Openness and Innovation within Organizations – An Empirical Analysis of the Transformation Process of Romanian Enterprises*

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In dieser Studie gehen die Autoren der Frage nach, auf welcher Weise gesamtgesellschaftliche und branchenspezifische Besonderheiten die Übersetzung innerbetrieblicher Öffnung in Innovativität moderieren. Hierfür wurden 24 Subsysteme aus bereits privatisierten rumänischen Gasunternehmen und 26 Subsysteme aus ebenfalls privatisierten Unternehmen der Maschinenbaubranche vergleichend untersucht. Mittels dieses Vorgehens haben die Autoren versucht einen Beitrag zur Klärung der Frage zu leisten, auf welche branchenspezifische Besonderheiten es in dem spezifischen gesellschaftlichen und wirtschaftlichen Kontext Rumäniens ankommt, damit Öffnungsprozesse innovationsbezogen erfolgreich verlaufen. Dabei haben die Autoren feststellen können, dass Öffnungsprozesse im Rahmen der Maschinenbaubranche einem linearen hingegen in der Gasbranche einem nicht-linearen Verlauf folgen.

In this study, the authors examine how societal and industrial sector-specific peculiarities moderate the translation of intra-organizational openness into innovativeness. A sample comprising N = 24 subsystems from privatized Romanian natural gas companies and N = 26 subsystems from privatized Romanian mechanical engineering companies was analyzed. With this study, the authors aim to contribute to answering the question which industrial sector-specific conditions are conducive to success given the current societal and economic conditions in Romania. The findings indicate that in the mechanical engineering industry, there is a linear connection between opening processes and success, while this relationship is of a curvilinear nature in the natural gas industry.

Key words: Openness / innovations / organizations / Romania / mechanical engineering industry / gas industry

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1. Outline

Generating innovativeness is recognized as a decisive competitive factor, as it enables the organization to enhance its chances of success. Moreover, openness must exist within an organization as a prerequisite for innovativeness (Damanpour 2002). In this paper, openness within organizations means that a delegation of responsibilities occurs, a dialogical leadership style is used in interactions with employees, and a critical upward communication is practiced.

Empirical studies in Europe and in the U.S. corroborate this positive connection between openness and innovation within organizations that is often reported in the literature (Damanpour 2002; Amabile 1996; Wolfe 1994). For Eastern European countries it could also be assumed that openness should be intensified within organizations in order to increase competitiveness. This assumption could prove unfounded, however, since the results of contingency-oriented organizational and leadership research indicate that the consequences of opening processes vary depending upon the situation (Gebert 2002; 2004). Thus, it could be argued that the innovation enhancing effects of openness within organizations are more likely to occur under certain societal conditions and that these conditions are not always present in Eastern European countries (Heintz 2002). Opening processes within organizations succeed with greater likelihood when the society as a whole opens itself cognitively and economically (via deregulation and privatization). Concerning the conditions of successful opening processes within organizations, specific factors pertaining to industrial sectors could also play a role, since various sectors differ with respect to their potential for innovation (Finkelstein/Hambrick 1990).

We have studied privatized Romanian organizations in two industrial sectors (natural gas and mechanical engineering) with the goal of ascertaining the importance of societal, economic, and sector-specific opening processes within organizations. We have thus tried to contribute to answering the question as to which industrial sector specific conditions are vital for opening processes that facilitate successful innovations – given the unique societal and economic context of Romania.

In contrast to other studies (Gebert et al. 1999), this study is not about how a certain *level* of openness can be *achieved* within organizations. Here, we are interested in the more complex question of how societal and industrial sector specific conditions *moderate* the translation of intraorganizational openness into innovations.

The theoretical framework of this paper is depicted in Figure 1.

In order to elucidate the frequently found positive connection between intraorganizational openness and innovativeness (see Damanpour 2002), the following elements are crucial:

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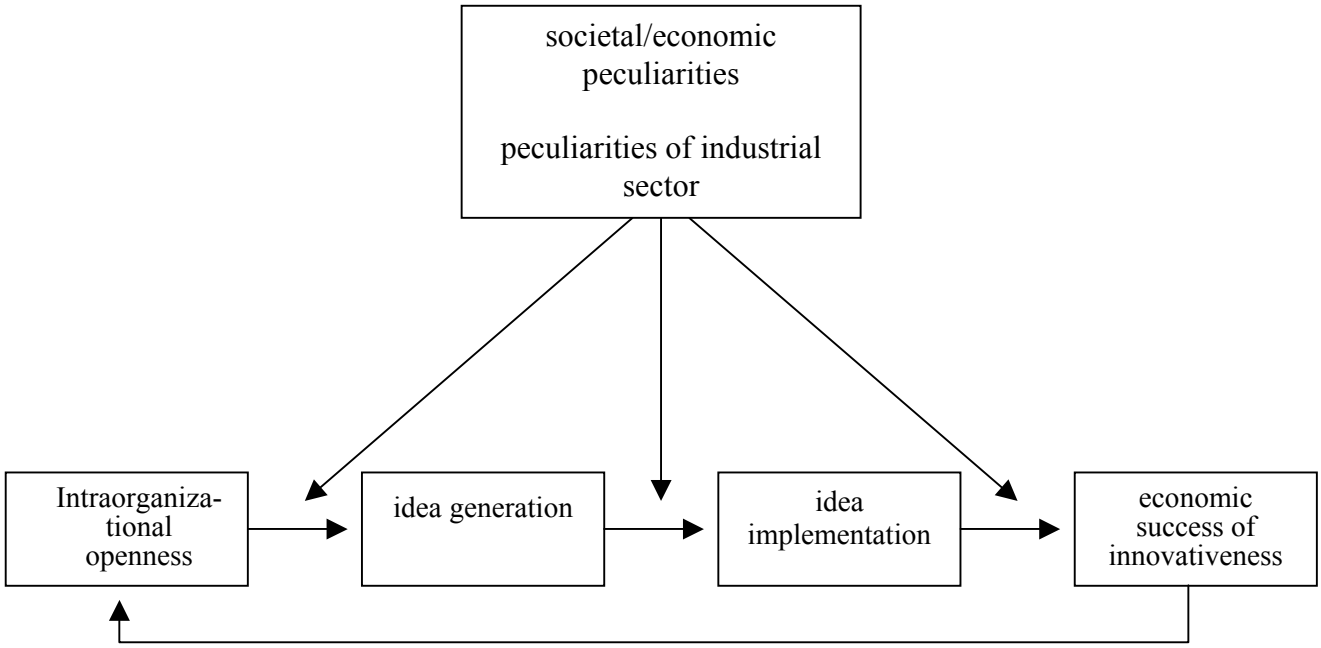
Figure 1. Translation of intraorganization openness into innovativeness – moderating influences



Intraorganizational openness in the sense of a dialogical leadership style in communicating with employees and in welcoming critical upward communication (see above) has the effect that the members of the organization perceive current practices as *requiring* change (Meyer 2001). Critical impulses are supported and not stymied. Moreover, an intraorganizational openness in the sense of a delegation of responsibilities (see above) enables the members of the organization to perceive the reality that is viewed as requiring change as *changeable*. Because of these processes, the motivation for *generating* ideas is enhanced throughout the organization (Gebert et al. 2002).

An increase in the number of generated ideas increases the chances that some of these ideas will be implemented (Krause 2004). If these innovations (in regard to procedures, products, and services) prove successful on the market, this economic success not only enhances the process of innovation itself, but also the antecedent opening process that is thus perceived as a successful path to a desired result. Ideally, a positive interaction results between intraorganizational openness and economically successful innovativeness (Piske 2002; 2003).

Figure 1 shows that the path from intraorganizational openness to innovativeness can be enhanced but also impeded at various stages. At the basic theoretical level, we describe which societal and economic conditions (Part 2.1), and which conditions pertaining to the specific industrial sector (Part 2.2) in Romania may act as moderators at certain stages of the process.

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Parts 2.1 and 2.2 thus show *how* general societal and economic, as well as industrial sector specific conditions influence the translation of intraorganizational openness into innovativeness in a positive or in a negative way.

Subsequently, in Part 3 we will present the hypothesis that intraorganizational opening processes are not only connected with the abovementioned positive motivating effects, but are also systematically connected with unplanned negative secondary effects (Gebert et al. 2003; Gebert et al. 2004). This is true at an organizational as well as at a societal level. We now assume that these unplanned negative secondary effects are overcompensated in the Romanian mechanical engineering industry by the rather positive conditions prevailing in that industrial sector and thus rendered less relevant. In the natural gas industry, however, the unplanned negative secondary effects of intraorganizational openness amplify the negative conditions pervading that industrial sector, so that innovation-impeding effects dominate.

These assumptions converge in the central hypothesis that in the Romanian process of transformation, intraorganizational openness enhances innovativeness in mechanical engineering from the outset, while intraorganizational opening processes at first impede innovativeness in the natural gas industry.

In Part 3, we describe the methods and the empirical results pertaining to this hypothesis. In Part 4, we then proceed to discuss some practical implications of these results.

The essential contribution that we attempt to make to studying transformations is, therefore, that we

- measure the success of transformational change by the specific criterion of organizational innovativeness, as this is a crucial juncture in managing crises;
- explicitly draw a theoretical connection between principles of opening leadership and the generation of innovation-oriented initiatives that explains *why* specific societal, economic, sector-specific, and intraorganizational conditions obstruct the translation of frequently recommended (opening) leadership principles into innovativeness; and
- empirically study the theoretically developed central hypothesis.

In other words, we would like to ascertain *why* the recommendation „the more intraorganizational openness, the greater the success", which already leads Western European companies astray (Gebert et al. 2004), is especially untenable under the specific conditions existing in Romania. This is the theory-related contribution of our paper. On this basis, we develop a frame of reference that serves to *integrate* several of the cited single-case observations and findings that

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can be found in the hitherto extraordinarily differentiated discussion on transformation.

In regard to practical consequences, we aim to document the risks of opening processes and thus to elucidate unplanned negative secondary effects of intraorganizational openness that engender counterproductive effects accompanying the transformational changes.

2. Theory

2.1 Societal and economic conditions

In a well-functioning market economy, intraorganizational opening processes (see above) are a natural and harmonious continuation of increased openness in society. On the organizational level, processes of privatization and deregulation are followed by increased decentralization, greater responsibilities for individual employees, and a dialogical leadership style that welcomes critical upward communication. Being proactive and assuming responsibility on the cognitive and behavioral level thus become key mechanisms on the level of the national economy as well as on the level of the single organization. Greater openness in society supports organizational openness not only on a cognitive level. In the context of a market economy, innovative initiatives have greater chances of success and are thus positively reinforced as problem solving strategies. Under these conditions, intraorganizational opening processes translate into innovativeness more smoothly than in a non-market oriented context.

In Romania, however, the situation was (and to some degree still is) different.

Societal particularities

The translation of openness into innovativeness is hindered by several factors, for instance by the fact that persons in leadership positions as well as employees were socialized before 1989 in the spirit of a „closed society" (Gebert/Boerner 1999). According to the cognitive model of the closed society, innovativeness and personal initiatives are not part of how members of the organization define their own roles and responsibilities. Catana/Catana (1995) confirm this for Romania. Deleterious consequences are inevitable: Managers in Slovakia view an innovation-impeding organizational culture and, on the part of the work force, a lack of motivation to support innovations as the decisive barriers concerning the generation of intraorganizational innovativeness (Sestakova/Hekalova 2003).

Moreover, it needs to be considered that in the traditional mindset of the closed society, the principle of seniority is held in high esteem. Thus, older persons and managers possess a special authority within the organization. A critical upward communication involving older colleagues and managers therefore constitutes a

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breach of cultural rules (Heintz 2002). Lastly, the traditional role definitions also impede innovation-related intraorganizational dialogues with subordinate employees because many Eastern European top managers regard innovations as the exclusive domain of the top management level, and not as something that is expected of subordinate managers or employees (Edwards 2003).

The interviews conducted by the first author revealed many signs of a mentality reminiscent of a closed society. A typical view of human nature held by many persons in leadership positions is that individuals do not change and that they are not capable of change. Moreover, in informal discussions, employees state that they do not ask for more leeway, but instead expect precise guidelines about how they should manage their tasks.

As a cooperation model, opening processes thus contradict more stable belief systems and preferences of many members of the organization. This engenders opening processes that are effete, unsupported, and undesired by many employees. Intraorganizational openness is thus less successful, since what it offers meets with lack of interest or even outright rejection.

Economic Peculiarities

Following the political changes in 1989, a U-shaped development has occurred in regard to the Romanian industrial output – the same development that has also been found in Bulgaria, Hungary, and Poland (Repkine/Walsh 1999; Hellman 1998). This U-shaped development is attributed to the initial breakdown of industrial production that resulted after the dissociation from COMECON. (The COMECON was an economic organization founded in 1949, linking the USSR with Bulgaria, Czechoslovakia, Hungary, Poland, Romania, East Germany (1950-1990), Mongolia (from 1962), Cuba (from 1972), and Vietnam (from 1978), with Yugoslavia as an associated member. COMECON was formally disbanded in June 1991.) Until its collapse, COMECON was the primary market for exports for many Eastern European countries (Edwards 2003). Many Romanian organizations have thus experienced the 1990s as a highly critical time in which innovation-oriented initiatives were perceived as more or less futile.

As shown in Figure 1, a further important moderator for Romania lies in the reduced outlet markets for professionally implemented process, product, or services developments. This leads to a lack of economic reinforcements for the implementation of these ideas. Intraorganizational opening processes thus run the risk of failure. These economic difficulties in turn reinforce the cognitive reservations regarding greater openness that were transmitted by society. Emotional rejection of opening processes is plausible because the breakdowns experienced by many organizations and the frequent setbacks in the 90s were viewed as evidence for the futility of previous forms of enhancing openness. Thus, openness *in general* – on a societal as well as on an organizational level –

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has fallen into disrepute. If the results of the offers of openness are shunned, openness cannot be translated into idea generation (see Fig. 1).

With the description of societal and economic peculiarities, two moderators have already been identified, namely the reduced outlet market and the negative attitudes towards openness. The moderator negative attitude – transmitted via society – obstructs the translation of intraorganizational openness into idea generation. The moderator reduced outlet market – transmitted via the economy – impedes the translation of idea implementation into economic success of innovativeness. These impediments engendered by society and the economy may either attenuate or amplify depending upon the industrial sector peculiarities outlined in the following passage.

2.2. Branch peculiarities

Managerial discretion

Mechanical engineering differs from the natural gas industry insofar as managerial discretion is comparably low in the natural gas industry (Finkelstein/Hambrick 1990). Managerial discretion is the degree of leeway that is granted to persons in top management positions. This freedom is more restricted, for instance, when key processes are regulated by the state or when capital is bound in the form of fixed assets. In their empirical study, Finkelstein/Hambrick (1990) conclude that managerial discretion in the U.S. is rather high in the computer industry and rather low in the natural gas industry.

Thus, the objective space for change and innovation initiatives may differ. If this space for changes and initiatives granted to the top management is objectively small, the motivation for innovativeness will not only be lower at the top management level, but throughout the organization. A possible and hazardous development is a generally passive stance that may result because of this realization (external locus of control). Thus, innovation in general may be viewed as hardly feasible (Finkelstein/Hambrick, 1996).

We may conclude that from the perspective of innovativeness, intraorganizational opening processes may fall on much more fertile ground in the mechanical engineering industry.

Vertical integration

The natural gas industry and the mechanical engineering industry also differ in regard to their degree of vertical integration. Vertical integration refers to the degree to which organizations have access to international production networks, knowledge centers, and outlet markets (Baga 2004). It is obvious that vertical integration of organizations in international production networks influences the chances of success of each organization, as it enables new outlet possibilities. Industrial sectors that secured their vertical integration into international

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production networks suffered a less pronounced breakdown in production at the beginning of the transformation process than did those industrial sectors with a lower degree of vertical integration (Repkine/Walsh 1998; 1999).

The mechanical engineering industry reveals a higher level of vertical integration, whereas the natural gas industry shows a lower level. Since the mechanical engineering industry has the chance to access international production networks at least as a component supplier for Western organizations, its degree of vertical integration is comparably high. For the natural gas industry, however, such access is possible only based on international political contracts that have not yet come about. Following the breakdown of the natural gas market – which was connected to the general decline of the energy consuming section of the Romanian economy – hardly any new outlet markets have surfaced. The natural gas industry was thus hit especially hard by the economic crisis, and no solutions for overcoming this crisis have yet been found by means of vertical integration.

Abruptness of transformation

The crisis affecting the natural gas industry in particular is connected to the mode of transformation. The privatization and de-monopolization of the natural gas industry is based on a political decision that was made relatively late after the radical change. This led to a disillusionment of the Romanian people, who witnessed the state's abdication of responsibility in regard to providing for its citizens (Baga 2004). The organizations in the natural gas industry were for the most part surprised by this decision and – in contrast to the mechanical engineering industry – could neither participate actively in building the market nor adapt gradually to the new market conditions.

Such experiences foster the basic belief held in a closed society that one is primarily an object (Gebert/Boerner 1999). They stifle entrepreneurial initiatives and enhance feelings of helplessness and disorientation. The natural gas industry therefore adopted short-term survival strategies. For instance, one company succeeded in securing for itself the geological department of the formerly state-owned central gas unit, which resulted in transient competitive advantage. Due to the high importance of politics in the energy sector, other companies attempted primarily to integrate key political decision makers into their own organizational structure, with the aim of securing contracts crucial for survival.

In contrast to the mechanical engineering industry, a desperate struggle for survival still dominated in the natural gas industry at the time of the present study in 2003. This atmosphere reflects the abruptness of the transformation processes. The struggle for survival is visible, for instance, in the constant loss of qualified employees. Decreases in the level of qualification of the work force leads to the generation of less qualified ideas and to less expertise in the implementation of crucial ideas.

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In the interviews conducted in the pre-study, the persons in leadership positions in the natural gas industry lamented about the qualification deficits of their employees. Yet they showed no inclination to invest in personnel development, since they feared that the employees would subsequently leave the organization.

Due in part to the lack of contracts with the state, in 1998 the organizations of the natural gas industry were on the verge of a major financial breakdown and began to discharge large numbers of personnel. Fear and mistrust were widespread in this context. In contrast to the mechanical engineering industry, this already became obvious during the collection of data in the natural gas industry. In the pre-study, the employees of one gas company had to be convinced that the administered questionnaire had nothing to do with the company's discharge procedures and that its only purpose was of a scientific nature. Nonetheless, some employees refused to participate, since they feared that they would be accused of betraying the organization.

Additionally, it is to be assumed that while the unemployment rate was not particularly high at the time of the study (at least according to official statistics), ranging between 8 and 9 per cent (Romanian Statistics Institute 2004), some employees will have felt threatened by the possibility of becoming unemployed and were thus disinclined to openly state what they thought. This is one of the reasons for why leadership styles marked by openness oftentimes are not successful in enhancing innovativeness.

In this emotional context of fear, insecurity and mistrust, persons in leadership positions and employees are less willing to tread new, innovative paths, and to openly state what they think, since such actions imply new personal risks (Gebert et al. 2003). Fear obstructs the necessary critical upward communication, so that no idea generation ensues.

Clientelistic structures

Translating openness into innovativeness is influenced in the natural gas industry by clientelistic structures that have been maintained up to the present day. Traditionally, the energy sector is strongly politicized – unlike the mechanical engineering industry –, which further enhances the development of clientelistic structures.

Clientelistic structures are marked by personal power and dependency relations that exist beyond the official task and responsibility structures (Eisenstadt/Roniger 1995). Clientelistic structures are an integral part of the networks of the former elite. In the process of transformation, such networks have often proved expedient in the struggle for survival of formerly state-owned organizations (for example in Poland) (Kewell 2002). At the same time, however, they may obstruct the adoption of external innovations into the

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organization and thus stifle the organizational innovativeness itself (Mikl-Horke 2004).

The breakdown of the natural gas market destabilizes this clientelistic system. This, in turn, is connected with the abovementioned effects and, theoretically, spawns chances as well as risks. The decisive effect of the disintegration of the clientelistic system – which is tantamount a structural opening process – lies in the destabilization of the hitherto prevalent power structure. This destabilization engenders distribution conflicts concerning power and influence. Micropolitics begins to take precedence over task orientation (Baga 2004). The necessary processes of information sharing are impeded (Michailova/Husted 2003). This has negative repercussions especially for the translation process from idea generation to idea implementation. This process is already of a highly political nature, as problems of selection and priority setting of the ideas and projects to be implemented arise. The difficult selection and prioritization decisions bring about conflicts (Jehn 1995; DeDreu/Weingart 2002), whose resolution is further impeded by the increase in micropolitics.

The abovementioned moderator disorientation combines with micropolitics to create another important (adverse) moderator postulated by the theory, namely the absence of a clear and shared goal orientation. Convincing empirical data suggests that the political process of idea selection and priority setting requires a clear and shared goal orientation. (Catana/Catana 1995). Otherwise, the rate of implemented ideas drops markedly (Gebert et al. 2003; Gebert et al. 2004). Only a clear a mutually shared goal orientation enables the necessary coordination regarding tasks and timetables (Meyer 2001).

Preliminary summary

In Romania, the outlet market of the natural gas industry is rather small. Among other factors, this is due to the dissociation from the COMECON and stands in contrast to the situation in the mechanical engineering industry. This disadvantage is amplified by a lower degree of vertical integration and by the extreme abruptness of the transformation process. Thus, the crisis is much more severe in the natural gas industry. At the same time, the potential for overcoming crises is comparably lower in the natural gas industry. One reason for this is that managerial discretion is lower than it is in the mechanical engineering industry. Another reason is that the breakdown of the clientelistic structures and the concomitant destabilization of prevailing power structures obstruct (at least initially) the processes necessary for reaching a consensus.

The discrepancy between the severity of the crisis and the potential for dealing with this crisis is thus much greater in the natural gas industry than in the mechanical engineering industry. On the level of the individual company, this discrepancy is reflected in the behavior of the employees. Firstly, qualified employees leave the company, and, secondly, distribution conflicts concerning

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positions, power, and influence increase in frequency and severity. This, in turn, enhances fear, mistrust, helplessness, and disorientation on a cognitive-emotional level and decreases the chances for a clear and shared goal orientation. In the natural gas industry, these processes further nourish the already negative attitude towards openness transmitted by society.

Figure 2. Societal, economic, and industrial sector peculiarities and their intraorganizational effects in Romania

<table>
<tr><td colspan="3">Societal peculiarities in Romania</td><td colspan="2">Negative attitudes towards openness</td></tr>
<tr><td colspan="3">Economic peculiarities in Romania</td><td colspan="2">Restricted outlet market chances</td></tr>
<tr><td colspan="2" rowspan="5">Peculiarities of industrial sector</td><td>Natural gas industry</td><td></td><td>Mechanical engineering industry</td></tr>
<tr><td>lower</td><td>managerial discretion</td><td>higher</td></tr>
<tr><td>lower</td><td>vertical integration</td><td>higher</td></tr>
<tr><td>higher</td><td>abruptness of transformation</td><td>lower</td></tr>
<tr><td>higher</td><td>clientelistic structures</td><td>lower</td></tr>
<tr><td rowspan="8">Organizational level</td><td rowspan="2">Action level</td><td>higher</td><td>loss of qualified employees</td><td>lower</td></tr>
<tr><td>higher</td><td>distribution conflicts/ micropolitics</td><td>lower</td></tr>
<tr><td rowspan="4">Cognitive emotional level</td><td>higher</td><td>fear/mistrust</td><td>lower</td></tr>
<tr><td>higher</td><td>hopelessness</td><td>lower</td></tr>
<tr><td>higher</td><td>disorientation</td><td>lower</td></tr>
<tr><td>higher</td><td>lack of a clear and shared goal orientation</td><td>lower</td></tr>
</table>

In Figure 3, we have depicted the various conditions and their effects in conjunction with the model presented in Figure 1. It is shown which factors (primarily) exert their influence at which theoretical stage of the translation process from openness to innovativeness.

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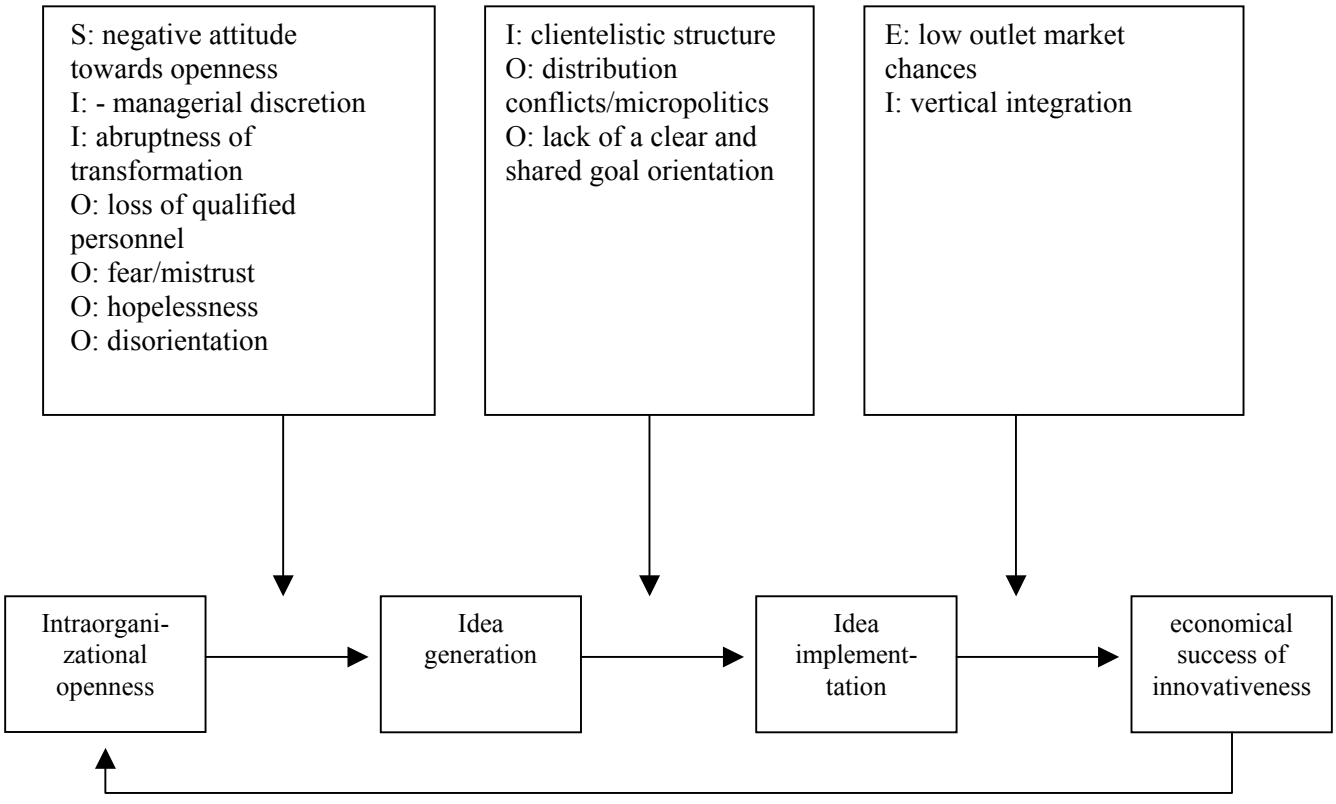
2.3 The dynamics of intraorganizational opening processes

The deliberations up to this point indicate that intraorganizational opening processes have different effects in the two industrial sectors. It is to be assumed that opening processes should be positively connected with innovativeness in the mechanical engineering industry. As stated above, the economic crisis is less severe and the potential for crisis resolution is greater in the mechanical engineering industry. Thus, confidence as well as a clear and shared goal orientation are more likely to be present in organizations and the implementation of ideas is more likely to succeed economically. The translation process from openness to innovativeness is therefore facilitated in the various stages (see Fig. 1) *despite* the generally rather unfavorable economic and cognitive conditions in Romania.

Figure 3. Moderators of the translation of openness into innovativeness in Romania



I = peculiarities of the industrial sector
S= societal peculiarities
E = economic peculiarities
O = resulting effects for the organization

For the natural gas industry, the reverse is true. In the context of generally adverse economic and cognitive conditions in Romania, helplessness, the lack of a clear and shared goal orientation, and the absence of economic success of

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innovation further impede the translation of openness into innovativeness. The unplanned negative secondary effects that are always connected with intra-organizational opening processes aggravate this negative constellation in the natural gas industry.

In order to understand these dynamics, it is helpful to envision the tension that is always present in conjunction with opening and closing processes. In social systems, opening processes result in the loss of the advantages of the closed system, and closing processes lead to the loss of the advantages of the open system (Gebert/Boerner 1999). The loss of the advantages of closed systems has been painfully experienced in Eastern European countries. The gain in freedom and autonomy has been paid for by a loss in security, order, and orientation (Gebert et al. 1999).

This dilemmatic constellation also holds true on the level of individual companies (Gebert/Boerner 1999). Closed structures (e.g., a bureaucratic organization and centralized powers of decision-making) can be linked with the advantages of coordination and predictability of processes. On the other hand, they result in unplanned negative secondary effects such as rigidity, dependencies, and declining motivation. Open structures that are connected with the advantages of autonomy and self-regulation spawn unplanned negative secondary effects such as lack of coordination and the risk of departmental egotisms. Fluctuations between the open and the closed poles are thus always connected with losses. The balance resulting from the respective advantages and disadvantages is always of an unstable and temporary nature; it is always in flux and can change at any time due to a change in context conditions (Keck 1997).

These unplanned negative secondary effects will be described in more detail below. On the level of the organization, they comprise a loss of coordination of the individual actions of various departments. This is especially true, for example, when decision competencies are decentralized – as in the Romanian process of transformation (Heintz, 2002) – without complementing these changes by supplying and documenting clear new task definitions. Inevitably, this causes uncertainty.

Intra-organizational opening processes, e.g. open communication, increase the likelihood that hitherto latent conflicts between persons and groups become manifest and that the potential for reaching a consensus is thus reduced further, especially in the processes of selection and of priority setting of ideas (Pelled et al. 1999). Furthermore, the consensus potential is impaired by the fact that a critical upward communication usually not only calls into question operative lower-level goals, but also the general strategic orientation. Thus, opening processes may proceed to destabilize the shared goal orientation – the very factor that should diminish the risks of decentralized self-regulation.

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Intra-organizational opening processes do not always lead to an increase in qualified ideas, however. They also engender the generation of unqualified notions. This is particularly true when shortcomings concering qualifications exist – as is the case in the natural gas industry (Baga 2004). Sometimes a radicalization of ideas occurs when employees realize that there is indeed the possibility of effecting changes within the organization. This calls for new criteria regarding the selection of ideas. It is easier to implement ideas when a shared goal orientation exists (Gebert et al. 2003). Yet this shared goal orientation is called into question by critical communication, etc. Various feedback loops can lead to a dynamic process that threatens to destroy the organization. In this case, the centrifugal forces dominate over the centripetal forces (Sheremata 2000).

Moreover, the political dimension of the opening processes needs to be considered. Greater openness in general tends to supersede the control and power of persons by the control and power of rule systems. It is obvious that such opening processes destabilize the clientelistic system of „small favors" and „I'll do you a favor if you do me one". The result is that these opening processes further intensify the already existing distribution conflicts concerning power and influence. The leap into the spiral of trust, which facilitates opening processes and is in turn reinforced by successful opening processes, fails.

To the degree that old personal networks in the natural gas industry are still relevant for success today, opening processes destabilize these context conditions without replacing them with a new basis for success.

In conclusion, the intraorganizational opening processes in the natural gas industry barely succeed in igniting an innovative spark. More often than not, a major disappointment is the result. In the natural gas industry, the unplanned negative secondary effects of the intraorganizational opening processes amplify the already unfavorable intraorganizational constellation in such a way that greater organizational openness leads to a *decrease* in innovativeness. Openness *destroys* specific prerequisites of innovation. This danger is less pronounced in the mechanical engineering industry, since here the unplanned negative secondary effects of openness are overcompensated by the described positive effects of this industry.

The central thesis to be examined is thus: In the mechanical engineering industry, there is a significant positive correlation between opening processes and innovativeness. In the natural gas industry, however, openness is at first connected with a decrease in innovativeness.

This downward development in the natural gas industry is not indefinite, however. If the process jeopardizes the survival of the organization, the members of the organization will to some degree find a shared goal orientation,

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so that under these conditions the intraorganizational opening processes will gradually begin to take effect.

3. Empirical results

3.1 Sample

A total of five privatized companies of the natural gas industry and five privatized organizations of the mechanical engineering industry participated in the study. The number of employees varied between 200 and 450 in the mechanical engineering industry and between 35 and 700 in the natural gas industry. The organizations of the natural gas industry are involved in drilling, transportation network maintenance, and service for heating systems. The five organizations in the mechanical engineering industry are direct competitors. They are all specialized in designing equipment for the food industry. All of the 10 companies that were examined were privatized between the mid- and late 1990s (e.g., via employee buy-out).

3.2 Data collection and measurement of constructs

Since the degree of openness can differ substantially between subsystems of an organization (Gebert et al. 1998), it appears prudent not to speak of one degree of openness for the entire organization. In order to secure more valid and reliable ratings, all examined companies were thus divided into a maximum of five subsystems and rated individually in terms of degree of openness and innovativeness.

The five subsystems were: production, marketing and sales, research and development, financing and controlling, and technical services. The aggregate level of the analysis was small companies with less than 35 employees or subsystems (departments, subsidiary branches) within larger organizations. Usually these subsystems had less than 25 employees. In the natural gas industry, N=24 companies/subsystems were analyzed and N=26 in the mechanical engineering industry. Thus, a total of N=50 different units were studied in regard to the connection between openness and innovativeness.

A standardized questionnaire was used for measuring openness and innovativeness. The construct and criterion validity of this questionnaire are examined elsewhere (Gebert et al. 1998; Gebert et al. 2003). On the basis of an extensive pre-study, the items for measuring openness and innovativeness were adapted to the Romanian conditions and to the specific context of the respective industrial sector. The measurement of the variables and the data concerning Cronbach's alpha can be found in Table 1 of the appendix.

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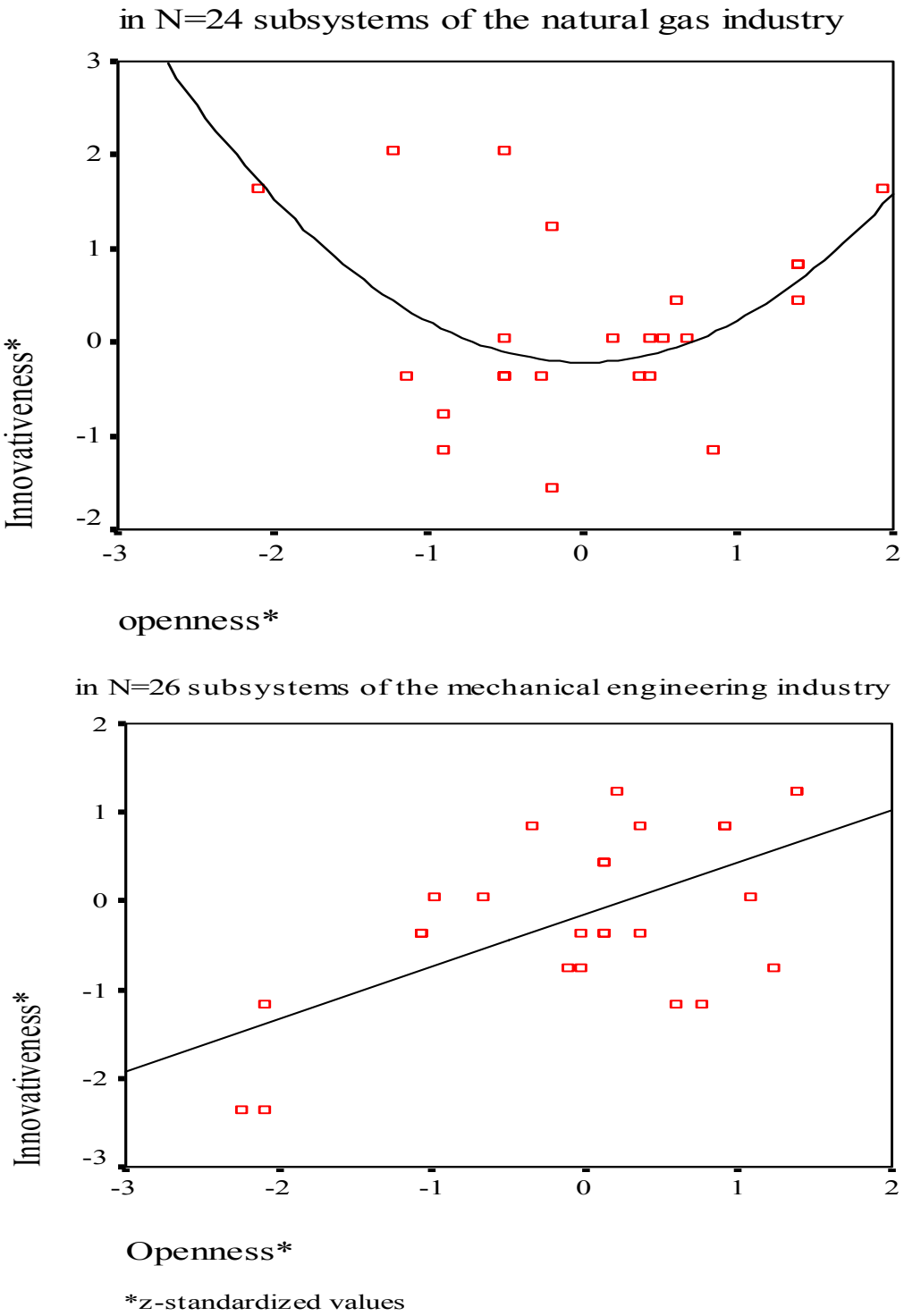
Figure 4. Relationship between innovativeness and intraorganizational openness – empirical results.



On the basis of interviews with members of the work force in the natural gas industry, clear indications of the mentality of a closed society emerged. The items were therefore worded not in the sense of an open society (autonomy, dialogue, critical upward communication), but from the perspective of a

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traditional leadership style. This was done to ensure that the employees could relate to the questions they were asked. Aspects such as respect for the superior, obedience, lack of dissent, and centralization of power and decision competencies (Gehmann 1995) were thus crucial in operationalization.

The measurement of innovativeness pertains to the question how innovative the respective subsystem (department, subsidiary branch) is in comparison to the most important competitor (less innovative, equal, or better). The managers who supplied the rating were asked to think of process and product innovations.

The operationalization of openness corresponded to the definition given in the outline and focused especially on the aspect of critical upward communication.

Ideally, about three managers should have rated the openness of a subsystem and three different managers should have rated the innovativeness of the subsystem using the questionnaire described above. While this approach would have ensured the most reliable ratings, it was not possible to follow it through. For each subsystem, the executive level named only two instead of six managers as the experts to provide the ratings. In order to avoid distorted data through percept-percept inflation (Crampton/Wagner 1994), one manager rated the degree of openness and the other made an independent rating of the respective subsystem's degree of innovativeness.

While innovativeness increases with more openness in the mechanical engineering industry, in the natural gas industry an increase in openness leads to an initial decline in innovativeness. This U-shaped progression indicates that after a certain level of openness, the degree of innovativeness begins to rise again. This result will be discussed below.

Figure 4 is based on regression analyses that are shown in Tables 2a and 2b.

Assuming a linear relationship between openness and innovativeness in the natural gas industry, merely 1% of the variance is explicable (statistically non-significant). In contrast, when assuming a U-shaped relationship between openness and innovativeness, 26% of the innovation variance is explainable (statistically significant). The square term as well as the increase in R^2 are also significant. Thus, it can be deduced that the relationship between openness and innovativeness in the natural gas industry is not linear, but *curvilinear*. This does not hold for the mechanical engineering industry. In that industrial sector, a linear relationship was found to explain 36% of the innovation variance (significant result). Since the parallel examination of a possible curvilinear relationship in the mechanical engineering industry failed to generate a significant square term (Table 2b), it can be deduced that in this industrial sector a *linear* relationship is more appropriate for describing the connection between openness and innovativeness than is the assumption of a curvilinear relationship.

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Table 2a. Hierarchical regression analysis. Dependent variable: innovativeness.

	N=24 subsystems of the natural gas industry.						
Predictors	R	R^2	F	df	ΔR^2	ΔF	β
Regression stage Open organization	.099	.01	0,22	(1;22)			.099
Regression stage Open organization (linear term) Open organization (square term)	.51	.26	3,76	(2;21)	.25**	3,44	.12 .51*

R = multiple correlation coefficient, R^2 = percentage of explained variance (corr. R^2), df = degrees of freedom, β = standardized regression coefficient, * p<.05, **p<.01.

Table 2b. Hierarchical regression analysis. Dependent variable: innovativeness.

	N=26 subsystems of the mechanical engineering industry.						
Predictors	R	R^2	F	df	ΔR^2	ΔF	β
Regression stage Open organization	.612	.36	14,81	(1;24)			.61*
Regression stage Open organization (linear term) Open organization (square term)	.65	.37	8,64	(2;23)	.01	6,17	.46* -.26

R = multiple correlation coefficient, R^2 = percentage of explained variance (corr. R^2), df = degrees of freedom, β = standardized regression coefficient, * p<.05.

4. Consequences for the management of change processes

The conclusion of the theoretical analysis and the empirical results is clear. The direct transfer of recommendations for more openness to Eastern Europe is highly problematic. It is detrimental that many Western advisers recommend Western management philosophies emphasizing greater openness to Eastern European managers without taking into account situational constraints, and that some Eastern European managers try to directly implement these advocated strategies in a dogmatic way without adapting them to the requirements of the situational conditions (Heintz 2002). The dogmatic nature of the old closed mentality is transmitted to modern management philosophies: It is attempted to implement opening processes because this is dictated by political correctness.

There are context conditions that lead to negative consequences of increased openness. The analysis shows that peculiarities of an industrial sector may interact with societal and economic peculiarities to create a complex context that must be considered in predicting the effects of intraorganizational opening processes.

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Thus, contingency approach research serves an instructional purpose, as it points to the context conditions of and the prerequisites for the desired effects of intended measures. Whereas the obtained results in the mechanical engineering industry confirm the mainstream results of innovation research, the results found in the natural gas industry via moderator analyses indicate that certain context conditions must be present in order for opening processes to be successful.

As shown in Figure 3, some pragmatic consequences can be deduced from the findings of this study. These will be discussed next.

From the perspective of the first phase, the generation of ideas, it is of particular importance to overcome helplessness. If the employees should perceive the situation as *changeable*, behavioral options are required. Thus, the enhancement of managerial discretion is vital.

An interesting observation results from considering the ISO 9000 (2001) standardization processes. Since the DIN EN ISO 9000 (2001) standards in particular determine expectations regarding work processes but not end products, the natural gas industry developed the possibility of offering new (certified) products by using certified work processes. Natural gas companies attempted to transfer the certified work processes for drilling gas fields to the drilling of drinking water wells (Baga 2004). On the theoretical level, one could thus interpret the certification process as an enhancement of managerial discretion (Pivka/Ursic 2002). If the management convincingly communicates this objective chance to the work force, the employees perceive the situation as *changeable*, which in turn stimulates their generation of ideas.

In order to facilitate the transfer from idea generation to idea implementation – the perspective of the second phase –, it is important especially in the natural gas industry to build consensus potential. This means primarily that a clear and shared goal orientation that goes beyond everyday activities is developed (Meyer 2001) and communicated (Sestakova/Hekalova 2003), which partially integrates conflicting parties and thus attenuates the destructive effects of micropolitics. Since unplanned negative secondary effects accompany opening processes, it is particularly important not to focus solely on implementing more openness, but to contain the risks of these opening processes by simultaneously implementing some closing processes (conveying a sense of orientation). In other words: The greater the centrifugal forces become, the *more* centripetal forces must be mobilized to establish a balance between these two opposing forces (Sheremata 2000).

It should not be overlooked that unplanned negative secondary effects of greater openness were obviously also to be expected in the mechanical engineering industry. However, since the economic context conditions were more favorable and the level of managerial discretion was higher in this industrial sector, the mechanical engineering industry was able to establish a clear and shared goal

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orientation that transcends everyday activities much more quickly. This is one explanation for why the relationship between openness and innovativeness is linear and not curvilinear in mechanical engineering.

In the third phase, it is crucial that the ideas that were implemented prove successful on the market. The abovementioned certification process had apparently created a platform in the natural gas industry that enabled these experiences. If the ideas prove successful, the company learns that establishing a goal-oriented minimal consensus is advantageous for all involved. Under this condition, intraorganizational openness is experienced as a positive problem solving strategy, and this experience initiates the reversal of the process: Based on these chances, innovativeness begins to also increase in the natural gas industry, as illustrated in Figure 4. Once a certain level of openness has been reached (Figure 4), the likelihood increases that the positive interaction between openness and innovativeness begins to take effect.

The employee's perception of success reinforces the opening process, as was shown empirically in the context of mergers in Poland and the countries formerly belonging to the Soviet Union (Piske 2002; Piske 2003). Opening processes not only constitute an independent, but also a dependent variable. Therefore, the communication of success to the work force, the partial causal attribution of this success to the efforts of the work force, and the increased openness within the work force are important in order to establish sufficient self-confidence among the employees and to enhance a positive attitude towards opening processes.

The importance of the cultural context (Lang 1998), within which the Romanian organizations are embedded, should neither be overestimated nor underestimated. In order to facilitate the rise of the curve, it is helpful to direct special attention to personnel development. It is not only important to train employees and leadership personnel in their technical skills (Catana/Catana 1995). Of at least equal importance is the initiation of an organization development process that includes the enhancement of social competencies etc. (Gebert et al. 1999). Thus, the aforementioned cognitive barriers in Romania can gradually be overcome.

At the level of the society as well as at an organizational level, the required change processes can be described as a process of transformation. Gebert et al. (1999) have shown that the period „in between" creates special problems. The advantages of the old order have been lost, without yet reaping the benefits of the new order. This was and still is a core problem of the opening processes in Eastern Europe. The abovementioned measures may contribute to shortening the period „in between".

Since a clearly positive relationship between intraorganizational openness and innovativeness was observed in the mechanical engineering industry, it has been

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confirmed that even in the comparatively difficult case of Romania, intraorganizational opening processes can be successful if certain conditions are present.

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Table 1. Constructs

	Items Measurements were made on five-point Likert scales; „strongly agree"=5, „neutral"= 3, „strongly disagree"=1	**Reliability**
Intra-organizational openness	Strategical decisions in our department are made exclusively by the management.(R) A variety of opinions is viewed here as more of a chance than as a threat. Here, employees can self-determine their rules of collaboration. A culture of bold discussions exists here; nothing is swept under the rug. Many know-it-alls and lots of dogmatism exist here. (R) It happens almost daily that employees are indoctrinated by superiors. (R) The decisions made by superiors are not called into question. (R) Individual superiors are revered to the point that they are no longer criticized at all. (R)	**Cronbach's** **$\alpha = 0.75$**

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	A lack of good arguments is compensated by strong self-confidence. (R) Those who think differently are viewed and treated as troublemakers. (R) General doubts regarding the right approaches may be entertained in private, but certainly not voiced. (R) Changes are made half-heartedly. (R) Trying out new ideas is often obstructed in this department. (R) Employees in this department can not be changed. (R) In this department, there is a lack of superiors who encourage employees and enhance their employees' self-esteem. (R) In times of crisis, the superiors here tend to feel like victims, not perpetrators. (R) Employees can effect many changes here. Employees openly say what they think. In difficult situations, employees in this organization tend to take no action at all and instead to wait for decisions from superiors. (R) We are successful because we are able to actively change things.	
Innovative-ness in comparison to competitors	*„Is the present situation in your department worse, equal to, or better than that of your most important competitor in regard to the following criteria?* *(Please think of a comparable functional department of your competitor!)"*	
	New work processes New organizational forms Number of improvisations during implementation phase Spectrum of new products Application in new markets	**α = 0.68**

(R) = recoded

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