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A Systemic-integrative Leadership Model
The Case of Carbo Tech Composites GmbH

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ABSTRACT

How can leaders, employees and organizations learn and develop fast enough to deal with accelerating complexity in a global world and with ongoing economic changes, in order to provide long-term high-level employee performance, which is a central goal of leadership? This study proposes a systemic integrated leadership model that combines leadership, organizational learning and organizational development. The starting points are the following questions: How can long-term high-level employee performance be developed and what are the key influencing factors?

To this end a new Systemic-integrative Leadership Model has been developed. In this model, three influencing factors at the system levels, namely organization/structure, team, and self-management, and three influencing factors at the process level, namely communication, vision/purpose and trust and control, all derived from systems theory, have been established, all of which are understood to enhance performance.

The Austrian company Carbo Tech Composites GmbH is being used as a case to demonstrate how the Systemic-integrative Leadership Model can be implemented in an organization, in order to meet company challenges and enhance long-term performance. To this end a three-stage implementation process was defined. First, the methodology of in-depth interview was applied in order to get an overview of the organization's current situation, interdependencies and their underlying explanations. Secondly, having analyzed the data collected from the in-depth interviews, the results were reported to and discussed by the executives of the company. In order to reach agreement about the objectives and the measures required to optimize long-term performance for this company in its specific situation, the intervention method of Open Space Technology was selected. Through an Open Space intervention, measures to optimize the six performance influencing factors were elaborated and agreed upon as binding.

INTRODUCTION

The process of performance can be seen from the point of view of efficiency and effectiveness. Both are important for high-level performance. A long-term study conducted by Czipin & Proudfoot (2002) about labor productivity of employees has shown that 92 (out of 225) workdays per year are spent unproductively. A total of 85 inefficient workdays can be attributed to deficient leadership. Furthermore, it is not clear to what extent the remaining 60 percent of work input produces goal-oriented output. High-level performance is frequently prevented in companies, amongst other things by inadequate structures and processes, unclear objectives, inadequate communication, and motivation deficits. To deal with the accelerating complexity in a global world and the ongoing economic changes, individual measures for better long-term high-level performance often do not bring the desired result. They do not capture the network of relevant factors, interrelation between cause and effect and the learning and development necessity of employees, leaders and the organization. Therefore a broader approach seems to be necessary to view the phenomenon “performance”, an approach which considers different effects, interdependences and counteractions at different levels of a system, the approach of systems theory.

SCIENTIFIC APPROACH

This paper is based on the social sciences systems theory. The social sciences systems theory does not represent a consistent theory framework, but different approaches. This paper refers to the system theoretical-cybernetic approach of Niklas Luhmann.

A fundamental starting point of systems theory is the reduction of complexity. In order to reduce complexity, systems are introduced. The task of such a system is to stabilize differences in complexity.

“The environment of every system is much more complex than the system itself, no matter how complexity is operationalized. There is a complexity difference between the environment and the system. Accordingly, every relation between system and environment has dual reference with regard to complexity. Such a relation links selected elements of

the environment with selected elements of the system; therefore it bears the selection risk twice: it might misjudge risks or opportunities of the environment and might not find the right positions or resources inside the system" (Luhmann, 1980, p. 1067).

Due to the distinction between system and environment "functional differentiation" is made (Fuchs, 1993). A system distinguishes between inside and outside so that a system/environment difference is established. The initial system functions as the environment of the subsystem. The system and the environment again form together the initial system. Subsystems, which consist of communication, differ according to their reference. There is no solution with regard to defining the valid and true unity of a system or a subsystem. "Everything that has a distinction between inside and outside can be called a system, because to the extent an order is established or consolidated, distinctive boundaries have to be drawn" (Luhmann, 1964, p. 24). At this point, the term autopoiesis becomes relevant.

Autopoiesis literally means self-production. Autopoiesis implies that "the unity of the system, including all elements it consists of, is produced by the system itself" (Luhmann, 1990, p. 30). However, autopoiesis does not mean that the system just exists due to its own energy and without any contribution of the environment or any relation to it. Indeed, the environment provides the necessary stimuli which convert the elements of the system into vibrations. Those vibrations are the basis for the self-production of the system, not the stimuli which cause the vibrations. Luhmann liked to tell the story about how the biologist Maturana was driven to develop the term autopoiesis (Horster, 1997): Maturana had dinner with a guest who was able to speak ancient Greek , but as Maturana was not, his guest made him aware of a Greek equivalent for his theory construct. "Autos" in Greek means "self" or "alone" and "praktikos" means "to exercise an activity without developing an object", like playing a musical instrument. "Poietikos" on the other hand signifies "to create or manufacture something so that an object is developed". Plato states on this subject that science is of triple nature (Horster, 1997): first practicing (practical), second manufacturing (poietic) and third considering (theoretic). As a result Maturana said that he had just found the term for his theory construct. From then on he used the nomenclature "autopoietic system". The self-production of a system, or autopoiesis, thus means that a

system has influence on itself and can act on its own initiative. In this process, there are different ways in which it can act. This leads to the term contingency.

“Contingent is something that is neither necessary nor impossible, what can be like it is but can also be in another way” (Luhmann, 1984, p. 152). Out of an unlimited amount of possibilities in a complex world, one action is chosen, but also another one could have been selected. This results in freedom of choice within the system, as well as in a starting point for many alternative actions. In other words, it provides many options for action. If contingency is doubled, double contingency emerges. This term is attributed to Parsons, who describes double contingency in the following way (Parsons & Shils, 1976, p. 16): “There is a double contingency inherent in interaction. On the one hand, ego’s gratifications are contingent on his selection among available alternatives. But in turn, alter’s reaction will be contingent on ego’s selection and will result from a complementary selection on alter’s part.” One refers to double contingency when partners who are involved in social interaction are aware that the other knows that they act in a contingent way. Thus they could act differently than they actually do whilst each knowing that the other is aware of this and takes this into account. .

A social system could be for example, an organization, a group, a society. “Social systems do not consist of specific persons with heart and soul, but of specific actions. People are - according to social science – an action system that is linked by individual actions to various social systems, and as an individual system they are outside the particular social system. All people, even members, are therefore environment for the social system (Luhmann, 1964, p. 24). Organized social systems can be seen “as systems which consist of decisions and are able to make those decisions by themselves. By “decision” it is not psychological procedure which is meant but communication - a social incident, and not a psychological incident, an internal awareness of self-assessment” (Luhmann, 1984, p. 166). Therefore, social reality is designed communicatively.

From the theory of self-referential systems, social systems also carry out self-observation. From information which is gained by self-observation about internal changes, conclusions about the environment are drawn. Incidents are code-related. Therefore codes are of high

importance. Processes outside the codes are not observed, no information about them is collected and no responsiveness or reaction is caused. The definition of the code, that is to say the reference system, determines what may find access into the system as well as the interaction between the particular subsystems.

“The possibilities - however they are defined - at the market are considerably more diverse than the measures actually realized and planned.Only those opportunities noticed can be taken” (Exner/Königswieser/Titscher, 1987, p. 273). “As long as commercial enterprises are only governed by the financial code (literally only talk in the language of money) information about destruction of the environment or human suffering in developing countries, which do not concern payment, will not find access to the internal operations of the system! If there is no “word” for micro politics it cannot be officially recognized and treated!” (Neuberger, 2002, p. 631). Within the applied reference system, that is within the codes, the categories “meaning” and “values” play important roles. In order to define what should be observed and perceived it is necessary to introduce the categories “meaning” and “values”. Meaning and values define the reference systems applied, or in other words the codes used.

Based on this, radical constructivism assumes that insight no longer concerns objective reality but exclusively order and organization of experiences in the world of our experience. In radical constructivism the composition of unconnected elements is brought about by active operation on the part of the person undergoing the experience. In this way, a certain design is created (organization and structure of the elements in relation to each other). Through this certain design a certain object emerges.

An important question for a system that produces and reproduces the elements it consists of by itself (thus representing an autopoietic system) is which elements produce and reproduce this system? A defined system may be able to produce and reproduce the elements a,b,c, for instance, or perhaps the elements x,y,z.

As a result of these observations it can be stated that:

- the importance of communication for the development of social reality,
- the presence of functional differentiation, of autopoiesis, of contingency and double contingency, of self-referentiality, of a reference system and

- the question as to what elements a system produces and reproduces,

are important starting points for the basic structure of the systemic leadership model.

The central question in the development of the Systemic-integrative Leadership Model is: How can long-term high-level performance be promoted within an organization?

Leadership in this context is to promote the employees and executives

⇨ opportunity to perform,

⇨ ability to perform and

⇨ willingness to perform (Sprenger, 2000; Rosenstiel, 1995)

in order to optimize the performance of organizations.

Leadership therefore means that a leader leads his co-worker, that a co-worker leads his leader, that colleagues lead each other, and that an employee leads himself. These are the four directions of leadership: top-down, bottom-up, lateral, self-leadership (self-management).

From the statements made so far, the following can be concluded:

⇨ Communication has a central meaning for the development of social reality and it plays an important role for the influence of long-term high-level performance.

⇨ A functional differentiation of system and subsystem is necessary, depending of the reference. In the present paper, the reference is the promotion of long-term high level performance.

⇨ The elements of a system are able to produce and reproduce (autopoiesis) themselves and are therefore able to promote or hinder performance.

⇨ A system influences itself and observes itself (self-referentiality). Thus, it is possible to have influence on performance within a defined system.

⇨ Social systems are able to behave in a certain way. But they are also able to act in another way (contingency) and even know that about each other (double contingency). That means the partners involved in a social interaction are able to act more or less in a way which promotes performance .

⇨ The reference system of a system determines what the system perceives and observes. This determines the interaction of the system.
⇨ A question that comes up is: What elements does a system produce or reproduce? Are those elements long-term performance-promoting or performance-hindering?

The implementation of a research process of applied sciences, in contrast to the fundamental sciences, does not mean the enrichment of disciplinary knowledge with practical knowledge (Ulrich, 1982). The complexity of social systems and the non-linear connection implies that “research on the application context cannot only be carried out by methods that are focused on natural law explanations, but include hermeneutic ideas about the understanding of human phenomenon” (Ulrich, 1982, p. 9).

This leads to the demand for a variety of methods, which means that besides empirically oriented methods, nomothetic theory-concepts are needed (Lenk/Maring/Fulda, 1985). In this way, systems thinking in contrast to analytic-linear thinking leads to a holistic, process-oriented, analytic, synthetic, interdisciplinary and pragmatic research method.
Representatives of the systems theory justify their hypotheses based on logical formalisms rather than on empirical truth (Kornwachs, 1994; Churchman, 1981). The conclusions in the context of systems theory have a more descriptive, model-like and less prognostic character; they rather ask themselves the question about the social benefit (Churchmann, 1981) and the relevance to problem solving.

Development of the Systemic-integrative Leadership Model

As a first step in developing the Systemic-integrative Leadership Model, systems and subsystems have to be defined. Boundary criteria are different levels of complexity with reference to promotion of long-term performance.
This leads to five system levels: the environment, the whole organization, the team, the dyad leader – co-worker, the system human being or co-worker.

It is of particular interest to describe the influencing factors and their effects which can be influenced within an organization. The outer system, the initial system, represents the

whole organization. “Everything going beyond that”, the environment, is “outside” and the overall organization is “inside”. Even though the environment represents a substantial influence factor for an organization, it can hardly be influenced by the organization to promote long-term performance to a high level. Due to this reason the whole organization is defined as the initial system.

The subsystem “leader – co-worker” on the one hand represents a special form of the subsystem “team”, but on the other hand it does consist of specific actions of the subsystem “human being”. The subsystem “leader – co-worker” consists of aspects of the subsystem “team” as well as the subsystem “human being” and therefore it does not form a separate system in this approach. Based on these considerations the following three system levels are defined:

⇨ Whole organization
⇨ Team
⇨ Human being

The question as to how long-term performance can be promoted to a high-level at “whole organization” level can be seen as a question of organizational structure, culture, politics and learning. These four components represent the comprehensive term “organization” in this model. For a better understanding the term “organization/structure” for the system, “whole organization” was chosen.

The subsystem “human being” is of interest concerning self-leadership or self management in order to promote long-term high-level performance.

Based on these considerations the following influencing factors occur at system level:

⇨ Organization/Structure
⇨ Team
⇨ Self-management

At process level, as already described, the following conditions influence the promotion of performance:

- ⇨ Communication is of central significance for the creation of social reality and plays an important role for the promotion of performance.
- ⇨ The reference system of a system determines what the system perceives and observes whereby the interaction of the system is defined.
- ⇨ A question that comes up is: Which elements does a system produce or reproduce? Do those elements promote or hinder long-term performance at a high level?

As outlined previously, the reference system of a system determines what the system perceives and observes and in this way the interaction of the systems, too. In other words, the term “vision/purpose” can be used for the term “reference system”.
The last question mentioned, to what extent do elements produced and reproduced promote (or hinder) long-term performance at a high level, refers to the accelerating complexity in a global world. Therefore high autonomy and high flexibility of employees are important. Consequently, the culture of “trust” is a central requirement to a company. Trust is a process result. A question that comes up automatically is: Where does justified trust end and where does blind trust begin? This question might also be: Where, for reasons of logic, does trust end and control begin?
Trust and control are terms that are closely linked. The component “trust” was therefore extended to the term “trust and control”.

As a result, at process level the following components concerning promotion of performance can be defined:

- ⇨ Communication
- ⇨ Vision/Purpose
- ⇨ Trust and Control

The three influencing factors at system level and the three influencing factors at process level conclude the six influencing factors of the Systemic-integrative Leadership Model to promote long-term high-level performance. To express it in other terms, these six influencing factors are crucial to the optimization of work efficiency and effectiveness, are systemic, as from the scientific theoretical point of view the influencing factors are derived from the systems theory, are integrative, as representative of a holistic leadership model

involving the organization as a whole. Figure 1 shows the six influencing factors which are interrelated.

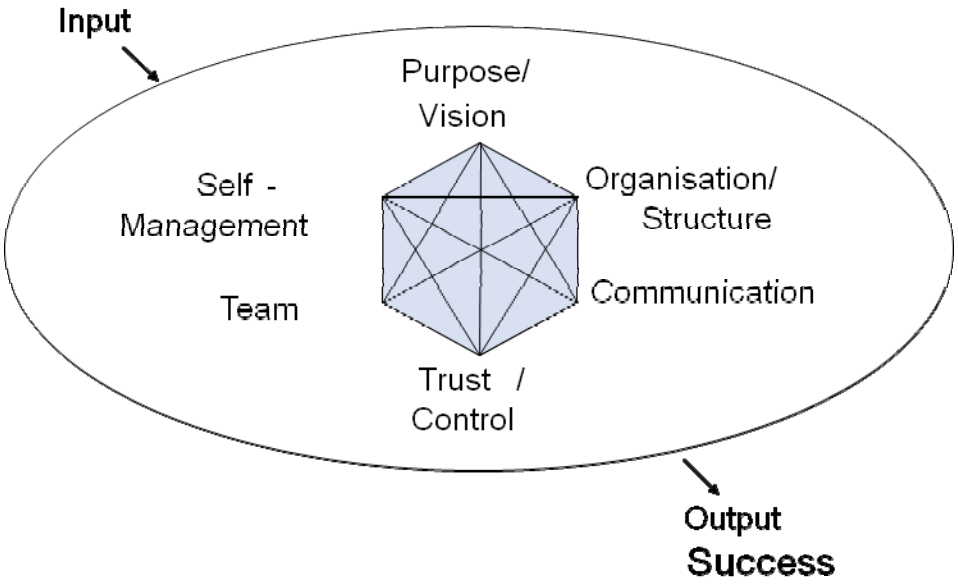

Figure 1: The Systemic-integrative Leadership Model

Description of the Systemic-integrative Leadership Model´s influencing factors

An organization is confronted with different demands, such as the carrying out of a certain order in due time or the meeting of legal requirements. Depending on how these demands (input) are dealt with in considering the six influencing factors (throughput), a more or less purpose and goal-oriented output emerges. This determines the corporate success. The six influencing factors that affect job performance and as a consequence work efficiency and effectiveness within an organization are explained in the following paragraphs.

Vision/Purpose

A vision can be defined as an image of the future, which creates enthusiasm. As opposed to this, purpose answers the question “What for?” The link between vision and purpose is established by values (Frankl, 2006). These three components – vision, purpose and values – describe an organization’s orientation in the long run and generate motivation of employees. If frustration prevails among employees, one reason is probably based on this influencing factor.

Organization/Structure

Who is deciding what? How clearly are tasks distributed? How many rules does the organization have and how detailed are they? How are departments and teams coordinated? The answer to these questions determines if employees have many or only a few possibilities for initiating innovations? Are employee innovations important or not? Organization and structure have an impact on the opportunity of employees to perform at a high-level. If an organization operates well, there will be clarity, redundancy can be avoided, and an organizational decision vacuum will not emerge.

Communication

Is there precise, authentic and open communication or does contradictory communication often occur (Schulz von Thun, 1997)? How are conflicts dealt with? Communication is the basis for decisions. The quality and quantity of communication determines actions and decisions.

Trust/Control

How does the organization deal with decision power and authority? Are self-responsibility and trust among employees promoted or not? To what extent is trust possible, and where is control useful and necessary? (Sprenger, 2002; Malik, 2006)

Teams

Teamwork complements different capabilities, skills and experiences of employees in order to reach a certain goal. Which tasks in an organization are appropriate for individual work, which ones are appropriate for teamwork (Malik, 1998)? The composition of the team and the power of decision within the team are essential aspects of successful teamwork.

Self-management

To fill the space afforded by actions and decisions proactively and to take self-responsibility is important in the process of performance (Covey, 2000). Efficient and effective work is crucial to this process.

These six influencing factors are interdependent. Depending on the specific situation of an organization different specifications of these factors will generate long-term high-level performance. Therefore, it is essential to find out to what extent the different factors impede or promote long-term high-level performance. If these six influencing factors are matched to each other in the best possible way and developed, long-term performance will be at a high-level and efficiency and effectiveness of work will increase significantly.

Implementation of the Systemic-integrative Leadership Model - the Case of Carbo Tech Composites GmbH

Carbo Tech Composites GmbH is based in Salzburg and is a manufacturer of carbon fibre components. These extremely resilient, very lightweight and expensive components are primarily used in the motor sports and aviation industries. Rapid action and flexibility are key success factors for this organization. Fast growth over recent years and the commencement of series production in addition to single-part production have provided new intra-corporate challenges. To meet these challenges through long-term high-level performance, the Systemic-integrative Leadership Model should be implemented. At the beginning, three assumptions were defined. Firstly, a representative overview of the actual situation (diagnosis) of the six influencing factors which have an impact on the efficiency and effectiveness of work, and their mode of effect within the company should be given. Secondly, measures of intervention should be agreed upon and realized in the long run by all members of the organization. Thirdly, the necessary expenditure of time should be low and the time frame short.

Methodology and course of action

Based on those assumptions a three-stage implementation process was defined. A representative overview of the organization’s situation, interdependencies and their underlying explanations is essential to meeting the challenge of the first assumption. Hence the methodology of in-depth interview was applied (Argyris, 1993). After analysis of the data collected from the in-depth interviews, the results would then be reported to

executives. It is important to present the results in such a way that executives understand the background of the information, are encouraged to discuss different points of view and are able to draw a conclusion. In the process, influencing factors that impede or promote long-term performance and their mode of effect on efficiency and effectiveness of work should be revealed. Objectives and measures of intervention can only be useful if they are agreed upon and implemented by members of the organization. Therefore it was essential to choose a method that enables executives to elaborate and agree upon measures self-responsibly. For this purpose, the procedure of the Open-Space method (Owen, 2008; Maleh, 2000) was selected. Measures for the optimization of the six influencing factors which have an impact on the long-term performance and therefore on the efficiency and effectiveness of work should be elaborated and agreed upon as binding at the Open Space event.

1. In-depth Interview

In the case of Carbo Tech Composites GmbH selected executives and non-executives were asked two opening question per influencing factor. The first questions concerning vision and purpose were, for example: “Does the company have a perception of where it wants to be in five years? Is this in accordance with your personal vision?” and “Does the company have a mission-statement or vision-statement? Is it deep-rooted within the company or not?

At the end of each question the interviewee recorded his personal estimation, based on a scale of zero to six (zero = not existing, six = very strong, clear and consistent). The strongest scale value (six) is not necessarily the best and most desirable value but can be estimated as one of two extreme values in the same way as zero. For instance, it is not necessarily desirable that “control” is very strong (six). Figure 2 shows the average scale-values of employees and executives and their differences. At Carbo Tech Composites GmbH the scale-values of employees and executives noted were surprisingly similar. It was interesting that employees perceived existing behavioral guidelines as less strong than executives did. Openness in resolving conflicts and trust in each other was perceived more strongly by employees than by executives. Employees viewed their self-management abilities less than executives did. To react flexibly to customer requests, the

low scale-value of behavioral guidelines at Carbo Tech Composites GmbH may be important for single-part production. However, higher behavioral guidelines with regard to series production are advisable. It can be assumed that quality and trust in each other is less necessary in series production than it is in single-part production.

2. Executives' Meeting

The results of the in-depth interviews were presented and reflected in great detail at the executives' meeting. The meeting, to which all executives of the organization were invited, started with the presentation of the average scale-values differentiated between executives and employees. Although the scale-values are not representative, it was useful for the executives to have an orientation and starting point for a discussion of the qualitative data. After the presentation of the qualitative information there was a discussion about the statements and about the extent to which contradictions and friction losses appear that influence employee performance in a negative way. The results of the in-depth interviews were reflected with a view to their practical consequences for the company.
At the end of the meeting the executives elaborated possible approaches for the optimization of organizational effectiveness and efficiency and the promotion of promote long-term high-level performance. The following possible actions were recorded:

⇨ Enforce training courses
⇨ Strengthen executive authority
⇨ More information and a better flow
⇨ Different structuring of series and single-part production
⇨ Written vision statement
⇨ Training courses for executives

Through intense dialogue and discussions at the executives' meeting, new viewpoints and insights emerged. The CEO, for example, expressed his surprise about the fact that employees fear for their jobs despite the high intensity of work arising from ad hoc requests for single-part production. Therefore the extension of series production represents a safety factor for those employees. The outcome of this was the "written vision statement".

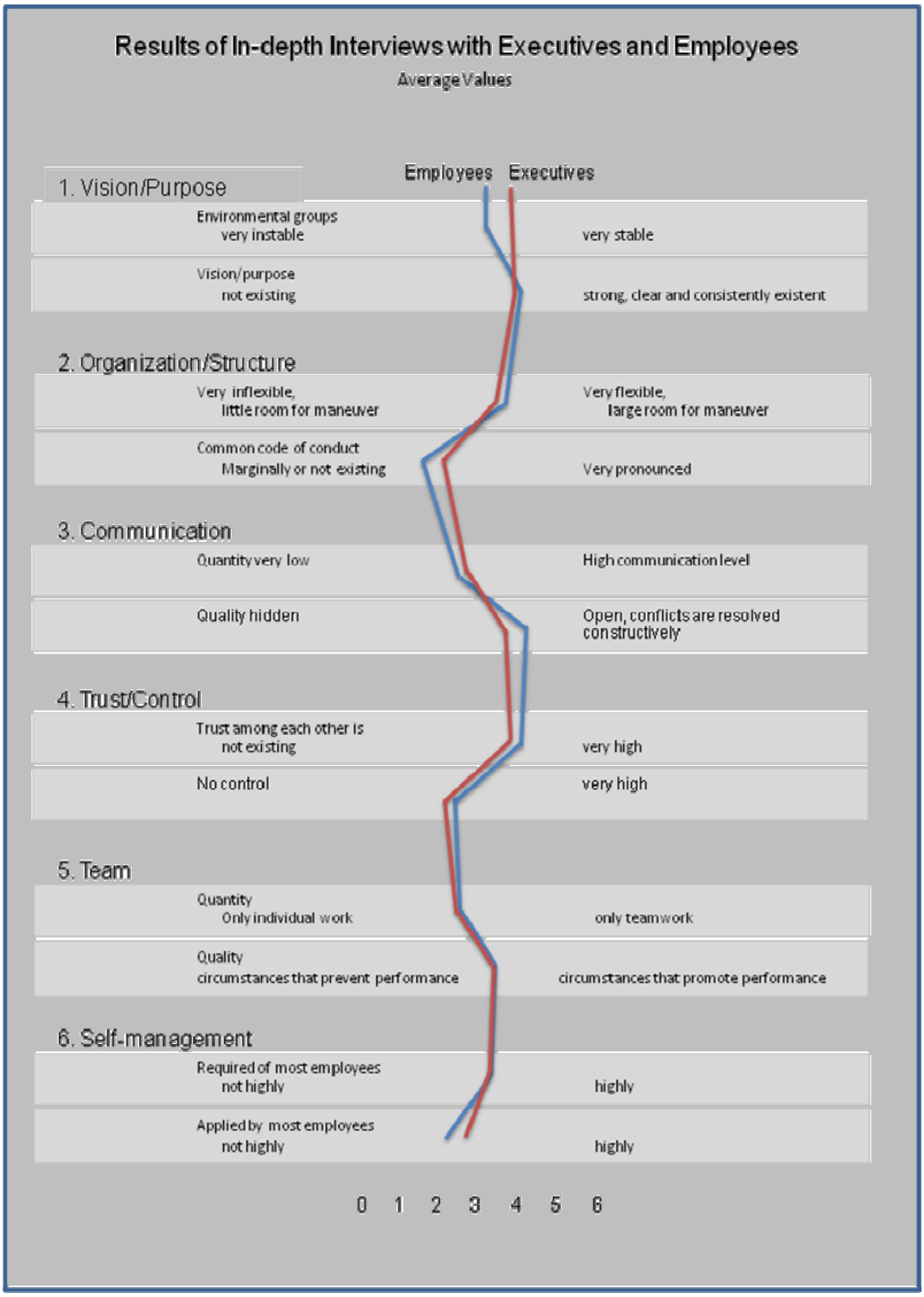

Figure 2: Results of In-depth Interviews with Executives and Employees

3. Open-Space Workshop

All executives of the organization were invited to an Open Space workshop. The guiding theme was: “How are we able to reach the optimum of both working efficiency and effectiveness at Carbo Tech?” Every participant had the possibility to bring in sub-themes. All in all, twelve themes were elaborated in three parallel and four sequential workshops. Every workshop was provided with one notebook so that twelve records were compiled. After the participants had read through the records at the beginning of the second day, four implementation projects, “human resources (training, motivation, leadership, commitment)”, “vision and objectives”, “potential for improvement” and “information flow and documentation” were defined. Within two parallel and two sequential implementation groups a list of measures was elaborated for each implementation project. Afterwards these results were presented in the large group. The Open Space workshop closed with either a binding agreement on, or postponement of, the elaborated measures.

Post-processing and performance review

Two weeks after the Open Space workshop a meeting of the board of directors and the planning team took place, in which the process was reviewed. The following was recorded:

- ⇨ Central success factor for the achievement of this process is the consequent implementation of agreed measures.
- ⇨ The process was an important experience for executives concerning mobilization of employee potential (i.e. potential of executives), creativity of executives and decentralization of responsibility towards the next management level.
- ⇨ Executives were intensely involved in the elaboration of the themes.
- ⇨ The process strengthened the executives in their leadership position.
- ⇨ Very different viewpoints, which the members were not aware of before, were explained within the process.
- ⇨ The perception of the participants about the company´s success factors in the long run has partly changed.
- ⇨ The many different perceptions and the creativity of participants were surprising.

⇨ Some participants in the process have changed their behavior through changed perceptions and self-reflection.

After the post-processing meeting an informative meeting for all employees was conducted. At this meeting the board of directors presented the results of this project.
Half a year after the three-stage implementation process of the Systemic-integrative Leadership Model at Carbo Tech Composites GmbH an external monitoring of the measures agreed on was conducted. This showed that some of the elaborated activities for optimizing work efficiency and effectiveness were no longer adequate or had not yet been realized. About 80 per cent of the agreed activities were able to be implemented successfully.

Conclusion and Managerial Implications

Using the approach of systems theory, the Systemic-integrative Leadership Model with six influencing factors to promote long-term performance on a high level was developed and its implementation demonstrated at Carbo Tech Composites GmbH. Through this procedure the following conclusions and managerial implications can be stated:

⇨ Acceleration complexity in a global world also needs complexity in an intervention process of an organization to promote long-term performance. The approach of systems theory seems to be useful. Individual measures for better performance often do not bring the desired result.
⇨ Leadership cannot be seen only as a dyad between leader and co-worker, in order to fulfill its tasks. Through the use of a broader approach leadership, organizational learning and organizational development are bound close together and cannot be seen as separate issues.
⇨ The focus of systemic leadership shifts from a top-down only approach to a four direction approach: top-down, bottom-up, lateral, and self-management.
⇨ It is important to analyze the key influencing factors of long-term high-level performance of a company, their interdependencies and reflected actions on the part of executives and co-workers in order to root actions deeply within the company.

⇨ It is necessary to use intervention methods which mobilize employees and promote self-responsibility, changes of perception and self-reflection, in order to deal with accelerating complexity.

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