (orgmind). The significance level of the differences between both groups were determined by the use of t-tests and per team a longitudinal development was analysed (TKK team in January and April 2000) and between the teams a cross sectional analysis was done (both teams in January and April 2000).

The analysis of the questionnaire shows that TKK team has more consensus (more homogeneity in the TKK team) than the Control group about existing and desired behaviour in January and in April 2000. The consensus of the Control team is stable for both existing and desired behaviour, whereas the TKK team shows a decrease in consensus about existing behaviour and an increase in consensus about desired behaviour. These results are in line with the theoretical predictions that the Control team doesn't show any changes and that the consensus of the TKK team changes. The consensus in the TKK team about existing decreases because due to the change process, the behaviour of the involved people changes in time. There is much consensus about existing behaviour at the first administration, because this behaviour occurs within PMT (the existing behavioural patterns used in the questionnaire were identified by the TKK team at their start-up). However, behaviour changes locally, because involved people are from all over the company. Patterns are broken throughout the organisation, but not at the same time with the same speed and the same depth. Because patterns disappear at some places within the organisation, but not at other places, the consensus decreases. There is more agreement within the TKK team about the need for desired behavioural patterns (consensus increases).

If the assumption is feasible that the questionnaire is indirectly measuring the development of the interior of the organisation or the team, one can state that there are indications that the TKK process is leading towards a development of the interior of the TKK team.

Analysis and Conclusions of the Interviews

In June 2000, interviews were held with members of the TKK team, and with members of the experimental teams that were involved in February. Members of the Control group were also interviewed. These interviews focused on personal changes, the changes in the involved teams and the changes in the organisation.

The analyses of the interviews indicate that the change process had its effects on the individuals involved in the TKK process. They feel more comfortable in their job and converse with more openness and honesty. Due to the dialogue training, conversations include more inquiry, deeper listening and exploring of patterns in a team. There is more focus towards the whole of the organisation. The involved persons reflect on themselves and the awareness of their own behaviour and that of others has increased. They state that the new concepts should be spread out throughout the organisation.

It can be concluded that the change process has an effect on the individuals who are involved. The effects and changes that are mentioned show a growing interest in the interior of individuals and of the group (reflection, inquiry, openness, etc.).

Short-Term Effects of Training Sessions

Transcriptions were made about the training sessions of the experimental teams in February and May 2000. These transcriptions were analysed for short-term effects, both qualitatively and quantitatively for the TU/e research. For this thesis, the themes that are addressed in these analyses were filtered: effects of the meetings, theoretical concepts, issues addressed and process characteristics.

There is a difference in the effects that the dialogue training and the dolphin training have on the involved teams. The dialogue training showed significant effects on two of the three teams, learning and practising with the concepts of dialogue. The characteristics of the dialogue training include confrontations, conversations about patterns, exploring of individual assumptions and, overall, a focus on the interior process instead of the exterior task of the team.

The dolphin training showed significant effects for two of the three groups. The team that didn't show effects in the initial dialogue training showed effects in the dolphin training. The training focused on individual, group and organisation. The theoretical concepts were focused on the roles an individual can have within certain situations. The conversations were about playing the role of a dolphin in both group and organisation. The transformation process itself was addressed.

The short-term effects and the subjects that were addressed in the training sessions show a focus on the interior of individual, team and organisation. The dialogue training focused on the development of the process within the team. The dolphin training gave insights in the behaviour of the individual. The conversations in both training sessions pinpointed at the individual behaviour within the organisation, and what is behind that behaviour.

Analysis and Conclusion of Evaluation Meeting

In June and July 2000, evaluation meetings were held with the experimental teams. In these meetings there was a focus on the effects of the TKK process on both process of the team and on the task of the team.

As can be concluded from the evaluation meetings all teams have made significant progress in the process of the team (way of working and communicating). However, the teams have made no progress in the operational task of the team itself. Two teams have been reconsidering their function and task within the organisation and have spent time just on practising the gained insights from the training. Members of the teams state that they want to use and practice the learned concepts more frequently within the team itself. Besides that, the TKK process should be spread out throughout the organisation.

The change process has led to a change in the way of working within the teams. There is more attention for the process of the team and the teams offer a medium to practice with the new concepts of the TKK process. The teams have reconsidered their "roots" within the organisation and did spend time not only on operational activities but also on the development of the team itself.

Overall Conclusion Effects TKK Process

The meetings that were analysed show that there is a focus on the interior of the individual (for example: assumptions) and on the interior of the group (for example: patterns). In these meetings certain dynamics that belong to the interior are observed (for example: emotions).

The measurements of the short-term effects in the training sessions show that the experimental teams learn about the new concepts. The conversations that were held were about the new concepts and the application of the concepts in the team and in the organisation. The analyses prove that the teams learned to use the new concepts, on short-term. Assuming that the training sessions were designed to aim and focus on a development of the interior, one can state that the teams have learned to focus on the interior.

The questionnaire states that there are indications that the interior of the TKK team is developing due to the TKK process. The interviews state that there is a growing interest in the interior of the individuals and of the group. The interviewed members state that the effect of the TKK process on them is enormous. There is more attention for self-reflection and awareness of their own behaviour.

The results of the evaluation meeting show that the process of interaction in the team has improved. If it is assumed that when the interior of the group is developing, the members of the group can easier 'tune in' on each other, one can state that the interior is developing.

In summary, the TKK process is certainly developing the thinking of the individual. However, the effect on the development of the interior on both groups and organisation is less.

Reflection

The reflection focuses on the characteristics of the change process, and combines these with the results of the analysis of the process and the effect measurements. This leads to guidelines for the future development of the change process at PMT.

Structure and Critical Factors of the Change Process

The change process is lead by a steering committee, the TKK team. This team designs and organises the change process in collaboration with the American consultant and the TU/e researchers. The American consultant is beside her contribution to the change process, responsible for the trainings that take place in the change process. The change process is top-down, having started with top- and middle management. The change process is step by step, involving more and more people. There is no structured plan for the whole change process and next steps are designed only when a step is finished. The diffusion of the concepts takes place by workshops and training sessions every 3 to 5 months. Till so far only existing teams with a certain task in the organisation of PMT are involved. The people that are involved work all over the company.

One of the critical factors is commitment of the MT. The TKK team and its members did put a lot of time and effort into updating and involving the MT of PMT. The content of the change process is well lived through, compared with other organisational changes that have occurred within PMT.

Recommendations for the TKK process

The change process at PMT can be seen as an indirect approach in changing the organisation. It is assumed that when the organisational mind has changed, a change in the exterior of the organisation will follow, automatically.

Effect measurements show that there is a significant change in focus to interior aspects of the organisation. The change process has its effects on the interior side of individual and to some extends, on that of the group or organisation. As chaos theory assumes, a profound change in the organisational mind is necessary in order to transform the organisation, given that the exterior is developed well.

In order to transform, the TKK process needs to focus (deeper) on the group-level of the holon. When engaging in *real* dialogue, emergents are created. These emergents are insights that come from within the group and surpass every knowledge of the individuals in the team. An emergent is related to the interior of the group and can therefore be a feeling a vision, etc. Till so far, the dialogue has only had its effects on the interior and exterior of the individual. When the involved teams would spent more time to engage

in dialogue together and go into depth during that dialogue, the interior of these groups will also be developed. The first steps were already made in the dialogue trainings of the teams and with the second vision conference, of which was stated that the feeling that came out of that day was of great value.

The process of involving more and more people should continue. That means that at a certain moment in time the whole organisation is able to engage in dialogue. At that moment the interior and exterior of the individuals and groups in the organisation are developed in such a way that a transformation of the whole organisation would be the next step.

When the groups have developed their interior and exterior, the next step for the TKK process will be a development of the whole system. When all organisational members are involved in TKK, the individual and team experiences should melt together in order to change the interior and exterior of the whole organisation. Of course, due to the development of the interior of the individual and group, the interior of the organisation has also changed. The focus on the development of the whole system can be seen as a moment in time that the whole organisation reflects on the organisation and starts to change it in such a way that it suits their vision.

For a change of the interior of the whole system (the orgmind), one could reconsider the use of a search conference for the whole company. This conference could then focus on vision and future. The experiences from the vision conferences could be shared and the conference could be used for a search for the future of the organisation.

The next step would be a change in the exterior of the organisation. An exterior change of the whole system means that the structures and processes of the whole organisation will change. For the task of changing and designing a whole new organisation, a *design team* could be used. This design team was already mentioned in the TKK team when was deliberated about the subject "strategy for the change process". Such a design team would combine all the ideas that are present in the organisation and that come out of the search conference in order to design new organisational structures and processes that fit to these ideas.

Possible Future Scenario for the TKK Process

The scenario that is given summarises the current thoughts of the student about the future of the TKK process. Four activities can be distinguished for this future scenario of the TKK process. These activities should not occur step-by-step, but in parallel. The goals for the TKK process are to organise a whole-system search conference in mid 2002 and a whole-system change lead by the design team in the beginning of January 2003. These dates fit into the predictions of the members of the TKK team as they were done in May 2000 about the position of PMT on the s-curve. The members of the TKK team indicated at that moment that they still had 2 to 3 years of preparation for a radical change. The following steps should be taken:

1. *Involve Rest of the Organisation and Develop Individual Part of Holon.* Approximately 70 people are involved in the TKK process till so far. In case of a transformation of the whole system, there are still 400 people to be introduced into the new concepts,
2. *Develop Group Part of the Holon of the TKK team and other already Involved Teams.* The already involved teams should be developed into teams that can create a generative dialogue. They can practice with the concepts of dialogue by themselves and can focus on creating emergents as a team. For these groups it is also important to have facilitators to support them. When the search conference will take place, these groups (approximately 70 people) will have experience in generative dialogue and will also have developed the interior of the group and possibly the exterior of that group,
3. *Start Preparation for a Whole System Search Conference and a Design Team.* To hold a 'whole system future search conference' in June 2002 is a very ambitious scenario. All members of the organisation need to be introduced into chaos and dialogue. Besides that, the involved teams need to focus and develop their interior. And a lot of preparations have to be done for organising such a search conference. Therefore it would be wise to start up another parallel project next to that of the

facilitators. This project will prepare the happening of the search conference. When the search conference has taken place, the work starts to design a whole new company based on the vision that comes out of the search conference. The radical change could happen in the beginning of 2003, when the company structures and processes will change profoundly. It would be preferable to start up a team that prepares the follow-up of the search conference. This design team can already focus on the process to come to a new design of the company,

4. *Develop Facilitators.* A key aspect for the whole change process is the development of the facilitators of the processes in the teams. In January 2000 a start will be made with this development. Till so far, approximately 25 people are interested in becoming a facilitator and will be trained to be one.