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Organizational Culture and Knowledge Integration:
The Case of New Product Development

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"No amount of sophistication is going to allay the fact that all your knowledge is about the past and all your decisions are about the future."

Ian E. Wilson (Quoted on a Listserv signature file)

I. INTRODUCTION

My purpose for preparing this Ph.D. thesis is to:

1. Show one possible theoretical relationship between organizational culture and corporate competitiveness through the knowledge-based approach to organizations.
2. Develop a research program and methodology that makes the above relationship explicable and allows for empirical examination of a specific corporate problem: the operation of cross-functional, product-development teams.
3. Summarize and elaborate in Hungarian the literature and main issues of those approaches which were in the focus of organizational research in previous years, but have not yet been reviewed in Hungary.

The aforementioned objectives are justified by the following considerations:

Theoretical perspective:

- The topic of organizational culture has been a widely researched area of organizational theory. Yet, no model has been developed that could convincingly justify its relationship to corporate success or performance. Although many proclaim the importance of culture, the idea that there is only an indirect relationship to the corporate performance is becoming widespread.
- In my opinion, the recently developed resource- and, subsequently, knowledge-based views of organizations, through their different conceptual framework would illustrate the relationship between corporate culture and long-term competitiveness.

From the point of view of Hungarian practice:

- In the past decade, Hungary's structural and ownership transformations have taken place throughout the business sector. In recent years, it has been primarily the institutional relationship, financial and structural resources that have played the main role in competitiveness and survival.
- Looking at the general resource conditions of Hungary and international trends, the role of knowledge and human factors will be gradually more emphasized. Regarding long-term competitiveness of Hungarian companies, how much these businesses are able to take advantage of human and cultural potentials and resources may become crucial.

This thesis would like to contribute as a small step to solving the problem, how the human factor and especially organizational culture influences the cooperation of different organizational members. The field of the research will be one of the most critical sources of corporate competitiveness, the product development process.

Again, I would like to thank all those who supported the completion of my thesis proposal, through their ideas, questions and criticism. I'm thankful to my tutor, Gyula Bakacsi, for crystallizing my thoughts; Zoltán Antal-Mokos, for the numerous insightful questions, introducing different angles and offering his continuous support, András Gelei, for his brainstorming and lots of useful ideas during empirical research, László Radácsi, for ideas and thorough readings of the material, and Krisztina Tóth, for the thorough review of the text in various phases, which raised many useful considerations. I am thankful to Erika Vas and Lajos Varga, who made possible the empirical research at PanTel. Of course, everything written in this thesis proposal reflects my own thoughts and opinions. I'm responsible for their disputability or inaccuracy.

Without a doubt, I'm most grateful to the person who suffered the most during the preparation of this thesis. And she is the one who is closest to me, Zsófi...

...And dedicate it to You, for whom we are not more than just some strange noises from an unknown outside world.

II. ORGANIZATIONAL CULTURE – CULTURAL ANALYSIS OF ORGANIZATIONS

II.1. Introduction: Approaches And Schools In The Research Of Organizational Culture

It was not too long ago, only in the beginning of the eighties that corporate culture became one of the focal point of interest of those dealing with the theory and practice of management. Several points can be mentioned as the origin and causes of strengthening interest in the concept.

- The success of Japanese firms brought attention to the advantages of a different cultural tradition and to the fact, that the operation of organizations is culturally and historically embedded,
- The new, knowledge-intensive technologies and the globalised competition puts greater emphasis on the human factor as a potential source of competitive advantage,
- In organization theory, the group of symbolist researchers, who had mostly arrived from other areas of humanities, as anthropology or sociology have emerged as a new school of research,
- A methodological dispute has arisen within organizational science, as more and more voices opposed the omnipotence the traditional quantitative, positivist approach and urged the parallel or even independent use of qualitative methods. (The article of Pettigrew (1979), which was the first to present the concept of organizational culture in a widely acknowledged theoretical journal – also appeared in a special edition of the *Administrative Science Quarterly* focusing on qualitative research methodology.)

The combined effect of these factors quickly put organizational culture in the focus of interest of managers and researchers. Today it is not only a key theoretical concept to be considered besides structure, strategy and control (Hofstede et al. 1990), it has also become one of the magical words of consultants and top level executives, as a crucial source of corporate success.

Despite its popularity in the past years, the concept and its usage still needs clarification. We face a wide variety of questions both in the interpretation and research methodology of culture, and in the examination of the adjoining problems. Reading through the publications on the subject and company reports, we understand Branyiczki's remark: "The different organizational scientists actually do not even research the same phenomena. The phenomena annotated as organizational culture are analyzed and examined from several theoretical, epistemological and methodological aspects by the different researchers." (1993, 39)

It is no surprise that the expression: "organizational culture" is so obscure, since both of its components, organization and culture are concepts yet to be generally grabbed and properly defined. Although our world is a world of organizations, organizations as such are still far from being a "scientifically examinable phenomenon". One reason for this is that organizations are not physically

sensible “things” (Sandelands and Srivatsan 1993), therefore every theoretical approach may have its own interpretation and research operationalization. Morgan (1986) traces back the different interpretations of the organization as a theoretical concept to the different paradigms and metaphors behind the theories.

The other component of the expression, culture is one of the most general concepts both in the common and the scientific discourse. In the humanities its original meaning from anthropology includes everything defining our humanity besides the genetics (Hollós 1993). This is apparently no exact definition, but rather an approach outlining an examination area, within which the exact subject of the examination may be defined in lots of different ways. A poll from the 1960's showed 164 different interpretations for the word culture. (Kroeber and Kluckhorn 1963, in: Gordon and DiTomaso 1992)

This colorful variety of approaches is partly due to the fact that the research is conducted in largely different scientific frameworks. Analysts may use theoretical models taken from personal or social psychology, cultural anthropology, sociology, economic theory, hermeneutics and of course from management and organizational science. This does not come as a surprise, for if we consider the concept of culture defined above as the distinctive feature of human existence, than all humanities do have the “right” to add their points to the discussion concerning culture

Therefore new research in the subject cannot build on a distinct theoretical basis, category structure, for one meets unfinished problems in any questions he is interested in. This makes the clarification of the theoretical roots and connections of the subject particularly important.

The usual structure of the publications overviewing the theoretical approaches to organizational culture is to distinguish different traditions among the vast number of approaches according to certain criteria. Here are a few examples of these categorizations:

1. Smircich (1983) distinguishes between research traditions according to the fact that they consider organizational culture an organizational variable or take the whole of organizations as the culture. She divides these approaches into further subgroups. Within the first category the main question is if they take the national or the corporate level as most important. In the second case we may differentiate by the branch of anthropology the theories apply: cognitive, symbolic and structural.
2. In the model created by Martin and Meyerson (1988) they consider the integrity of culture in a given corporation and therefore they distinguish between schools of integration, differentiation and fragmentation.
3. Martin and Frost (1996) define the two decades of the research on organizational culture as the perpetual war of approaches. In their opinion there used to be two great opposing views at the beginning: the value engineering approach, mainly supported by the management gurus, which can be described by the previously mentioned concept of integration. On the other hand there was the

differentiating group, which later split into the schools of ethnographer-managerialists and the critical-antimanagerialists. In their opinion two further groups joined the war later: fragmentational and postmodern. Besides, they claim that there is a parallel methodological war going on between the representatives of the quantitative and the qualitative approaches.

Others try to categorize the different research approaches with the help of the paradigms existing in the humanities. (It was Kuhn (1970) who introduced the idea of paradigms to the philosophy of science. According to him paradigms are "... generally accepted patterns of scientific practice, models on which the particular traditions of scientific research are based." Kuhn 1970, 30) Several attempts were made to identify such global paradigms in organization theory.

An example is presented in the essay of Schultz (1995) where he defines three paradigms of organization theory as follows: rational, functional and symbolic.

Hatch (1997) considers wider philosophic traditions and presents the modern, symbolic and the postmodern approach.

Apparently there are many ways to group research concerning organizational culture. All authors argue persuasively for their own grouping, however the following points may be reasons for doubt about these trials. It is obvious that countless overlapping school-grouping principles may be produced to suit the standpoint of the authors. (It is possible, that there are no schools for the research of culture, but rather for its theoretical categorization.) Moreover, examining the particular research we gain that there are very few easily definable, clear analyzes. Researchers draw freely and loosely upon the possibilities granted by the different schools and paradigms to suit their aims and capabilities in their choice of problems and in forming the methodological and theoretical framework.

I do not think that one can take on the task of solving the unsettled questions among paradigms and theoretical schools. Kuhn (1970) himself argues that paradigms are incommensurable and incomparable. The paradigmatic disputes cannot be settled, because there is no judgement criteria, no unbiased system of comparison above paradigms. Different questions naturally result in different answers. Paradigms and their disputes may only die away.

Therefore when depicting the theoretical background of organizational culture I do not base my own analysis on any kind of paradigmatic categorizations. Rather I proceed by the main points of debates, which divided researchers on the subject in the last twenty years. I present the different approaches, answers and unsettled questions at the respective topics of the debates. My purpose is to give an interpretable view of the intricate details of the researches into culture and simultaneously clarify the theoretical framework and connections of my research.

I will try to achieve this goal answering the following questions:

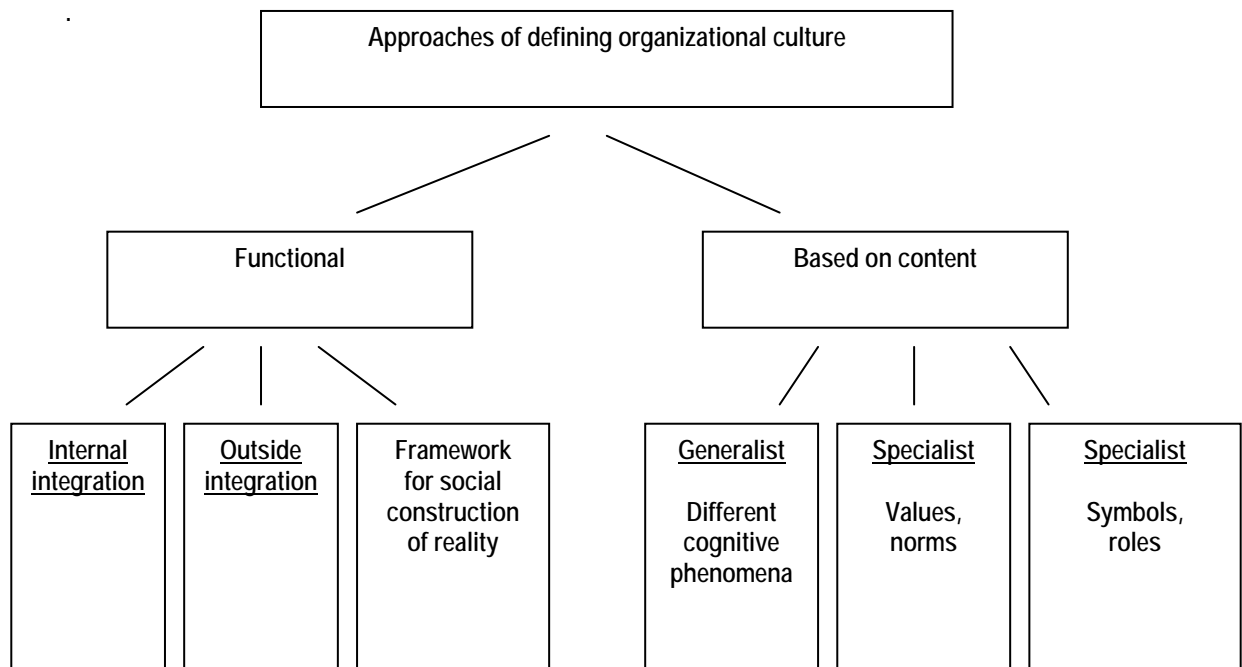
1. What is organizational culture? (How does the scientist define the subject of his research?)

2. What parts does it consist of? (In what ways is it operationalizable?)
3. How does it form and work? (Interpretation models concerning the operation of culture?)
4. How to research it? (What kind of methodological bases are possible?)
5. Why is it important for corporate managers? (To which managerial problems is culture linked?)

II.2. What Is Organizational Culture? – The Problem Of Definition

Organizational culture has no generally accepted definition, even though there is much overlapping among the many definitions. These definitions have been collected several times. A good compilation can be found in the essays of Ott (1996), Hatch (1997) and Bencze (1997).

There is more than one way to define any concept. If we examine the methods used to define organizational culture we find two typical approaches. In one case it is *the purpose, the function of culture* that serves as the base of the definition, in the other it is the *listing and distinction of phenomena* belonging to the subject. (The actual definitions usually use the two methods together. They present a short list of the phenomena belonging to culture and in the next sentence they explain the functioning of these factors.) In the following passages I will present the features of the different approaches in both trains of thought, as presented in the diagram below:



II.2.1. Functions Of Organizational Culture

According to one – widely accepted - approach the function of culture is to program, to influence human behavior. For example Hofstede (1980, 15) does not specify it any more, in his opinion culture is the most general mental programming of human mind. In this functional approach this mental software has two main tasks (Schein 1985)

- enhancing the internal integration of the organization and
- supporting its external adaptation.

Another tradition pulls attention to a third function, to the uncertainty reducing, reason and therefore social reality constructing nature of culture.

Internal integration

According to one of the most popular view among practitioners and managers culture is the glue that holds the organization together. Culture makes possible for the members of the organization to act together, coordinated toward a given purpose. Although they use different word to denote it, those who describe the role of culture in creating loyalty like Pettigrew (1979) or Ouchi (1981) emphasize the same thing. This approach is also largely popular among the theorists, its first systematic description can be found in the essay of Siehl and Martin (1984). At the same time explicitly or implicitly, but it is always present in the works of the management gurus (Peters-Waterman 1986, Deal-Kennedy 1982, Handy 1986).

However within the group of those emphasizing internal integration there is a dispute as to what extent an organization may be “glued together”, or how active the leader can be in he formation of culture. On one side there stand the aforementioned gurus and some researchers like Schein, who hold that the main role of leaders is to establish and maintain the culture of the organization (Schein 1985). The task of the leader is to establish a coherent, unambiguous culture through several selection and reinforcement mechanisms, which prescribe certain behavior patterns, and forbid others.

Schein interprets leadership as a cultural task, so the leader does not have a choice in dealing with culture or not, because all of his actions manifest through it. On the other hand there are those who describe culture as a possible mean of control, where the leader has the right to choose from several different control methods. Ouchi (1980) for example distinguishes between bureaucratic, market and clan control where this last one is in fact based on cultural mechanisms. He claims that the task of the leader is to decide about the means to use. In the background of McKinsey’s 7S model (Peters-Waterman 1986) there is also the notion that culture and the “soft” factors represent only one half of the integration mechanisms, because strategy, structure and the processes also have an equally important place.

Another group of theorists definitely reject the idea that organizational culture might be consciously influenced, reformed. Based on the anthropological tradition they note that this would be like if the chieftain would determine the culture in a tribe (Meek 1988, 459). According to them leadership and the role of the leader is in fact a result of culture. They claim that the other approaches overestimate the importance of the leader in influencing culture, which is rather realized through an interaction among all members. An adjoining aspect is the concept of the GLOBE project that the successful, outstanding leader type is defined by the national culture (House-Aditya-Wright 1997, House et al. 1998). Some critics even accuse those trying to lead with the help of influencing culture of immoral, manipulative behavior (Hatch 1997, 235).

As a closing remark to this function of cultures we may mention the role of culture in defining and keeping the borders of the organization, and so providing the opportunity to distinguish it and to identify oneself with it (Ott 1989, 68). Or in Hofstede's (1980, 26) words: culture provides the organization with an identity, and therefore bears the same function as personality does for the individual. (The values, the behavioral patterns or the norms make us different from our environment, so they define the organization and its membership.

External adaptation

From another point of view we can describe culture as a mean of adaptation to uncertainty caused by the external environment. This concept sees the role of the aforementioned programming in helping to survive the earlier successful reactions to the challenges of the environment. Due to the social memory and learning some routines get established and remain intact and provide us with the capability to avoid reinventing the existing correct reactions, behavior patterns.

This is perhaps the area where we experience the fewest disputes concerning organizational culture. This should not surprise us since the first question of the early researchers into cultural anthropology was: "What makes us human?" They (Hollós 1993) found an answer in culture, for it is a unique phenomenon in the "animal world", that it is not only our biological instincts and personal experience that makes us capable to survive, but the experience and knowledge gathered and handed down through many generations.

Naturally there is no acute difference between the internal integration and the external adaptation approaches, they may be complementary of each other as well. The behavioral patterns supporting the internal integration may serve for the survival of the organization too. (There is a chance, though, that an organization does not perceive the change in the environment due to its strong, successful culture: "Nothing can harm us...")

Therefore there is a dispute concerning the positive or negative effects of organizational culture on adaptation. It is obvious that in an uncertain, fast changing environment the pre-programmed, once successful – culturally based – responses can easily lead to failure instead of adaptation. However it is worth realizing that the process of searching for adaptation response itself is also culturally programmed, so cultures might learn, not only reproduce themselves. This problem reveals a close relationship between organizational culture and organizational learning capability. It is true that not the actual culturally programmed answers and behaviors are the most important for the adaptation capability, but if there is a “built in” possibility in the programming for questioning the norms and “rewriting” the answers and behaviors.

Mean and result of social construction of reality

This approach describes the functioning of culture as an interpretation enhancing and uncertainty-reducing framework. Usually Geertz’s definition (1973, 5) is quoted as starting point: “...man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs.”

According to this concept, which is backed by most institutional and interpretive theories organizations are not independent of their members, they form and reform in the course of a social reality construction process. This does not mean a radically subjective aspect. Moreover according to Berger and Luckmann (1966, 91): “Society is a human product. Society is objective reality. Man is a social product.” We may as well substitute the word organization for society. Therefore as much as people establish organizations, organizations in turn influence people, meaning an unquestionable, unavoidable objective reality to each other. The purpose of these studies is the exploration and understanding of reality construction mechanisms: in a given context what makes organizations what they are, and why people behave like they do.

In the background of this definition there is the assumption that organizational reality is a result of a certain continuous social construction process (Berger and Luckmann 1966). If people confront with the uncertainty of their environment, they will draw order and anticipation into it through socially defined symbols in order to orientate themselves “with each other, the surrounding environment and themselves” (Geertz 1994, 120). The core elements of the social interpretation and reality creation processes are the symbols. Their common interpretations serve as a starting point and continuous comparison during social actions and so they are products and reasons for social interactions at once.

Organizational culture is this common framework of interpretation and the set of rules directing it. If we try to describe it from a functional perspective, we get that culture is in fact the expression of human existence, the creation of human reality and world. The role of researchers is to learn the interpretation of

the “members of the organization”, explore the network of organizational symbols and the story it tells to participants and observers. This way we may understand the individual and organizational actions in an organization together with their background motives (Pettigrew 1979, Bartunek 1984). The attention of the approach is mainly directed to the mechanisms and content of the reality construction process.

II.2.2. Definitions Of The Contents Of Organizational Culture

As I have pointed out before, a significant part of the researchers define their subject by listing the set of phenomena belonging to it. The root of the differences in these listings dates back to an eternal question in cultural anthropology: what can we take as the essence of culture?

The well-known iceberg metaphor in relation with culture is accepted by almost everybody. According to this there are deeper, hidden connections behind the surface phenomena. To understand them we need to explore the deeper structures and schemes of human thinking. Culture therefore means the internal driving forces learnt and shared by all members of the community. However, there is no consensus about the essence, characteristics and operational mechanisms of these deeper structures.

Some examples show that the concept of organizational culture is interpreted as a wide range of cognitive phenomena. For example Bakacsi (1996, 226) says that culture is “the system of commonly defined presumptions, values, convictions and beliefs”.

Others consider one or another of these factors particularly important. Martin and Frost (1986) describe these studies as specialists. Among the specialist approaches there are two main directions. One of them claims that culture is a phenomenon essentially based on values, while the other takes culture as an interpretation frame of roles and symbols.

Culture as a system of values

To focus on the concept of value is understandable since values have a crucial role in human activity and our other inner constructions usually also contain values as for example attitudes and beliefs do as well. Values have a great influence on the actual behavior to choose in certain situations. The acquisition and internalization of values also plays a great role in socialization. “Man is an evaluating animal.” (Kluckhorn 1951, quoted by Hofstede 1980, 20)

An approach like this must cope with a problem in empirical research, namely that people often think or talk about themselves differently as they act afterwards. Many studies deal with the problem of espoused theories and theories in use introduced by Argyris and Schön (1978) (Apparently the

expressions do not even use the concept of values, and originally they aimed at a wider range of thoughts. However the problem is traditionally operationalized primarily to values.)

For example Hofstede (1980) and Quinn (1991) consider espoused theories as the central elements of culture. Schein (1985) sees them as a middle level towards the theories in use, the basic assumptions that form the real base of culture.

According to these approaches the espoused and used theories of a community may be organized into a hierarchy and condensed into value dimensions through which they can be represented. With the help of these value maps or lists the particular organizational cultures can be described and compared.

This concept of culture has many followers, though due to the operational and interpretation problems there is no generally accepted approach and methodology. The three-level culture model of Schein (1985) is considered a basic model, but when it comes to the measurement and interpretation of the separate levels everyone treads his own way. The concept of Hofstede (1980) had a great effect on the evaluation of values of national cultures. The GLOBE model can be considered as a development and expansion on organizational level to this model, besides linking it to leadership (House-Aditya-Wright 1997, Bakacsi and Takács 1998).

It is worth mentioning that more and more researchers draw attention to the role of emotions, which build into the operation of culture like values (Schein 1985, 14).

Culture as a system of roles and symbols

This approach adjoins the “social construction of reality” approach, for that process can be represented through roles and symbols. “Role represents an institutional behavior set” (Berger and Luckmann 1966, 107), which provides pre-programmed activity patterns, works as a scenario. The knowledge of roles has a cognitive part (what does it mean to be a marketing manager at a company, what kinds of behavior patterns and relation structures are connected with it) and a normative part filled with values and emotions which define the desired choices. (Therefore the role of values can be defined also within the interpretive approach.) The cognitive part is largely unconscious, accepted without reflection through the use of language.

Another way of representation is the set of socially constructed symbols. Everything may be considered a culturally embedded symbol that “influences human interpretation or emotions and leads to action” (Meek 1988, 467). An approach of this kind draws attention besides the symbols themselves to the interactions which form and sustain the symbols and their patterns, and considers them a crucial part of culture as well. Human actions must in continuously revive these otherwise dead symbols (Berger and Luckmann 1966, 108).

An important feature of the approach is that through the multiple interpretation of the symbols it reveals itself the division and possible ambiguity of organizational culture. The socialization process of people is very different and therefore they have various ways to act within the symbol and role system of the community. The network of symbols influencing people's interpretations makes the fragmentation of culture and its continuous reinterpretation by its participants also tangible. Young (1989) shows in his study that in an apparently homogenous organizational culture how different interpretations of the same symbols may coexist in the various workgroups, and how does this lead to different organizational behaviors.

In this concept organization and culture are considered an open book with many interpretations according to the given extract examined and the "reader-researcher's" own interpreting framework and background (Linstead and Grafton-Small 1992, Hazen 1993) This concept depicts reality as a continuously reforming multi-plot novel. Such approach of culture stands close to the symbolist branch of cultural anthropology (Geertz 1973), but also to the postmodern approach (in Hungarian see Bokor 1993) that has recently gained so much room in humanities.

Based on this concept of culture organizational culture can be described in scenarios (Gioia and Poole 1984), in interpreting or sense-making schemes (Daft and Weick 1984) and in ideologies (Starbuck 1982).

II.3. Operationalization Of Organizational Culture

Different types of operationalization naturally accompany the various conceptual descriptions of culture on the level of actual analysis. However it also may be true that we can find different concepts of culture behind analyzes of the same phenomenon.

This way it is possible that when examining a firm, two researchers describe the culture through corporate rituals, but according to their interpreting framework they come to completely different conclusions. One of them may explore the values and beliefs behind the rituals and explain their role in forming a special culture and in the success of the firm. The other possibly shows how these rituals as symbols suggest interpretations to the various members, and how does this influence their behavior in interactions.

It is apparent how wide the range of those phenomena is, through which researchers define and describe culture. Rousseau (1990,156) notes that "it is not the definitions of culture that vary so widely across organizational researchers, but the types of data researchers collect."

The phenomena examined in the course of cultural analyses can be grouped as follows:

- Artifacts
- Behavioral patterns
- Linguistic patterns
- Values and norms
- Basic assumptions and ideologies
- Interpretation schemes, scenarios

II.3.1. Artifacts

It is interesting to observe that while in classical cultural anthropology or either in our everyday thinking the role of artifacts is great, in the research of organizational culture they remain in the background. There is an approach though originating from archaeology that considers the objective phenomena themselves the culture (Hodder 1982). Artifacts however, like the clothing features at Peters-Waterman (1986) usually got some role only in anecdotes.

The reason for this can be that the analyzed firms are familiar to the researchers and so the known objects, considered trivial, remain under the observation and therefore the interpretation threshold (Van Maanen 1988). This is why we take a mask brought home from a remote island as a precious representation of the foreign culture, while a corporate present or office furniture are left to remain unnoticed in the background. Still, just as the recently multiplying studies have pointed out, artifacts and space tell much about the way of life and thinking of those living and working there. (A thematic compilation of studies on the subject is Gagliardi, ed. 1990)

In connection with artifacts it is worth to mention the notion of Hatch (1997,216), that they are like the lava flow solidifying after a volcanic eruption. They usually preserve the memory of the past and their connection with the present events is not at all sure to be so close as the researchers may think.

The usage of space and its cultural meaning has been analyzed from several aspects. One of the most thoroughly examined areas is the physical shape and organization of the buildings, their decoration and the organization and furniture of the offices (Berg and Kreiner 1990, Hatch 1990). The design of the working area surely has a strong effect on the formation and intensity of relations and provides opportunity to express the equality of the organizational members or strengthen hierarchic divisions. It can in no ways be accidental that the question of “open doors” is a recurring issue in many firms.

Office clothing was just as many times examined, and the results of these researches have been published in a “marketable” form as well: “Dress for Success” became a large success. Numerous deeper analyses have been prepared, some examples are Pratt and Rafaeli (1997), Rafaeli and Pratt (1993).

Clothing can obviously transmit many cultural messages from the uniformity or individuality to its elegance and cleanness. A good example for the role- and status-defining role of clothing is the term “neckties” used at many Hungarian firms. In the English-speaking countries the distinction between “blue collars” and “white collars” is also well known.

Among the other *artifacts* it is perhaps the computer that got the most attention in cultural analyses. Its presence or non-existence and the values and myths in connection with it can give a good representation of the culture of an organization or its reformation. (Brissy 1990, Scholz 1990)

Perhaps company cars can compete with the symbolic power of computers. Though I have not found actual analyses on the subject (unless we count here the anecdotes about the rank order of company parking lots for example at Peters-Waterman) I think in today’s Hungary it has an important message.

Logos, badges and image elements are usually counted to this group. These are many times misleading, since they have a manipulated – or at least not widely shared - message, but the analysis of the aims and methods of this can add a lot to the understanding of the particular culture. Here it is necessary to point out once again the difference between the espoused theories and those in use.

I think that in our time of changes a particularly great emphasis falls to the objectified elements of culture, which may easily become symbols of status. Through these we can easily identify the conflicts of the old and new ways of thinking. Office spaces are easy to rearrange in accordance with the new, desired set of values, which means that they may get ahead of the slower changing elements of culture. (An example for this is the rearranging of the offices after the privatization by pulling down the walls and achieving one large space. This process was typical of the firms that went into US ownership.)

The world of artifacts includes those elements that belong to the private spaces, where individuals can express their personal values. These values do not necessarily coincide with the ones considered desirable centrally. The locations and use of personal and communal objects may also reveal conflicts.

Moreover in the changing environment few stable points remain to relate actions to for the organizational participants, therefore they are likely to create anchoring points which convey their role, power and place in the organization to themselves and to others. This can explain the importance of company cars and the rigorous care for the neat clothing.

II.3.2. Behavioral Patterns

Researchers of organizational culture pay great attention to the different behavioral patterns that have become routine-like. This comes to no surprise, since many see the role of culture in programming

behavior, therefore it must be well identifiable in manifestations of behavior For example Goffmann (1967) and Van Maanen (1979) also interprets culture as a system of behavioral schemes.

These approaches have to confront with the problem of describing and categorizing the wide range of human actions, behaviors. The best chances to achieve this occur at the examination of regularly recurring actions with a framework easy to identify, which are performed similarly by more than one person. In anthropology ritual, rite or some other similar expression is used to denote them. These are the cases in which the social programming can have the greatest effect over the potential of personal freedom.

It is possible that the original function of the “behavioral programs” has been forgotten and what we see is just a form, which bears no meaning to the participants, and which primarily acts as a means of community forming and integration. Naturally it is still worth analyzing what new meanings people give to the traditional behavioral patterns.

Researchers distinguish between different categories of behavioral patterns, for example between expressions that sound similar for the first time: *ceremony* and *ritual*, because they consider the first a far more conscious action (Ott 1989, 36). While in a ceremony the organization holds values consciously taken up (they celebrate something), rituals mean largely unconscious, mainly routine series of actions, which may consist of everyday steps, like a planning process.

According to Trice and Beyer (1984) such series of actions usually have an intended and a latent purpose and meaning, and a simultaneous analysis may bring several layers of culture to light. This way a performance appraisal may intently have the aim to grant a feedback in order to enhance performance, but latently it enforces the hierarchic dependence between boss and subordinate. Usually different kinds of rituals and ceremonies form by certain nodes of organizational life, like rites of passage, degradation, enhancement, renewal, conflict reduction and integration. Barley (1983) describes how the funeral directors use the most common, but regularly reappearing behavior patterns (airing, decorating the catafalque) to make the tragic event a normal, everyday program for the relatives.

Besides the greater rituals it is worth paying attention to the smaller rites of personal interactions. Some examples are that how people get into contact with each other, who the initiator is, what communication channels they use, or how formal or informal the interaction is. We may once again reflect only to the anecdotal stories about how much the possibilities of e-mailing have changed the forms of intercourse in certain organizations. Many people tend to send such sort messages to the neighboring office or even the other side of the desk instead of personal communication. In many cases however the network-based communication has widened the flow of information and has made it more democratic.

Among behavioral patterns the ones in connection with rewarding and punishment have a remarkable important role for example in the approach of Schein (1985). The members of the

organization follow these events with exceptional attention, and not only the content of the messages influence future behavior, but the way of transmission too. It is no accident that in many organizations real ceremonies accompany these events.

II.3.3. The Use Of Language

As I have previously pointed out, language is considered to have a special role in culture. Therefore it is no surprise that many researches try to describe cultures through linguistic phenomena.

Language is context, result and cause of culture at the same time. The Sapir-Worf hypothesis formulated in anthropology (Worf 1997) postulates that people speaking in different languages perceive the concepts of time and space differently, and so language has a key role in the formation of culture. (The example usually quoted here is the lots of words the Eskimos have for the thing we know as snow.) Nevertheless the generally accepted approach in our days states that the ambiguity of world concepts is not primarily due to the difference of languages, but rather to the fact that a thought may be expressed in many ways even within the same language.

The unique word usage of organizations reveals a lot about cultural orientation. The use of professional *jargons*, key words with only locally understandable meanings and *nicknames* can reveal the habits and views of the given community and can strengthen the feeling of connection among group members. Beside jargons local *metaphors* can also imply to the features of the given cultural environment. It obviously has a strong effect on behavior if the subordinates describe the boss as a lion, or their own firm as a slow, old locomotive. Many claim that beyond the actual effects, metaphors also refer to the deeper structures of thinking (Morgan 1986), therefore those researchers who analyze culture as a cognitive phenomenon usually pay special attention to them. Smith and Simmons (1983) give an example for the role of a metaphor from a fairy tale in influencing the culture of a firm. Morgan (1993) brings examples for the culture-exploring role of metaphors, which at the same time influence the culture through reflection.

The analysis of jargons is usually accompanied by the examination of *corporate legends, stories*, which represent the core of culture for many researchers. At this point the theoretical analyses and the analyses of practical consultants meet at many instances. To support their analysis, Peters and Waterman (1982) also refer to corporate stories, of which the banana of Foxboro is supposedly the best known. Analyzing the stories all concepts of culture may reach their own answers, for these stories may be viewed as encoded messages orienting behavior, expectations, but also as narratives, projections of a social interpreting process.

A unique type of story is *gossip*, which was examined by Noon and Delbridge (1993). They found that through gossip groups are able to express and sustain their common values, and at the same time it provides them with an opportunity to regulate and control the internal conflicts of the group.

Stories can be described and analyzed by the following components: plot, heroes, some kind of trouble, crisis situation, solution, organizational context. Stories or their background narratives are often central subjects of scientific analyses too (Martin et al. 1983, Van Buskirk and McGrath 1992). The reason for this is apparently the ease of description and the wide range of available methodology for analysis.

The approaches describing organizational culture as text naturally examine the already text-like phenomena nearest to their conception. In certain cases this may mean verbal stories (Boje 1995), but the *written documents* of the organization too. (Goodall 1992) (Naturally the written documents could also have been mentioned among the group of objects, but due to their textual nature they rather belong here.)

An especially significant category of stories is that of *myths* or in other analyses the organizational *sagas*. Myths get a special role in cultural anthropology and in psychology too (Levi-Strauss 1997), for beyond the dramatic events of exceptional importance originating back in the unknown past scientists suspect the subconscious basic structures of our thinking. In their opinion these myths or sagas manifest our relation toward good and evil, time and space, toward our human mission.

The local versions of these great narratives may have a great effect on corporate life by defining the origin, the mission and the most important core values (Filby and Wilmott 1988). This is true even if in many cases the myths depict not true or not completely true stories, because the storytellers and listeners cling to them for their cultural manifestation powers.

II.3.4. Values, Norms

After Schein's categories (1985) the three previous groups are called the surface phenomena of culture, the artifacts. A lot of researchers do not try to reach the understanding of culture through the analysis of phenomena observable on the surface, but strive to grab the phenomena hidden in the deeper layers. One of the most popular ways to do this is the analysis of values and norms.

Values mean a general tendency to prefer certain states to others (Hofstede 1980, Bem 1970). The expression stems from sociology where values and systems of values are a crucial part of culture. This tradition has great influence on organization theory many researchers see values as the main influencing factor of our behavior and so the core of organizational culture. This approach states that cultural pre-programming manifests itself in our values to choose between good and bad, desired and undesired objects.

Value centered analyses usually describe organizational culture as a value list or hierarchy, perhaps illustrating the intensity and relations of these values to each other. Among the main representatives of this approach we may mention Hofstede (1980) and Quinn (1991). In the model of the latter it is especially interesting that he discovered that values do not necessarily fit to each other, they are in continual tension, contradiction within the organizational culture.

The researchers who make values the core of their study, widely agree both in the general meaning of value and its mechanism of effect, however when it comes to the operationalization and description of the concept, the differences show.

An important feature of values is that their followers can be made conscious of them, this way it is possible for the analysts to obtain data directly from them, expressed by them. This is why they consider espoused theories as the level of values, while the values followed less consciously belong to the region of basic beliefs.

In connection with values it is worth noting that they have an emotional content, which makes them easy to mix up with attitudes in certain cases. The latter have a much more concrete direction though and are quite inconstant when compared to the deeper set values with general directions. (To some extent this also stands behind the often overlapping usage of the concepts of corporate climate and organizational culture (Reichers and Schneider 1990.)

Researchers have the opportunity to examine values in a very explicit way, like in the case of a company credo, or mission for example, but they usually have to approach them by interviews or questionnaires.

Norms have a strong connection to values. They are more concrete than values and describe the expected or prohibited behaviors in a given situation. Some examples are the norms of suitable clothing or tolerated time of being late from meetings. It is apparent that norms are easy to deduce from visible behavior, but the members of organization are also able consciously describe them. Certain authors see culture actually as a system of norms (Hall 1977). It is interesting that although many researchers acknowledge the role of norms, virtually no analyses can be found which explicitly put norms in the focus. Supposedly the reason for this is that they are in a not too fortunate mid-way position: it is harder to explore them than the immediate surface phenomena of culture, but they are not as general as values. Nevertheless we must pay attention to them because organizational values usually bear influence on the behavior of the members of organization by manifesting through norms.

II.3.5. Beliefs And Assumptions

Beliefs and assumptions denote our deep-set premises and presumptions, which we are usually unable to make conscious. In the other humanities theorists almost exclusively use the expression “belief”, however in organizational science from the influential book by Schein (1985) on “basic assumptions” got a greater role. A possible reason for this might be that beliefs may contain conscious components, assumptions refer primarily to the unconscious. Moreover unlike beliefs they have emotional, affective elements in them. As I have indicated before, the concept is in close connection with the “theories-in-use” conception of Argyris and Schön (1974).

In the eyes of many researchers beliefs mean the essence, the deep-set core of cultures. Our beliefs determine what we accept to be real, or how we think and feel in certain situations. According to Schein (1985, 10) their depth and stability is what gives the value added of culture to the theory of organizations. The conceptions and phenomena listed previously – from the artifacts through stories to values – are terms used for a long time in organizational science, but the concept of culture is what brings stability and an interpreting structure to the surface chaos. In his opinion culture can form in a group or organization if they have spent enough time together to have common assumptions.

Naturally the essence of the given organizational culture cannot be expressed in one basic assumption it consists of the interactions and system of more such assumption. Basic assumptions may be directed toward the general human nature, the meaning of work, the connection with the environment, and the interpretation of time. All organizations produce different answers to them in their way.

Their nature results in that basic assumptions cannot be described directly neither for members of the organization, nor for researchers, therefore they need to be explored by indirect methods.

II.3.6. Interpretive Schemes, Scenarios

The researchers belonging mainly to the interpretive approach describe organizational culture with the help of social interpreting mechanisms. Here *interpreting schemes or the scenarios* are treated as the core element of culture. These concepts are closely connected to the symbolic concept of the culture and to its description through linguistic phenomena, therefore it is well understandable that they connect the essential components of culture to their interpretation.

This way according to Gioia and Poole (1984) claim that usually there is a more general scenario behind any company story. These are cognitive structures, which stock up in the memory and in certain situations define the interpretation and at the same time the desirable actions. In these authors' opinion culture can be described as the sum of all these scenarios.

Bartunek (1984) sees interpretation schemes as the core element of culture, which expression she takes from the works of Giddens and Schutz. These schemes organize our experiences into a logical structure, give explanations for the reasons of events and offer possible actions. Barley (1983) uses the concept of commonly held interpreting codes in actually the same meaning, just like Schultz (1995) does with his version of the interpreting framework, which provide the organizational members with the opportunity to produce a common interpretation of reality.

The approach of Geertz (1973) is also to be mentioned here. In his view the deepest core of cultures can be described with two ideas: world concept and ethos. The former one means the conceptions concerning the bases of world order (individual, society and nature), while the second represents a moral, esthetical qualitative tone for everything. Although the two ideas resemble the assumptions-values concepts of Schein, a basic difference is that there is no hierarchic connection between them, but rather a one-level, mutually influencing relation.

II.4. The Operation Of Culture

In this chapter I “look behind” that apparent consensus, which comes in the two words that appear in most every definitions of organizational culture. It seems that almost everyone postulates that culture is a *learned* and *socially shared* phenomenon. However behind the definitions, on the level of the various theories there are a lot of interpretations to these mechanisms, which are worth examining in detail.

Three important questions may be examined in connection with the operation of culture:

- One concerns the way and the influencing factors that form the culture of a given organization.
- The second one deals with the possibilities for changing of cultures
- The third question concerns the relationship of culture and organization. To what extent can we consider organizations unified from a cultural point of view, where do the borders of cultures lie within and between organizations, and what connections do they have with each other?

II.4.1. The Formation Of Cultures

Usually it seems worthwhile to distinguish between the problems of the formation and transformation of cultures. Because of its deep-set, integrated nature all analysts agree that it is much easier to establish it than to transform it.

Despite the many disputes there is a relative consensus that culture is a product of socialization, and as such it develops in a social learning process. At the same time there are various theoretical

frameworks concerning the primary influencing factors. Usually certain contextual factors are described, which affect the formation of a given organizational culture, so I present them first.

Contextual factors in the formation of culture

Usually the following contextual factors are mentioned as those that have influence on what kind of culture develops in an organization:

- specialties of the national culture
- professional cultures
- features of the industry: competition, technology
- size and age of the organization
- the role model of the founders and charismatic leaders.

The various influencing factors affect each other too, so for example national or any other context may bear influence on the founders. Because of this it is practical to see these approaches as contextual theories of organizational culture.

From the contextual factors we may emphasize the analysis of *national culture*, since the organizational culture concept itself is based deeply within the realization that differences between national cultures do exist and are important. As I have pointed out before, the fashion of cultural research was strongly backed by the realization of the specialties and cultural embedding of the Japanese management (Morgan 1986, Peters-Waterman 1986).

The importance of national culture is obvious if we suppose that culture forms and internalizes through learning and socialization processes. Our behavior and identity are largely determined by the thinking and behavioral patterns learned in our childhood in the primary socialization period.

The role of language is also a reason for the importance of national components. If we accept that quite a few approaches state, that culture is primarily a linguistic phenomenon or operates through linguistic mechanisms, we have to accept the determination of the culture at a national level, based on the different languages in different countries.

Research into the effects of national culture can mainly be associated with the name of Hofstede (1980). Based on his research he determined general value dimensions by which clusters of national cultures may be defined. His results obviously do not mean that organizational cultures within the same nation cannot differ from each other, a few years later he himself carried out researches proving this (Hofstede et al. 1990), but he postulates and finds a strong connection concerning the national effect.

The emphasis on national culture and on the conflicts originating from national differences resulted in numerous research programs, a compilation of these may be found in Weinsall (1993). I shall deal with these researches in detail in the passages on practical problems.

The influence of *professional cultures* shows the effect of a later socialization process, which is strongly linked to organizational career. According to several authors (Schein 1996, Van Maanen and Barley 1984) our responses to most problems occurring during work, together with their perception and definition are primarily influenced by our professional background. There exist empirical results that in this case the effect of professional background is stronger even than the national effect, for example in Gomez-Mejia (1984). The cultural influence-bearing capability of the particular professions may differ greatly in accordance with the length of training, its multidisciplinary nature and the existence of professional organizations, associations to sustain the continuous professional dialogue and to strengthen the standards.

The respective *industry* must also have a great role in forming a particular organizational culture. This is apparent from the effect of corporate environment, but also from the professional procedures relating to business activity, or the character of technologies. A dynamic, quickly changing environment with high risks grants positive feedback to and stabilizes organizational behavior patterns different from those in a stable, secure system of external relationships. (The relationship is nevertheless mutual, since organizational culture may influence the members' perception of the environment.) Deal and Kennedy (1982,107) stress two main aspects: the strength of risk factors and the speed of the feedback from the environment about the success of the strategies and methods used.

The effect of technology originates on one hand from the work systems in the organization, and from its general character on the other. Examples for the first statement include the types of social relationships it provides, the dependence relations it has created in the organization, the man-machine relationships it causes or the scale of information flow made necessary by it. The general nature may be illustrated with questions like how much risk it holds, or if it needs continuous change and creativity. The strength of the effect of the industry is apparent from the fact that many researches demonstrate that a lot of similarities can be found among the cultures of firms working in the same branch of industry (Abrahamson and Fombrun 1992, Chatman and Jehn 1994).

The *size, age and extent of diversification of the organization* are also factors that according to several approaches bear influence on the formation of organizational culture. In the younger period of an organization many claim that we cannot speak about existing culture (Schein 1985) for the common unconscious assumptions did not have enough time to form. On the contrary all theories emphasize the importance of this period in the later formation of culture. It is like childhood for people, role patterns and traumas imprint deep and unconsciously determine the "adult" behavior.

The size of the organization obviously influences culture since it affects the intensity and mode of connections between members of the organization and the coordination methods used. This way it reinforces or disposes of certain types of behavior and thinking. In diversified organizations with several products, which operate simultaneously on various markets, it is more likely for subcultures to appear in the course of adaptation to the greater organizational complexity.

Analyzing the role of the *founders* usually reaches beyond the framework of a simple contextual examination, their effect can be demonstrated through the operational mechanism of culture. In the case of a contextual approach we can only stress that organizations “inherit” the value system and desired behavioral patterns of the founders.

Formation and operation of cultures

Schein describes the formation of organizational culture in his work (Schein 1985) as a social learning process. In the beginning the organization has to meet the challenges of the uncertain environment and the need for internal integration. If the organization and basically its founders and early leaders manage to find successful responses, then the responses and the values and assumptions behind them will become exemplary for the members of the organization. If they keep to be continuously reinforced, then after a time they will become unquestionable and later on unconscious and will be transmitted to the newcomers too. The role of the founders is rather significant because in the first period of the organization, when uncertainty is especially high, due to their position of power their existing values and assumptions determine the forming routines of the organization (Schein 1985, 9). However when the basic assumptions solidify, the role of the founders and leaders decrease, they themselves become prisoners in the new culture.

On the directly observable level various mechanisms can be distinguished, which help in the formation and continuous reinforcement of culture. Schein analyzes them in the following categories:

1. What does a leader pay attention to, measure and control?
2. Reactions of the leader to critical events and organizational crises
3. Formation of conscious role patterns, education and training
4. Criteria for the distribution of rewards and positions
5. Criteria for recruiting, selection, promotion, resignation and firing

In my opinion these categories can easily be fitted into the wider model described by Ott (1989,88), therefore I present the latter in detail. According to him the formation and reinforcement of culture can be divided into a six-step process.

1. Preselection and hiring of members. Preliminary selection refers to the fact that the external image of the organization influences the pool of people applying there, for the most part of those not fitting into the culture does not even want to be part of an organization with conflicting values. Organizational selection only reinforces this process as both concerning personal traits and professional background the people selected fit into the existing culture. (This is true even if in many cases this aspect of the selection is completely unconscious.)
2. Socialization of members. This represents the process in which the newcomers internalize the desired behavioral and thinking patterns of the organization. Organizational socialization has a wide literature (Van Maanen and Schein 1979, Feldman 1980), in which it is pointed out that independently from its conscious or accidental, formal or informal way, every organization carries out the adaptation of the newcomers to the usual and expected order. Two characteristic elements of this process is the appointment of experienced tutors on one hand and the ritual initiation ceremonies which often require some kind of sacrifice from the initiates.
3. Removal of members who deviate from the culture. The members not fitting into the culture usually leave voluntarily due to the perpetual conflicts, but in many cases the organization consciously gets rid of them. These events usually get a huge publicity and are preserved long in the collective memory of the remaining members through stories.
4. Means of reinforcing behavior. An important assumption of behavioral science is that in certain cases it is possible to influence the thinking and values of people by changing their behavior (Bakacsi 1996, Bem 1970). This way the rewarding, motivating, punishing, informational, control and decision making systems of the organization all implant and reinforce the deeper layers of organizational culture too through influencing the behavior of the members.
5. Justification of behavior. Values and beliefs may also be stabilized directly (Ott 1989, 95). This is important because it is well imaginable that people conform to the expectations of the organization in their behavior, but the values do not internalize. Therefore the reinforcement methods which are not based on external motives, but rather on internal determination achieve deeper effects in many cases. (For example if one is able to successfully make people accept the notion that they are special members of a special group, it is a much stronger force influencing behavior, than for instance a formal control or a salary system.)
6. Cultural communications. The symbols, objectified and linguistic phenomena of culture continuously transmit the desired values towards the members of the organization. The information arriving in these channels permanently support organizational culture. During ceremonies and rituals, like for example when rewarding, the desired behavior patterns can again be reinforced.

The other concept as I have previously indicated identifies culture with the process and mechanism when the individual socially forms his view on reality and himself, its framework of interpretation and set of rules. This process is embedded in the history of the community, and as such it cannot be understood without it. Emphasis changes; from the conceptual interpretation of culture (what is culture?) it is reoriented towards the interpretation of a process (how does culture work?) Culture itself is the process through which the system of social intercourse responds to the uncertainties of the environment, organizes itself and becomes organizational reality (Smircich and Calás 1987). Communication becomes the primary means of operating culture.

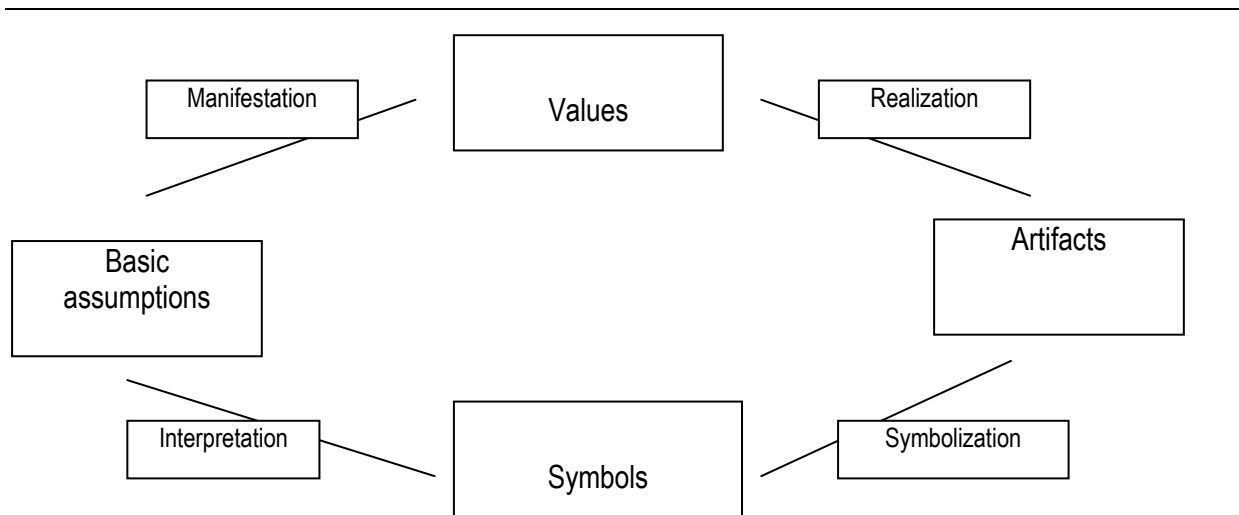
Here at the core of the analysis lies the question: how do the interpretive frame and the symbols which form culture, establish, change and sustain the socially constructed organizational reality? This approach calls attention to the fact that the operating mechanism of culture is more than just following and reinforcing norms (Morgan 1986, 140)

For people do construct reality to themselves with countless tiny implicit decisions before obeying a norm. These constructions then in turn determine norm obedience. Weick (1995) also analyses this process, and describes it as “enactment”, playing with the different meanings of this word.

However, the same event may result in different interpretations and therefore different norm obedience in the case of the individual members of the organization, which again emphasizes the ambiguity of organizational culture. In constant dialogue, through their interactions (Gelei 1995, 153) the individuals are able to create a constantly changing framework to interpret reality, which serves as the basis for mutual interaction. In creating these common interpretive frameworks and schemes, those in the position of power in the organization, the members of the dominant coalition, usually the leaders have a greater role.

An important distinction is that in these cases organizational culture is often described by the same observable factors as in the former theories, but here they are not objectified surface manifestations of culture, but rather its generating processes and means (Smircich 1983, 353).

Hatch (1993) tries to further develop Schein’s model, in order to take the symbolic-interpretive mechanisms into consideration in the operation of culture.



Hatch (1993) The dynamics of organizational culture, AMR, Vol.18. 657-663

At first assumptions and values create the expectations toward the events of their environment in a manifestation process. The result of this process will be the realization of the material phenomena of culture, through which we express our values and assumptions. Thereafter many phenomena become symbols, which we evaluate through our assumptions, and which at the same time are able to change our assumptions.

II.4.2. The Possibilities Of Transforming Cultures?

The possibilities to transform culture are permanently discussed in the literature. According to some approaches culture is considered flexible, making the leader responsible for the shaping of culture by transforming the values and symbols. These messages can be found in the focus of a large part of the management literature (Peters-Waterman 1986, Handy 1986, Deal-Kennedy 1984, in Hungarian about similar changes in culture: Heidrich 1998). Leaders have the opportunity not only to influence the behavior of the organizational members through changing the surface phenomena of culture and through personal examples, but also to slowly reshape the deeper values and assumptions. The tasks of leaders in this process are:

- to formulate and to document the new values and norms to be followed,
- to establish the formal communication channels to transmit them,
- to reinforce, implant the above messages through the informal channels (stories, rituals),
- and to establish an organizational structure and processes that fit the values.

The approach postulates that leaders are able to handle this process because they have the greatest potential to influence culture and their messages are unambiguous to their subordinates.

The approach of Gagliardi (1986) represents another concept. Assuming the deeper setting, unconsciousness and undisputability of culture he doubts if there is a way to change it. In this concept the basic values and assumptions cannot change. If some kind of dramatic event, like the change of the top leader makes it happen, then it would mean the erasing of the previous organizational culture and the establishment of a new one. Nevertheless this approach allows for the widening of cultures, that new values and assumptions may slowly join the existing ones and may build into their order. This presumes however that there is no sharp conflict between the old and new set of values, because in that case again the death of the old culture would be the only viable solution.

II.4.3. The Relationship Of The Organization And Organizational Culture

On the level of definitions all authors agree that culture is integrated and at the same time shared in character. Integrated means that cultural phenomena, both on surface and deeper levels are closely connected to each other through various patterns. Changes in the individual elements imply others at other places. Many researchers call it the holistic character of culture (Hollós 1993, 68).

The shared nature of culture indicates its common and differentiated character, just as the word “share” has multiple meanings (Hatch 1997, 204). Therefore we share the elements of culture, define it by values, beliefs, symbols etc., for these phenomena do not manifest separately on the level of individuals. At the same time sharing means that members differently share in these phenomena; it affects them differently and they themselves interpret it differently.

The above concepts are generally accepted, though the various researchers view the weight and effects of its consequences differently, which resulted in one of the oldest disputes in cultural literature. It was about the integrated, differentiated or fragmented nature of organizational culture, or from another point of view, about the existence of organizational subcultures and the relationships among them.

Martin and Meyerson (1988) were the first to use the threefold approach to organizational culture that became so popular – integration, differentiation, fragmentation – where the distinction principle is to what extent do the researchers accept the existence of subcultures and what role do they assign to them.

It is characteristic to most of the functional approaches that they approach organizational culture according to the *integration model*. This way they present it as a consistent entity with the role of creating organizational harmony and consensus. In this context we may see the organization as a greater whole with culture as one of its components. This concept of culture fits well into the functional interpretation of “internal glue”, the cultural phenomena form a consistent whole, and create the harmony of the organization by commonly shared values.

This approach does not mention subcultures, but rather places the opposite pairs of strong and weak culture into the focus of its analysis. It considers a culture strong if the organizational set of values, and the more materialized surface phenomena organically connected to it are commonly shared and similarly interpreted by everyone and are in harmony with organizational strategy and structure. The writings of the management gurus, mentioned several times before, which have a top managerial viewpoint belong here.

Other approaches do not deny the possibility the existence of subcultures. This *differentiating approach* of organizational culture acknowledges the existence of subcultures. If we take a closer look at the definition of subcultures we find that it is virtually similar to that of organizational culture, virtually the choice of the level of examination is the only criterion that determines what we consider subculture in either case. Hofstede (1980) handles this situation by using the expression 'culture' for his subject of analysis only at a national level, and in the case of organizations he only speaks of subcultures. He admits though that the concept of culture is also viable in the case of firms, professions and households.

The differentiating approach usually rejects the integrated concept of culture and considers the existence of subcultures a natural feature of corporate cultures. They relate the formation of subcultures to multiple reasons, which may come from within or from outside of the organization. This way the influence of the different professional background, the different levels and tasks of organization and the different environmental relations all lead to the formation of cultures in the long range (Gregory 1983). Meyerson and Martin (1987) draw the attention to the fact that the various organizational groups stay in connection with different segments of the organization's environment. This notion joins the classical concept of Lawrence and Lorsch (1967), claiming that this way the segmentation of the environment bears influence on the formation of subcultures.

Schein (1996) gives an interesting approach to the relation of subcultures and organizational cultures. In his opinion professional cultures have a much larger role than previously thought. He claims that the culture of a given organization is rather put together from the reflections of wider professional communities that are present in society. This must be so, because the history and experience of the given organization are not able to overwrite the influence of professional socialization. Professional socialization may be categorized on a wider level into three types of subculture, all of which are present in every larger organization:

- Operators – work in the core businesses, in the realization of products and services.
- Engineers – work in the functional organizational units planning and controlling the technology of the core business.

- Executives – top managers who have an interest in financial success and who have the ultimate responsibility for the operation of the organization.

The particular subcultures connect in various ways to each other and to the culture of the whole organization as well: their relationship can be supporting, neutral or either conflicting (Siehl and Martin 1984). Therefore when considering the whole organization, the definite integrating and controlling power of culture vanishes: inconsistencies between certain groups of the organization or between the espoused theories and procedures and those in use may rise to the front. The cohesive power of culture can only prevail in subcultures. Those firms are successful, which are able to keep the identities of the subcultures and at the same time to produce a 'common thread', a common interpretive and value system, which may serve as the basis for the cooperation of subcultures.

A third concept of the relation of the organizational culture and the organization is also possible, which focuses on the *concept of fragmentation*. This uncertainty holds for the relation both between the individual members of the organization and between the surface and deeper set layers of culture. According to these researchers the culture of organizations is best described by inconsistency, lack of consensus and constant uncertainty (Martin and Frost 1996, 609). They claim that any cultural stability and unanimity is temporal and has a narrow range, no matter if we examine the level of the whole organization or that of subcultures. According to these approaches the essence of culture is uncertainty, constant ambiguity; it is by no means sure that the members of the organization react similarly in uncertain situations, and so cultural programming does not work deterministically.

It can be mentioned as a critical notion to this approach, that its followers like to pick out organizations and professions, which, due to their operation or environment tend to operate in a high level of uncertainty, for example fire department or airport navigators (Weick 1991). This way they always easily get the results they would like to get.

II.5. Methodological Questions In Cultural Research

There are especially harsh debates going on concerning the methodological questions of research into organizational culture. Moreover, according to Frost and Martin (1996) a significant, and the most harsh part of the debate is not even public, but carries on in the background, during the article choosing and reviewing processes of journals.

Theoretical overviews usually present the methodological questions of the subject by the qualitative-quantitative opposition (Martin and Frost 1996, Ott 1989, Kindler 1980). Another concept partially adaptable to this one claims that in social sciences two great research orientations can be

distinguished: explanation and understanding orientated (Kieser 1994). The aim of explanation oriented approach is to trace the analyzed problem back to general truths through deduction. Understanding oriented studies aim for the local understanding of actual events and the exploration of local, individual relations through inductive methods and they try to understand social behavior on this basis.

Acknowledging this two approaches I shall present methodological problems based on the following aspects:

- Aims of research methodology.
- Time range of research.
- The relationship of the researcher and the organization analyzed.
- Methods of gathering and analyzing data.

II.5.1. Aims Of Research Methodology

In the research of organizational culture, and even generally in organizational science there is no general, meta-level explanatory model for the various phenomena. Therefore the aim of the explanation-oriented researchers is to *explore a system of categories* along the chosen characteristic of organizational culture and to place the organizations examined on it. This is the first step towards the formation of general models of culture. The research of Hofstede (1980) and Quinn (1991) can be mentioned here. Both of them aimed at the definition of general systems of values and at the formation of organizational groups based on these systems.

In the other major trend of the explanation-oriented researches they try to present *the relationship between organizational culture* and another organizational factor, usually *organizational performance*. They test its relationship to performance, which is usually described through certain financial indices or through the change in market share and controlling for certain contextual factors (size, environmental characteristics and type of technology) and perhaps by considering the time factor (Denison 1990, Denison and Mishra 1995). Perhaps the kinds of analyses like that of Peters-Waterman (1986) or that of Deal-Kennedy (1983) may also be mentioned here. These also try to establish general models through the examination and comparison of numerous organizations. The main aim here is to explore the general laws the way to build out a strong culture.

Among the understanding-orientated approaches we may list the *ethnographic* or other *qualitative approaches*. In many cases they use anthropological or hermeneutic methodology to explore the characteristics of a given corporate culture. Examples for such studies are Smircich (1983), Young (1989) and Schultz (1995). The application of this methodology cannot be connected to some area of interest, or

managerial problem, the purpose is to explore the operating mechanisms of organizational culture. According to Martin and Frost (1996, 604) “the best differentiation ethnographies are highly complex, full of nuance, open to conflict, pervaded by inconsistencies and ambivalences”. Using the words of Geertz(1973): we are faced with “thick descriptions”. Here instead of the general models of culture the purpose is to explore the constructions and interpretations of a particular culture. I shall provide the differences in the applied methodology after the details of the following aspects.

II.5.2. Time Range

There is a significant difference in the time ranges of the particular researches into culture between the two methodologies.

The followers of the explanation-orientated approach usually strive to prepare a virtual photograph of organizational culture characteristic of the given time period. During such examinations researchers usually collect their information through questionnaires, for this method requires the least time. At the same time the methodology of an interview is also possible. In this case due to the lack of time it can be achieved by having only a few key managers to answer the questions (Peters-Waterman 1986), or by a ‘commando’ of a greater group of interviewers at the same time (Edgren 1990).

The process of cultural change can be described by such an explanation-orientated approach. In that case the researcher returns to the organization from time to time, and prepares a cross-sectional survey about corporate culture. This way it is the series of virtual photographs that helps the exploration of the developing processes. All these researches reflect the tendency in the organizational science, which lays emphasis on longitudinal examinations, for this grants better chance to observe the changes and the process nature of the mechanisms of culture (Van de Ven and Huber 1990, Pettigrew 1990).

The followers of the understanding orientated approach usually strive to describe organizational culture in process, like a movie. A radically time-consuming solution for this is the ‘real’ cultural anthropological research. In that case the researcher spends a long time, at least a year but preferably more with an organization and as a participating observer he has the opportunity to gain really deep, almost completely ‘local’ knowledge about the given culture.

Due to the large time-sacrifice it is no surprise that there are quite few such researches, although several voices stress its necessity. Some of the few examples: Kunda (1992) has spent a year at an American hi-tech firm, where he analyzed the means of normative control used to bind the employees with high professional qualifications to the company. Barley (1990) examined how the development of technology influences the operation of the cardiological department in a hospital.

Most researchers into organizational culture do not have so much time available, therefore they arrange for a solution less radical. This usually means that the researcher spends a longer period at the organization, a few weeks or months, generally. He stays there until he succeeds in gathering sufficient information from multiple sources, and gets the opportunity to accompany certain processes along, examine several of their phases, or maybe discover past events with the help of interviews.

11.5.3. Relationship Of The Researcher To The Organization

There are several possibilities for a researcher concerning the relationship to build with the organization of his analysis.

The first approach usually builds upon the traditional role of the objective outsider. This means that researcher and his subject are independent of each other, the process of research does not influence the operation of the organization. This model is based upon a natural science approach and manifests in questionnaire researches, where it is well imaginable that the researcher does not even get in touch with the examined organization. This approach provides a good chance to compare organizations based on some standard measurement dimensions. At the same time it ignores the fact that the process of measurement may influence the subject of examination, an example from natural sciences is the Heisenberg-factor or from organizational science the Hawthorne-experiments.

The second approach typical of the interpretive paradigm definitely tries to build on the relationship and interactions between the researcher and the organization. Research is viewed as an inter-subjective process (Kvale 1996), and counts largely on the 'emic' knowledge of the locals, as opposed to the last approach, which almost completely remains on 'etic' level. This approach can be described best by the expression 'ethnographic', while its philosophy could be represented by the slogan: "participate, observe but do not intervene". The result of the research may naturally bear influence on organizational reality, but its exact way is up to the members of the organization; the researchers only wish to understand.

A third possibility is also worth mentioning, where researchers consciously come with the aim of intervention or change. One root of this approach comes from Schein's 'clinical' methodology, while the other originates from the school of action learning (French and Bell 1995). They claim that unless organizational members have direct interests in the results of the research we cannot count on getting regular and authentic information and cooperation from them. This way one has to harmonize the procedures of research and organizational change to ensure the motivation of the participants and grants a direct, practical expediency for the whole process.

II.5.4. The Methods Of Collecting And Analyzing Data

The traditional approach of methodology primarily dealt with the definition of the methods of gathering data. From this point of view research into organizational culture is very colorful, partly due to the fact that the various cultural phenomena are usually available to the analyst through different kinds of methods. However the two paradigms examined show a clear distinction concerning the methods for collecting data (Balaton-Dobák 1983).

The difference is primarily due to the fact that the explanation-orientated – or here theory testing - approach prepares a system of hypotheses well in advance of the actual research, and the purpose of the research is to falsify it. (In Popper's (1997) view a statement can never be completely and ultimately proved, for after an infinite number of reasons and examples there may still come one more to refute it. Therefore the research scientist proceeds through falsifications and denials towards the theories with greater truth-contents.) According to this approach a researcher knows what he is looking for, since he is established a system of dimensions or categories in advance, with the help of which he is able to collect and group data.

The other approach does not have such systems of hypotheses. The theory shapes in the process of the research as a result of feedback, so we can call it as a "theory development" approach. Therefore at the beginning of the process the researcher "throws out his net" to the widest possible range by the help of a starting theoretical framework consciously held temporary. During the course of the process he continuously narrows his view to the factors that prove most important. This way it constantly rearranges and finalizes the categories used, the data gathered together with its grouping result and finally the theoretical framework too.

This process is often described as the hermeneutical cycle (Kieser 1994), but the "grounded theory" approach of Glaser and Strauss (1967) is also based in this concept. This theory originates the theoretical framework forming as a result at the end of the analysis "chain" from the empirical truth.

Gathering and analyzing data within the explanation-orientated approach.

Because in the course of this approach the researcher knows exactly what to look for, collecting data is a structured quantified method. The two most important forms of this are the questionnaire and the structured interview.

There are numerous standardized questionnaires, which are trying to describe organizational culture primarily through the exploration of norms or values. Such questionnaires can be found in

Hofstede, in *Competing Values (Focus-93)* and in *GLOBE (House et al. 1997)* concerning espoused theories and for example *Organizational Norms Opinionnaire (Ott 1989, 114)* concerning norms. It is a common characteristic of these questionnaires that they test the agreement with the pre-formulated values or behavior patterns. Good questionnaires have to take a validity and reliability test before going out. In some cases the results become normed, which provide for a better based comparison between organizations. We may consider Hofstede's or the GLOBE questionnaire such means of measurement.

Overviewing questionnaires it is apparent that they overlap in content, many times we meet similar categories of values or norms, perhaps operationalized somewhat differently. Rousseau (1990) pointed it out that the values most often examined may be categorized into three larger groups: task-orientated, interpersonal and individual orientation of values. Apparently these categories fit well into the recently explored typical group behaviors (Bakacsi 1996).

The main problem with the questionnaire approach is that they only grant access to what is already known. Members of the organizations have to force their opinions into one of the given categories. On the other hand it is a great advantage that they are standardized, and have relatively low time and resource needs and the comparability to larger populations also.

Another typical method for gathering data is that of the structured interview. The interview going along pre-formulated question groups, and often offering pre-coded answer types is in fact a questionnaire taken up personally. An advantage of the usage is that it provides a much larger rate of respondents and returning, helps in the clarification of possible misunderstandings and grants the opportunity for collecting further, additional data. Its main disadvantage is the very large amount of time it needs and the possible fear of answering without anonymity.

The key point in all these methods is statistical sampling, because it significantly affects the reliability and generalization too. This way the aim is to form ever more stable and representative samples. These data collecting methods make a large number of samples easy to make a comparative testing, and make the application of mathematical-statistical methods possible.

In this case the application of formal mathematical-statistical methods is predominant. The range of applicable tools is very wide from the hypothesis testing to multivariable structural data analysis. Their common characteristic is the distinction between dependent and independent variables and the analysis of the relations between them. The results of data analysis must meet the expected reliability and validity norms.

Gathering and analyzing data within the understanding-orientated approach.

As I have previously presented, this approach postulates the social construction of organizational reality. If we suppose that the interpretations of individuals bear significant influence on their behavior, then we cannot lean on standardized measuring tools. In the course of the research we will need flexible, interactive, person and situation-specific measuring, data gathering tools (Rousseau 1990, 165).

In this case the researcher does not have a predefined research model, therefore data gathering proceeds openly; key categories and their relationships get into shape during the research. In accordance the most typically used data gathering tools are the qualitative interview (partly structured, partly unstructured) observation or the processing of archive materials.

The informal qualitative interview fits into the tradition that says that researcher's knowledge is formed through interactions (Rorty quoted by Kvale 1996, 37). The process here provides with the opportunity for both parties – meaning the researcher and the organizational participant – to construct the final result together. The 'emic' concepts of local participants are thus explorable and able to be drawn into the interpretation. The interview provides the opportunity check back, test and specify, and all this may further a deeper understanding. It is important that we do not ask for a general answer from our partner, but for the description of actual events and processes from his point of view. (Naturally this also could mean disadvantage, since this way the subjects of the interviews may feel their anonymity threatened, as opposed to the much less personal questionnaires.)

The researcher has the option to make use of the instruments of observation. The researches into culture emphasize the use of this instrument, for, as I have previously presented, the observable phenomena make up a significant part of corporate cultures. According to Jermier (1991) the professional examination of culture can be executed through observation, this is the only way to gain reliable data about the richness of levels. This way visual analysis slowly gains room (Meyer 1991). Almost everything can be observed from the crucial events through artifacts to clothing or furnishing habits, as I have shown when dealing with the operationalization of culture.

Data recording has produced its non-traditional ways both for observation and for interviews, which are supported by modern technology: video recorder, tape recorder, photographs.

In the course of data gathering it is worth indicating that individuals may not only be asked for information separately but also in group panels, and in focus-groups, which offer the opportunity to observe the working of norms and values in addition.

Qualitative data analysis methods have experienced a remarkable increase in number. It is virtually impossible to count all of the possible methods, so a few examples follow: categories, building up narratives or scenarios, interaction analysis, preparing case studies. Their primary characteristic is the application of the concept of the hermeneutic cycle introduced above (Kieser 1994), which builds upon

the constant dialogue of the shaping interpretation and the data bank, upon the mutual feedback. An important first step of the process is some kind of data compression, a kind of encoding, upon which the interpretive process can then build.

Parallel use of multiple approaches

The complex nature of organizational culture attracted application of complex research methods. The parallel use of the explanation and understanding oriented methods may offer an opportunity to compare the individual organizations and to appropriately generalize the results. This should happen in a way that research still remains open for the individual characteristics of local contexts and for exploring the meanings hidden behind the surface phenomena (Rousseau 1990).

Several research programs have attempted to blend the different data gathering and analysis methods, for example Jernier et al. (1991), Denison (1990), Hofstede et al. (1990), Denison (1995), Siehl and Martin (1988). This triangulation may be realized in various ways.

According to Schultz and Hatch (1996) several traditional approaches exist in connection with the problem of harmonizing different types of interpretative frameworks. Some are based on the incommensurability concept of Kuhn and state that paradigms are incompatible language games. Others vote for the integration of paradigms, which would usually mean the formation of a more general, higher level interpretive framework. This in turn leads to a mixture that does not count with the different basic assumptions of the various approaches. The third way is what they call the "crossing of paradigms", which may be achieved in several ways:

- Parallel strategy means applying methods separately, "maintaining an attitude of tolerance".
- The different frameworks are applied sequentially, where results gained from one perspective can inform the other.
- In bridging strategy transition zones are defined, where second-order concepts acting as bridges, dissolving the complete separation of frameworks.
- In the interplay method based on simultaneous recognition of contrasts and connections a tension is maintained, which helps to cross-fertilize the research programs.

II.6. Linkages To The Corporate And Managerial Problems

The idea of corporate culture became very popular among managers, and bestsellers of management literature were also written about this topic (Peters-Waterman 1982, Deal-Kennedy 1982).

So it seems that many practical problems are related to this research program. In the following paragraphs I would like to examine what kind of company problems resulted in cultural analysis.

Here are also the climate or attitude surveys to be mentioned. In my opinion, these surveys are not related closely to the topic of culture, because they usually want to measure the rate of satisfaction related to certain factors (salary, work conditions, supervisory style). In its background there must be some cultural factors, but they include many effects, that depend on more temporary and external circumstances.

II.6.1. Cross-Cultural Differences And Conflicts

The appearance and popularity of the topic of corporate culture, and the globalization of economic life and the importance of the multinational companies did certainly not happened accidentally at the same time. The existence of multinational companies that are present in many countries, the appearance of chances for an international carrier, the expanding international cooperation, and the increasing number of company acquisitions and strategic alliances have brought some new conflicts based on cultural differences (Trompenaars 1995).

These conflicts can appear at different levels, so the theoretical frameworks dealing with the topic of cultural differences can also make examinations at different levels. The research can extend to the analysis of conflicts and characteristic features of nations, organizations, and homogeneous groups or sub-cultures within an organization.

1. There are examinations and analyses expanding over the characteristic features of whole nations, (Hofstede 1980, Redding and Wong 1993). These analyses are important from the negotiators point of view, too, in case of international conferences. There are many surveys related to the intercultural negotiations, proving the importance of the topic (Lockett 1988, Graham and Herberger 1983, Adler 1993). On the other hand, the multinational companies with multinational workforces and plants in many countries must know the characteristics of the given culture. The researchers try to find some typical value dimensions that can explain and prevent the conflicts originating from the fact that people of different nations are working at the same company. The successful selection of the to-be expatriates and the effective preparation are also some of those issues, that have attracted many researchers. (Thomas and Ravlin 1994, Weinshall and Raveh 1993) According to the experiences the most important abilities are the preferences of openness and learning from experience.
2. The aspect of cultural differences at an organizational level is extremely important in case of mergers and takeovers. The expansion of strategic alliances also supports the comparative

analyses at organizational levels. I will later return to this question while discussing the relationship of culture and strategy.

3. The analysis of subcultures of organizations and the conflicts between them is possible from many point of views. Examinations according to sex and age have already been carried through. (Adler and Izraeli 1994, Leviatan 1984). Today there is emerging emphasis on the conflicts of people with different occupational backgrounds and with a different place in the hierarchical structure. (Barley 1983, Schein 1996) Generally speaking, all these researchers try to turn our attention to the advantages based on the diversity of the workforce, and together with it the diversification of the way of thinking and experiences. The competitive advantage arising from the diversification got into focus mainly in the United States - to a certain extent because of its multi-ethnic population (Cox and Blake 1991). This attitude means more than the attitude based on tolerance, as it tries actively to exploit the opportunities stemming from diversities.

II.6.2. Culture, As The Tool Of Control

As I have written before, for the functional approach corporate culture means primarily a kind of mental programming, a kind of control mechanism. This approach, of course, offers managers the possibility to supervise and direct this control mechanism. In this topic we can differentiate two main approaches: one of them is the clan control conception, the other is the value-based management theory.

In favor of organizational cooperation of people with different interests Ouchi (1980) differentiates three possible control possibilities from the aspect of transactional costs: market, bureaucratic and clan control. The last one is equal to cultural control, because it works through values, norms and expectancies, based on a longer previous socialization experience. As a result the members of the organization bind themselves internally to the common goals and procedures. Alvesson and Lindkvist (1993) differentiate three forms of clan organizations: the economic-co-operative, the social-integrative and the blood-kinship clan. The background of this differentiation is the motivation of the members of the organization. According to this the work of the control mechanisms will also be different in style.

The application of clan control is the most suitable for organizations, when the outputs can hardly be measured, the technological and transformational processes are not perfectly known, the organization is facing a rapidly changing, hardly foreseeable environment. To use the clan control successfully it is unnecessary to use a wide information system, but intensive social relationships is supposed among the members of the organization.

According to the interpretative criticism against this approach, at lower levels we cannot experience such a deep, internal commitment towards the goals of the organization. The values and norms control the members only at the uppermost levels; culture has an effect only on the top leaders. (Hatch 1997, 342).

Another group of the control attitude approaches places the value-based management in the focus. In the central roles of culture the top leaders are said to be, who can integrate and make their firm successful, mainly by an attractive vision and the establishing and reinforcement of shared values. This concept appeared even in the earliest analyses of corporate culture, and until now it has got an important part in functional approaches. (Peters and Waterman 1982, Deal and Kennedy 1982, Enz 1988). According to the concept, called "value-engineering", the task of the management is to articulate and reinforce the central values of the organization by using ceremonial actions, stories, rituals, and local jargon. (Martin and Frost 1996, 602).

This approach is closely related to the "strong" culture conceptions, but in this case we are talking about its effect on the employees, with the aim is to increase corporate performance. On the other hand, the research about the characteristic features and actions of the best leaders has led to the conception of value based management. From the middle of the 70's instead of the traditional - transaction-based - management concept a new leadership concept has evolved. It places the symbolic effect of managerial behavior, the non-verbal communication, ideologies and values, and the empowerment of the followers into the focus.

This concept stresses the role of shared values, and the internalization of them. The most important task of the leaders is to influence the interpretative frames and value orientation of their colleagues to produce a subtle, form of leader control based on internal commitment (Tryce and Beyer 1991). According to this concept, the relationship between a charismatic leader and the followers is based on the commonly shared values.

Nowadays the empowerment conception, that is becoming more and more popular in the Hungarian management and consulting circles, is closely related to this topic. Many surveys study the techniques the formation of internal commitment towards the company and self -motivation (Browner and Kubarski 1991, Thomas and Velthouse 1990).

This internalized management and control method is suggested in the case of companies working in an uncertain, rapidly changing environment, and in case of people with higher education, in professional jobs, and in case of people doing unstructured work. For example a consulting company for information sciences (Alvesson 1992), or the workers of the R&D department (O'Reilly and Tushman 1997

Of course this approach also faces the above mentioned problem, that the freedom of the leaders is questionable when we talk about values, formation and conscious application of culture.

II.6.3. Anti-Managerial Approach

This approach is closely related to the above mentioned culture-control relationship. Instead of control here researchers talk about power and the exploration of dominance within the organization. As I mentioned it before, in these cases the researchers give up their external, objective role, and they try to influence the life of the organization actively, after exploring those mechanisms that are considered to be negative.

One important issue in this approach is the third dimension of power defined by Lukes (1974). In his point of view this kind of power originates from the fact, that somebody is able to influence the other's perceptual, cognitive, preferential or constructional processes, and this way he can enforce his goals on the influenced person. In this subject many articles were published which are based on Foucault's notions as well. Researchers (Fletcher 1992; Hawes 1992) examine those managing processes, which - according to their opinion - on the surface support the corporate democracy and the autonomy of the employees. However, if we look at it more carefully it turns out, that they support a higher and more sophisticated level of the control and the maintenance of the status quo of power.

In another example, Willmott (1992), examining the "excellence" literature shows that those leaders who consciously build on the character of the corporate culture, how can increase the flexibility of the firm while they can increase the indirect and internalized control over the employees.

Another research approach is based on feminism, therefore it tries to reveal the masculine character of different organizations and their culture. Calás and Smircich (1991), applying the method of deconstruction, set to reveal what kind of rhetorical and cultural devices are used by the theoretical researchers and practical specialists of management to deceive the readers and the employees.

II.6.4. Change Management - Organizational Learning

From the aspect of organizational behavior culture is an important influencing factor, but at the same time, it is a phenomenon difficult to change. On the basis of these, it is not surprising that organizational culture has a significant role among the problems of theory and practice of organizational change.

The changes and the expectations before cause significant uncertainty in the organizations. This uncertainty makes people afraid, that is why they resist any changes. The more reliably operating the

previous culture was, which usually means that it was strong and properly integrated, the more strongly the organizational characters stick to it.

The interpretative approach adds that in an uncertain situation the ambiguity of the organizational reality may be emphasized. Individuals in the organization interpret the events in different ways, according to their own interests and viewpoints then of course they act differently and they may have opposing expectations towards each other. This is the problem Di Bella (1992) deals with in his study. Investigating a real situation he proves that it is not possible to carry out pre-planned, continuously controlled changes, because the members of the organization interpret differently the goals and the ways leading to it - even if they use the same words in the description - and of course they react differently.

It is well seen that researchers and managers assign a key role to culture in the successful change management process. According to the functional approach, symbolic and ritual activities play significant role even in the "melting" and "freezing" stage of the changes. (For example, the conscious and spectacular questioning and abolishing of old traditions and rituals, such as the abolishing of the corporation day or the vacating of museums.)

Approaches that describe changes as organizational learning also deal with culture. For them culture is the organizational memory accumulated as the result of the learning processes of the organization (March-Levitt 1988). This memory is stored in perceptual and behavioral routines. It is activated unconsciously due to the stimuli coming from the external environment. This way it leads to the individual actions, which form the base of new experiences. Therefore, the organizational culture represents at the same time the starting point and the result of the learning process. Cook and Yanow (1996), who agree with the interpretative approach, consider the operation of culture, the gaining, keeping and changing of intersubjective changes to be organizational learning. The question of organizational learning approach primarily refers to that point how present learning and change processes are supported and helped by the earlier developed routines, the culture.

II.6.5. Strategy

The relationship between culture and strategy has been playing a central role in the analysis of culture for a long time. Following I will examine the relationship between corporate culture and strategy from four main aspects:

1. Strategy making process: What role the organizational culture and the set of values in the strategy forming process can play.
2. Corporate performance: How does the corporate culture support the realization of strategic goals.

3. Corporate acquisitions and mergers: How does it support or hinder the execution of acquisitions and the realization of the possible advantages deriving from them.

4. Strategic competitive advantage: To what extent can corporate culture mean competitive advantage or even core competence.

Place in the strategy making process

From the '80s on, the role of corporate missions and visions is getting to be more and more emphasized in strategic management. In fact, the concepts of strategy and culture cannot be separated easily, since cultural programming itself answers basic strategic questions, namely, in which market and in which way the firm operates (Tichy 1983). We can define the development of the corporate culture as the development of its strategy. This idea is closely related to that concept which states that the one of the main differences between strategic planning and strategic management lies in the fact, that that latter builds culture into the strategy forming and realization process.

Because of the above mentioned facts, the formulation of fundamental and generally accepted values are considered to be the first important step of strategy making on which even more concrete, numerical formulations are built. In a dynamic, turbulent environment, where it is impossible to formulate a long-term, explicit, plan-like strategy, the formulation of a mission may be the right kind of strategic plan.

Corporate acquisitions and mergers

In the last decade and especially in our days we can experience an increase in the number of corporate acquisitions and mergers. However, it is well known that a lot of times the hopes for synergy and financial profit do not occur. Increasing is the number of those studies, which regard the cultural factors as the reason for failure in mergers (Jemison and Sitkin 1986).

Those theoretical frameworks, which deal with problems in connection with culture, can be divided into two groups. The first one looks for the reasons of cultural resistance, which is elicited by the increase of uncertainty going along with the process. Obviously this concept counts the topic to the organizational change theoretical framework.

The second concept examines whether the two cultures are compatible for each other and it looks for potential cultural differences and conflicts originating based on them. For the success of the acquisition the two firms have to fit together. The demand for adaptation/fitting becomes manifested in several areas from the "hard" factors (technologies, market processes), to the "soft" ones under which management style, culture and values are usually listed (Navahandi and Malekzahend 1988). According to another assumption, one of the most important conditions of mergers is that the employees would be

attracted to the other part, they would be open towards cooperation and they would not put up resistance (Larsson 1993). If there are too many cultural conflicts between the two firms, then it may totally hinder the success of in other way possible synergy factors (Mirvis and Sales 1990).

There is example for a definitely interpretative approach as well in connection with analyzing the problems, which have raised during and after acquisition. A good example is Risberg's (1998) study.

Therefore, the set of problems is in close relation with the topic of intercultural conflicts, it may be interpreted as its special subcategory.

Corporate performance

A long chapter of the corporate culture studies is filled with those ambitions, which tried to prove that the corporate culture directly effects the performance of the firm. The central issue of the early "management guru" studies (Peters and Waterman 1986, Deal and Kennedy 1982) was the presentation of the relationship between culture and corporate performance and success. However, their reasoning was mainly based on anecdotes, they did not apply scientifically accepted argumentation and empirical support. They neither defined formally nor measured corporate culture. Nevertheless, their central issue was that corporate culture is the most important sign of the "excellent" corporate performance. The concept of "strong" corporate culture is not clear-cut (Saffold 1988, 547), certain researchers may interpret as coherent, homogenous, stable or harmonic set of values. Saffold (1988) calls this approach "trait" approaches, since their goal was to reveal which cultural traits - in other words, set of values - lead to success. Usually researchers find different elements vital from the aspect of success.

We can formulate both methodological and conceptual criticism against this approach (Gordon and DiTomaso 1992). These approaches are usually not considered scientific, because of the incorrect definitions of the phenomena or the lack of control or comparative groups. Moreover, after a few years the previously successful corporations started to perform badly which was the consequence of the change in the environment.

Around the turn of the '90s some methodologically more established studies were carried out. They tried to respond to the previous conceptual and sampling criticism. Kotter and Hasket (1992) analyzed fourteen years of data series of certain firms in order to reveal the correlation between culture and performance. Hofstede and his colleagues (1990) carried out researches at 20 firms based on deep interviews and questionnaires. Denison (1990) got samples from dozens of firms, carried out quantitative analyses taking into consideration the time lag as well and then he made qualitative case studies. Martin and his colleagues (1988) tried to demonstrate the relation between value orientation and financial

performance by sampling 100 big firms. We cannot say that they succeeded in revealing a direct and close connection between certain commonly shared values and the companies' financial performance.

The cause of the problem is multifold. On one hand there are the concepts itself; for example the teamwork, the participate management style or the co-operation; which do not have a well-defined content, they are interpreted differently in different cultures, though these concepts are key terms from the "strong" culture researcher's point of view. In the different organizations they are defined in various ways, therefore, not surprisingly it is difficult to demonstrate any commonly shared influence of them (Siehl and Martin 1990). On the other hand, we must take into consideration the time factor too, because we can suppose that culture needs time to exert its influence on the performance of the firm, it does not happen from one day to the other. Besides this, it is also presumed that culture will affect loyalty, moral and satisfaction and on the financial indices (Siehl and Martin 1990). Moreover, corporate performance originates from several dimensions and different stakeholders consider different outputs to be important (Lewin and Minton 1986).

Finally we should not forget that the connection between culture and performance is not certainly unidirectional. In expanding firms where the financial situation is more favorable, they can care for their employees more properly since there are more resources to support co-operation in a friendly atmosphere, to create pleasant working environment or to tolerate mistakes. Maybe therefore it is not surprising that many times the "life-long" employment discipline - which is regarded as basic cultural characteristics - lasts until the favorable competitive position of the corporation is not disturbed. This happened recently in case of many Japanese firms. Today another concept is strengthening claiming that corporate culture is only indirect relationship with the corporate effectiveness and performances. This concept, however, leads us thoughts to consider culture as a general competitiveness factor.

Strategic competitive advantage

Those (Barney 1986, Grant 1996a, Leonard-Barton 1992) who agree with this approach do not claim that there is a direct relationship between the corporate culture and the performance. However, they assume that a given corporate culture is able to offer long-term and unimitable competitive advantage. Barney's (1986) essay can be considered as a starting point. In his opinion, if a resource, for example the culture, is able to provide long-term competitive advantage for a certain firm, it necessarily has the following characteristics: it must have a value creating influence, it has to be rare and it has to be difficult to copy for other firms.

This description is obviously similar to the quickly spreading concept of the resource-based strategy (Wernerfelt 1984) which will be introduced in the next chapters. More and more consider the

corporate culture to be an important resource, applying Prahalad and Hamel (1990) expression: "core competence". Many authors claim that the base of competitiveness is the unique, organizational level integration of the human resources (Grant 1996a, Leonard-Barton 1992). It takes a long time for the culture to develop, after it however, it will survive despite the changes of its members. This makes it difficult to copy and, at the same time, valuable from a strategic point of view.

Naturally, not every corporate culture builds competitive advantage. If it does not supply the corporate performance with supplementary value, if it does not have special, rare characteristics then it is unable to provide the expected advantage on the market. Therefore, it is not worth copying the culture of successful firms; rather unique, characteristic values should be developed. By this statement Barney (1986, 661) produces another criticism against Peters-Waterman "success-receipt". Many times culture means competitive disadvantage, since the repetition of past behavioral types is rather a hindering factor from the aspect of finding newer and more effective answers.

In the following chapters of this study I will give a detailed elaboration of this approach and show how it is connected to the corporate culture.

II.7. Summary: Points Of Debate In The Discourse On Organizational Culture

As we have seen, there is no unanimous definition of organizational culture. The concept of organizational culture, the range of phenomena and mechanisms analyzed by it can be very wide according to the aim of the research and to the theoretical framework, even within the particular paradigms of organization theory. Besides the numerous differences it is worth pointing out the similarities which are hidden in every approach. In connection with culture everybody assumes that:

- Culture is not a directly observable phenomenon, the factors which represent the essence of culture are under the surface.
- Culture is a characteristic feature of a community and it is a commonly shared phenomenon among the members of a group or organization.
- The elements of culture exert an integrative effect on the members who had internalized them.
- Culture is a learned feature inherited through socialization processes.

These common aspects are general enough for the particular studies to branch into countless directions. As we have seen from the previous overview as a result there are numerous debated questions in connection with the subject of corporate culture:

- What can we consider to be the definitive core elements of culture: values, norms, basic assumptions, scenarios or interpretive frameworks?
- To what extent can culture be influenced and by whom?
- What is relationship of the culture and the leader?
- What is the role of national culture in defining corporate culture?
- How does culture influence the process of corporate learning and environmental adaptation?
- If there are corporate subcultures and what is their relationship to organizational culture?
- How can we describe the relationship of culture to corporate performance and competitiveness?

From among the questions mentioned above this study would like to contribute to the last two, adjoining the resource- and knowledge-based concepts of organizations.

The concept of organizational culture is such a complex and general theoretical concept, which has a lot of interpretation and operationalization possibilities. In my opinion it is not worth debating what organizational culture is. It is better to accept the co-existence the different methodological and theoretical frameworks, and to get involved in the cultural analysis. That means shifting the attention from the definition, or the operationalization of the concept onto the question, how the different frameworks can contribute to theoretical debates or practical problems.

In this pragmatic approach the starting point of the research is a real life, corporate problem, where the researcher might be able to contribute to the solution of the problem by the way of cultural analysis.

In the following part of the study I am going to introduce an approach, which aims to interpret the relationship of organizational culture and organizational performance (competitiveness) from a new point of view. This is the resource-based approach of the firm, which is the base of the knowledge-based approach. After that I going to try to understand the relationship of organizational culture and corporate competitiveness through an empirical research, which focuses on the practical problem of new product development.

III. RESOURCE BASED APPROACH OF THE COMPETITIVENESS OF THE FIRM

III.1. Basic Assumptions Of The Strategic Fit And The Resource Based Approach

One of the main questions of the research into management and organization concerns what lies behind the success or failure of certain firms. Surveying the history of theories and management methods, we can state that the results of organizational performance and competitiveness are traditionally approached from two sides both in theory and in practice. Therefore the starting point on one hand is the analysis of the external environment and the adaptation to it and on the other hand the evaluation of the internal resources.

This is also reflected in the logic of the traditional means of strategic management, the SWOT analysis. However, the two aspects of analysis were not always considered to be equally important. From the '60s to the end of the '80s the external environment was accounted to be the primary factor in the formation of corporate strategy. This way of thinking is reflected in Porter's approach of the concept of strategic adaptation (Porter 1993) which was considered to be dominant model for a long time. In the background of these approaches, in accordance with the roots of the "industrial organization theory (I/O)" in the mainstream of economic theory, the following presumptions can be found (Hitt and Ireland and Hoskisson 1995, p14.):

- Most firms have very similar resources and choose from similar competitive strategies.
- The available resources are mobile, they can be transferred between given firms. Therefore the existing differences in the resources are temporary.
- External environment has a key role for the competitive strategies resulting in maximum profit.

In accordance with these assumptions, the primary task of the firms is to find the most profitable branches of industry and by adapting to its internal structure the most efficient methods of exploitation. The internal structure of the industry is defined by the following five factors: suppliers, customers and competitors, substituting products and potential newcomers (Porter 1993). According to the final conclusion, firms have to pick one of the following general competitive strategies: they either become cost leaders or differentiators, creating unique products.

Summing up, it is well seen that the successful organizational strategy is defined by external environmental factors. In accordance with it, the most important task will be to maintain the continuous adaptation to the environment.

The problems in connection with this approach are the following:

- Tautology is hidden in the statement that those firms will be successful which gain good positions in successful industries. (The reason for success is the success itself.)
- Applying it we get an answer primarily for which industries are the most profitable ones, but we cannot determine why certain firms are able to acquire these positions while others not.
- It draws the managers' attention too much towards influencing the industrial structure, moreover, it is possible that their activity is for the advantage of their rivals – see free riding phenomenon (this and the previous notes: Black-Boal 1994, 131-132).
- It is also revealed that the supposed flexible resource flow among firms does not prevail. Market imperfections and failures, or behavioral features may lead to permanently established resource combinations at certain firms, which hardly can be eliminated either by acquisition, copying or substituting. (The detailed description of transferability problems on the basis of mainstream economist models: Penrose 1959, Peteraf 1993, and with the integration of the institutional approach: Oliver 1997)
- Moreover, neither of the changing tendencies of last decades' market situation have favored the approach of external adaptation. Since, most of the firms face difficulties in creating long-term strategy under the slogan of adaptation, when the borderline between industries is getting more and more blurred, customer demands are changing fast and technologies are developing at a never before experienced pace. In case of firms operating in a quickly changing environment, internal resources and abilities are becoming the basis of long-term competitiveness (Grant 1996, 117).

In accordance with the above, from the end of the '80s on, the elements appearing on the other side of the SWOT analysis – in other words, the internal resources of the firms, the basic starting points of competitiveness – are becoming emphasized. The resource-based approach of organizational competitiveness (Barney 1996, Mahoney-Pandrian 1992) has developed by recalling and elaborating the previously forgotten thoughts of Penrose (1959) and Wernerfelt (1984). The suppositions of this approach are the followings:

- Individual firms have different resource stock even in the same industry.
- It is difficult to transfer most of the resources between the individual organizations.
- The basic source of organizational competitiveness derives from the possession of valuable resources and their combination and usage in a more efficient way than the competitors.

Therefore, according to this approach the firm can be described as the individual combination of different resources. In this case the goals of the management to maximize the benefit gained by these resources and to keep it above the average level.

The focus of the resource-based approach is the way different firms can achieve long-term competitive advantages by developing, integrating and leveraging their resources. Although certain approaches sharply contrast the “environmental fit” and “the resource based” theories, from the practical point of view they rather complete each other – see the integrating SWOT analysis model -; and the main difference is in the emphasis on the internal and external elements.

The resource-based approach acknowledges the role of the environment from the aspect of resource value. Therefore, for example Hunt (1997) distinguishes among three such external factors: change in customer preferences, government influence on the legislative and regulatory framework and competitors’ actions. Collis (1994) also supposes that certain resource values depend exactly on the characteristics of industrial context. According to this, every time, in every industry we can define a resource (or the combination of resources) which provides the greatest advantage in the competition. For example, in the soft drink market, it is the development of the trademark, which provides this advantage for the firm.

III.2. The Interpretation And The Categories Of Resources

The concept of resource, which forms the base of this approach generally, has an open and relatively wide-ranging interpretation. “Resources are widely interpreted inputs in the firms’ value-creating process” (Antal-Mokos and Balaton and Drótos and Tari 1997,68), or as Wernerfelt claims (1984): "By a resource is meant anything which could be thought of as a strength or weakness of a given firm. ... tangible and intangible assets which are tied semipermanently to the firm."

Each theoretical work distinguishes different types of resources. In the widest sense, we can differentiate between the set of material and non-material resources. (The division according to physical, human and organizational resource also appears.) However, there is not a uniformly elaborated categorization for a more detailed classification. Every author classified the possible resources from his own aspects. In the following table there are three relatively more detailed list:

Hunt (1997)	Antal-Mokos-Balaton-Drótos-Tari (1997)	Grant (1996)
Financial	Financial	Financial
Physical	Physical	Physical
	Technological	Technological
Organizational	Organizational	Culture
Human	Human	Motivational
Informal		Professional knowledge
Relational	Innovation based	Communicative and interactive
Legal	Reputation	Reputation

Apparently there is a general consensus in the interpretation of the physical resources, however in the description of intangible ones great differences can be detected. Maybe this is what contributes to the attractiveness of the resource-based theory. Namely, this leaves the possibility open to every firm to evaluate its resources according to its competitive situation and its goals; or in certain cases to re-define them. The word “resources” here really means potential. All such factors can be listed which distinguish the firm in the market competition and/or supply the firm with certain value creating power.

The resources should have the following features in order to become the basis of sustained competitive advantage. They are:

- valuable (namely, they can provide the value added which is expected by the customers),
- rare (not easily available, owned by few)
- imperfectly imitable (difficult to get it by other corporations),
- non-substitutable (they do not have equally valuable alternatives).

The following factors and reasons may contribute to the development of such features which have isolating influence and mean limits for the transfer and imitation by the competitors (Collins 1994, 146, and Nahapiet-Goshal 1998, 260).

- Physical individuality – for example the special geographical location.
- Tacit character – cannot be made conscious, cannot be communicated in an explicit way such as for example all the ins and outs of the making of a unique instrument.
- Historical and process dependency – “path dependency” – for example the economy of size, the complexity of interconnectedness, effectiveness derived from experience.

- Causal uncertainty – uncertainty coming from the technological and social complexity regarding the resource value. Knowing for example that the competitive advantage is based on the human factor, it still cannot be known how it is developing, what the rivals should really imitate.
- It is a special single possibility in history, which, if it has passed, the latecomers are in a more disadvantageous situation than those who arrived early.

It is because of the listed factors that in a certain industry it is not clear-cut for the competitors what resources or resource-combinations made it possible for the leading firm to achieve significant advantage and earnings. Even if they were able to identify the cause of higher benefit, they still would face difficulties in copying and applying the factors of success. Of course, this makes it more difficult to catch up with the ones ahead.

From the aspect of the competition, those resources can also be important which do not have these characteristics, for example, those which are considered to be the “threshold” in the respect of competition. Though these resources do not contribute to the competitive advantage (since they are not rare, and more rivals may have them), but they are critical considering the efficient operation (Grant 1996, 126). Such a resource may be the possession of an information system or the accessibility of certain distribution channels. In connection with this necessary but not distinctive resource type, Leonard-Barton (1995, 4) uses the expression, “enabling”. Besides he distinguishes “supplementary” abilities as well. Although they supply the product with value added, they are not unique or critical. It is good if the firm has such resources but they are not significant in respect to the market competition.

III.3. The Role Of Resources In Creating Competitiveness

Knowing what those features are by which resources become valuable regarding strategy, it is worth examining the characteristics of certain resources from this point of view.

Undoubtedly great differences can be detected between the material and non-material resources from the aspect of imitation. As Barney (1991) claims: the physically embodied technologies, either in the form of machines, automated manufacturing systems or complex management information systems, are typically imitable. Moreover, there are several well-known examples, which represent that the possession of the material resources itself does not yield competitive advantage. A plant can be packed and built up in another place in the same way but for establishing the efficient operation at the same level it is not enough. The abilities necessary for its operation have to be developed or it has to be learnt from the other place. (This topic is closely related to the problem of knowledge transfer, which will be explained later.) These means by themselves represent only potential, to utilize them it is necessary to know their exploiting capacities.

One group of *the non-material resources* contains reputation and strong trademarks. These can provide competitive advantage, since it takes a long time to establish them, and those who started earlier may enjoy significant advantage. However, if we consider a longer period, limits can be overcome and these also become imitable and substituted. Moreover, in relation to these resources we can mention that sustained competitiveness means that ability or knowledge by which a certain firm develops and continuously renews that kind of trademarks.

Actually we can make similar remarks in connection with another, non-material type of resource, the technology. Those factors, which can be listed here: know-how, patents and innovations. On one hand these factors by themselves can be regarded as the embodiment of certain knowledge, on the other hand, that knowledge which is necessary for their continuous exploitation means actually the base of the real competitive advantage.

Pringle-Kroll's (1997) interesting concept can be mentioned here: resource can form the basis of above average rents in two ways: on one hand for its owner, on the other hand, for someone who can use it up. Of course, the second type of potential provides more sustainable competitive advantage because of its harder transferability.

In accordance with the facts above, we can regard the above listed resources as the ones that are necessary to the effective competition or the ones that make it possible. It does not mean that according to the resource based approach these would be insignificant elements. Without their possession it would be hopeless to gain competitive advantage. However, further factors are necessary to exploit and to maintain competitiveness. These factors are those which actually distinguish between firms. According to Wernerfelt's statement (1995), in the center of resource based theory is the question why are these corporations different and how it is possible to utilize these differences in order to increase competitiveness.

On the basis of all these we might come to the conclusion that it is the *human resource* that forms the basis of competitiveness. Naturally, global tendencies of the last decades, as well as the spreading of knowledge-intensive industries and the changing of traditional industries into more knowledge-intensive ones called for an increase in the strategic values of human resources (Quinn et al 1996). All this led to the strengthening of the human resource management function and getting it to the strategic level in the corporate management.

However, the role of human resources to create strategic strength is not simple. We can state that human resources, do not by themselves constitute the basis of competitiveness. Moreover, these resources are particularly sensitive and endangered, since contrasted with the material resources, people, for example, who work for a corporation may:

- quite and move to competitors,

- demand higher wages,
- reject firm's authority and be unmotivated,
- be unsatisfied with supervision, coworkers or advancement opportunities etc. (Coff 1997, 374.)

When analyzing the special mobility of human resources, Bögel (1998) calls our attention to that thought that human resources, as special corporate "property", might contain dangers.

In accordance with this, competitiveness of a certain firm cannot be equal with its members' abilities, skills or the simple sum of the two. They can easily "leave" the firm and can be gained by other firms in their materialized form (information). Not the certain people's knowledge or abilities constitute the competitiveness of the firm, since people regularly leave and arrive at the firm without disturbing its operation. (Not counting extremities.)

Another aspect is that this set of knowledge and abilities has to be turned into an effective system and then it has to be operated. From the aspect of strategic competitive advantage the question is how these people can work together efficiently.

Besides these problems, human resources undoubtedly contain the potential to become indirectly the source of permanent competitive advantage. As a result, they contribute to the development of such abilities which are difficult to copy and to substitute, which are firm-specific, made up in complex, social relation systems, embedded in the corporation's history and culture and which become tacit organizational knowledge (Lado-Wilson 1994, 699). All the other potentials hidden in other resources can be summed up and exploited through the individuals' abilities and knowledge.

III.4. The Core Competence Of The Corporations And Its Renewal

After all it is not surprising, that the statement, which claims that the source of competitive advantage does not primarily mean the possession of the separate resources or their exploitation, became generally accepted. The above mentioned features very rarely or only in transitional periods may be provided by the certain separate resources, since the rivals can quickly catch up with the advantages deriving from these.

The basis of sustained competitive advantage lies rather in the integrative and organizational capabilities of separate resources. This thought is expressed by a widely spread and in the management practice popular concept, the "core competence" (by other authors: core capability, distinctive competence) which first appeared in the study of Prahalad and Hamel (1990) together with the strategic management approach based on this concept.

The theory of core competence, which emphasizes the integration, complex utilization and renewal capability of the resources, directs attention to the human factor and to human knowledge, since these

resources cannot be integrated directly only through the knowledge of people. In accordance with the above mentioned examples, it is well seen that the critical integration problem lies actually with the resources connected to the human factors: the integration of non-human resources is not so difficult, because they are passive, easier to control and change if it is necessary.

The founders of the core competence approach think that the fundamental capabilities of a corporation express collective learning. Therefore, they can be considered as a kind of collective, embedded knowledge (Prahalad-Hamel 1990, 82.) It takes time until the core capabilities can evolve. This can be interpreted as a certain learning process in which the more and more effective and routine-like method of collective utilization of the separate resources can develop. This capability, the set of routines composes the knowledge base of the corporation.

Another important conclusion of the resource-based approach is that each competitive advantage, even present capabilities will vanish. Customer demands are changing, industries, technologies and products are re-defined, new competitors appear or the old ones renew in a dangerous way. This problem led to the concept of higher-level capabilities. According to this, the secret of sustained corporate success lies in the ability of renewing the competencies (Markides-Williamson 1994). Therefore, in recent years more and more researchers agree with the opinion, that the basis of long-term competitive advantage in a corporation lies in the complex, mutually inter-connected resources and the capability to integrate and to renew them (Hunt 1997).

We consider those resources higher-level, which provide the utilization of other resources or abilities in a more effective and permanently renewing way in the long run. However, this approach may raise the problem of the capability/knowledge base of the "infinite grade". Namely, why are we not dealing with the methods of the superior knowledge base integration, which would supply us with a competitive advantage more difficult to copy? Although such abilities are intelligently definable, they are outside the range of corporate management, therefore I will not deal with it in the present essay. These factors are for example the educational system of the given country, its legislation and regulating structure, historical traditions, national culture and usually the economic and institutional situation. They are factors on the macro level, so most of the managers cannot exert influence on it. (At the same time they raise the issue of a region or a country's competitiveness and they define factors, which determine it.)

The above mentioned thoughts can be considered to be the presumptions of the resource based approach. As it is seen, these assumptions lead to the knowledge-based approach to the organizations. That theoretical framework will be discussed in the next chapter.

IV. KNOWLEDGE-BASED APPROACH AND THE KNOWLEDGE INTEGRATION

According to the above described conclusions of the resource-based approach, the bases of the sustained competitiveness of the firm lies in the learned capabilities, and routines, which make the organization able to integrate its resources in a unique, unimitable, valuable way. This conclusion has led to the appreciation of the knowledge base of the company, as one of the most important source of competitiveness. This is reflected in the following statement of Kogut and Zander (1992, 384): “the central competitive dimension of what firms know how to do is to create and transfer knowledge efficiently within an organizational context.” (Apparently the multiple level interpretation of knowledge is present in this question too, to which question I shall return later on.)

Summing up the highlighted role of knowledge as a source of competitiveness can be traced back to the following factors:

- more and more part of the value-added acknowledged by the customers is coming from the knowledge component of production (some write about the “society of knowledge: Drucker 1992, Neef 1998),
- the integration and fulfilling the potential of the other resources is only possible through knowledge-base of the company,
- the limits of imitability and transferability of the already established knowledge-base are the source of the sustained competitive advantage.

The macro-level societal effects the knowledge based economy were analyzed in a number of studies, highlighting the fact, that the organization of present economies is based directly on the creation, distribution and application of knowledge and information. (Review article on macro level effect in Hungarian: Inzelt 1998.)

By the end of the 90's it has been formed a new theoretical approach to the organizations: the knowledge-based theory of the firm. This new approach can be thought as a spreading out, follower of the resource-based theories.

There are some connecting points to other theoretical frameworks as well, namely to the approaches of organizational learning, technology management, and managerial cognition. Moreover there is close relationship to the topic of strategic management, but it has a broader focus, because beside the problems of strategic choice and competitive advantage, it deals with questions of organizational coordination, structure, decision making and innovation as well (Grant 1996).

Although the formation of the theoretical framework has only recently began, we can trace back the roots to earlier studies. For instance the work of Simon (1947) on the criticism of economic thinking is a

good example, or the notions of Polányi (1994) about the relationship of individual knowledge and actions. In these books there appears the potential importance of the non-material resources and especially the human knowledge and competence, thus preparing the present frames of analysis. (Spender and Grant 1996, 6)

Up until the present moment no clarified terminology prevails, even considering the name of the theory the use of the expressions human capital (Coff 1997), social capital (Nahapiet-Goshal 1998) or intellectual capital and resource (Quinn-Anderson-Finkelstein 1996) appear as well. Despite the different terms, because of the common problem and attitude I count these approaches to the knowledge-based concepts of organizations, and I also deal with them here.

Another related subject is also getting fashionable, and it is the management of knowledge-intensive firms. In certain industries, like in any aspect of consultation, in high-tech industries and in more and more fields of servicing the knowledge base and its constant renewal could mean the basis of the strategic competitiveness and value of the firms (Starbuck 1992, Quinn et al 1996). These firms confront on especially many occasions with the questions of the integration and development of knowledge and do this in a way that basically affects their success.

IV.1. The Knowledge-Based Approach Of The Firm

According to this concept organizations are nothing else but an institution founded for the integration of knowledge, in fact the manifestation of the procedures and routines also serve this end. Many think that it can be considered an independent organization theory, several analogies are drawn for example with Williamson's (1975) concept of the organization, which is based on transactional costs.

For example Demsetz (1991) in his article also derives the existence of organizations from market failures. He explains that there exists a fundamental asymmetry concerning knowledge: the acquisition (internalization) of knowledge needs greater specialization than its application. The application of knowledge needs the coordinated cooperation of more specialists, who are expert in different fields or hold some knowledge concerning that subject. In his view market cannot or only very inefficiently can perform this coordination. One reason for this is that knowledge or at least a part of it – see later on tacit knowledge – is largely immobile and cannot be transferred in market transactions. The remaining part of knowledge, which can be converted explicit, runs a great risk that the customer obtains it without paying for it. This can be so because the proprietorship of knowledge is quite problematic. On one hand anyone who has obtained it may resell it at the same price as its owner, and on the other hand its marketing actually equals its selling, because it has to be made known (Grant 1996, based on Arrow).

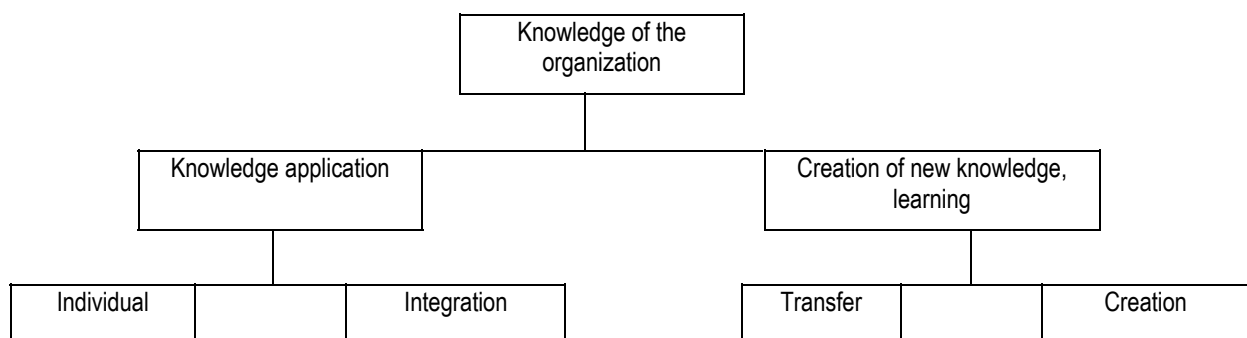
According to the theory these market problems are the reason for the existence of organizations, for this institutionalized form of cooperation can provide solution for the cooperation of different knowledge specialists. This concept answers the question concerning the boundaries of the organization. It claims that two people should cooperate within an organization until one needs the knowledge of the other in his own job. If he is able to do without it only by receiving the end product of the other's job, they may as well be in market relationship.

Before presenting those questions and problems of the knowledge-base approach that are important for this study, I have to mention that the questions in this subject can be divided into two big areas. These groups are the questions related to

- expanding the knowledge base, acquisition of knowledge on one hand,
- application of existing knowledge, or based on the previously written thoughts the integration of the knowledge base on the other.

The two areas raise problems different in many aspects, however they are overlapping, the border line is in blurred many ways. The distinction is important though, since according to the statement of Demsetz (1991) it is the degree of specialization essential for the two products that makes the existence of organizations a necessity. The questions and concepts relating to the increase of knowledge base show significant overlap with the subject of organizational learning. (This connection exists actually as a definition, since organizations learn when new knowledge becomes available to them, or in other words their knowledge base increases in accordance with Huber 's (1991) definition of organizational learning.)

Within the same subject further branching occurs according to whether the learning will be created through knowledge transfer or through a new combination of the existing knowledge base. I will present the various subjects in short in the next subchapter.



The question of the application of knowledge in an organizational environment raises the question of the integration of the existing knowledge. This subject focuses on how the different coordination mechanisms or certain characteristics of the organizational context enhance or hinder this process. This

subject shows much resemblance to the questions of organizational structures, organizational culture and the new institutional approach. The question of my study fits into the frame of this approach, therefore in connection with this subject I show on one hand the elements of the corporate knowledge base, and afterwards I discuss the integrative mechanisms presented by the theory and their characteristics.

The above-mentioned naturally do not mean that the creation and application of knowledge and their theoretical frameworks would not be closely related. It is a natural phenomenon that organizations learn in the process of the application of knowledge. The model of experiential learning definitely builds on this possibility. All this manifests itself in that the formation of organizational routines, as a form of organizational learning is definitely possible only through practice, moreover regular everyday exercise is the condition of their formation. The relation is naturally true in the reverse direction too, as in the process of organizational learning the integrative mechanisms may exert strong supporting or hindering effects. This way in a group perhaps it is the very norms supporting conflict avoidance that hinder the questioning of the routines blocking cooperation, and so the learning process.

These are complementary and interdependent problems of organizational operation, which may only be decomposed for theoretical questions. There are authors who do not distinguish between the two subjects at all, like for example Nahapiet and Ghoshal (1998) who discuss the question of knowledge exchange within the subject of knowledge creation.

According to all these, I shall survey the problems and approaches arising within the framework of the approach along the following questions:

- What are the forms of manifestation (levels) of the knowledge?
- What are the most important questions of expanding the organizational knowledge?
- How can the individual elements of the corporate knowledge be integrated and coordinated for efficient competitiveness?

IV.2. Forms And Levels Of Knowledge

Interestingly enough there is very little concern for the definition of the expression 'knowledge' in the literature. As it will become apparent this is most probably because there are many kinds of phenomena appearing on many levels that are grouped in this subject. The scarce definitions are also usually obscure or wide, this is how we can mention the example of Grant (1996b, 110), who, with the help of a simple tautology states that "knowledge is everything we know". (To have more details on the problem of the idea of knowledge: Spender 1996)

Here I would only like to discuss the concept of Nonaka in detail, who gives the following definition: "knowledge is justified true belief" (1994, 15). In this definition the process character of knowledge appears. According to this the individual strives to prove his personal beliefs, in which process he is motivated by a kind of aspiration for truth. This approach calls our attention to the active, subjective character of knowledge and its formation, which root deeply in the values of the individual. This way knowledge does not only mean the sum of thoughts, but also the interpretive schemes and set of values, which form its framework. Knowledge is embedded in culture.

In my opinion the characteristics of knowledge can be described along three dimensions, so from here on I will divide everything in connection with the characteristics of knowledge.

- its tangibility,
- its appearance on the different levels of organization,
- its direction.

These three levels usually appear in literature either explicitly or implicitly, and examples can be found for the parallel use of two dimensions. This study contributes that after the introduction of the particular analyses it features an integrated overview model, by which it would be possible to ask new questions about the integration of knowledge.

IV.2.1. The Tangibility Of Knowledge

The tangibility of knowledge is often in the focus of the knowledge based approach, mainly with the distinction between tacit and explicit knowledge.

This issue - called sometimes as the problem of codification of knowledge - is mainly influenced by Polanyi's (1994) conception of tacit knowledge. In his famous example he explains through the case of cycling, that in the every day life there are a lot of knowledge elements, which cannot be explained, or communicated even for ourselves. (None of us could really describe those physical laws and procedures, by them we balance the bicycle and ourselves on it.) Another more work-life oriented example is the case of the craftsmen' preparing musical instruments (Cook-Yanow 1993). Even they themselves cannot explain why those instruments become so unique and perfect, although they are able to prepare them.

Tacit knowledge is special, because it involves a heuristic or search pattern, specially suited for the context, which is not possible to generalize, and structurally describe. According to Nonaka (1994) this means, that tacit knowledge is deeply embedded into practice, commitment and to the relationship to the context. He says that it involves a cognitive and a technical part as well. The first means mental models: schemata, beliefs, paradigms. The technical part refers to concrete behavioral patterns, and abilities concerning the context.

Opposite to the tacit knowledge we find the explicit, codifiable, communicative knowledge, which is very close to the notion of information. While the explicit knowledge can be manifested through communication, tacit knowledge only through application, in the process.

Some interpret this, as all knowledge is either explicit or tacit in nature (Boisot 1995). However Nahapiet and Goshal (1998) state, that it is rather a continuum, which means that almost all kind of knowledge has tacit and explicit parts as well. All our explicit knowledge is embedded into an unconscious and taken for granted frame, which is influenced by our former experiences and interpretations.

The concern with the codification of knowledge can be understood, because:

- the tangibility of knowledge influences its transferability and imitability,
- the tangibility can be an important question in the process of company evaluation, and in the analysis of strengths and weaknesses,
- by the codification, and structuration of knowledge it is possible to part it from the beholder, and to make it accessible for the whole organization (Kogut and Zander 1992),
- The tangibility of its knowledge might be important for organization, because without this it might stay misunderstood, and ineffectively exploited (Spender and Grant 1996).

The above aspects lead to a paradox: the more intangible the knowledge is, the more as source of competitive advantage it might serve, but the more it is hard to exploit and develop it.

IV.2.2. Knowledge On Different Levels In Organizations

The next examined dimension of the knowledge is, *to what levels of the organization is it present*. It is a general consideration, that in the literature the individual knowledge and the knowledge divided up or possessed on organizational level is separated (Spender 1996, Nonaka 1994). The authors define the different levels of the last one. Before presenting these approaches it is worthwhile to mention a discussion which is strongly related to the field of organizational learning.

It exists a concept stating that knowledge can be merely in possession of individuals. Simon (1991) had made one of the most perspicacious opinion, according to him all knowledge is only in the individuals' heads. The organizations can learn by two manners, either by the learning of their members or by admittance of new members, having the knowledge the organization hadn't got till this moment.

The representatives of the other concept think that knowledge may exist and learning may happen *on the level of an organization as well*. March and Levitt consider (1988, 517): "the organizations are seen as learning by encoding inferences from history into routines that guide behavior. ... Routines are independent of the individual actors who execute them, and capable of surviving considerable turnover in individuals actors."

This discussion follows up among the researchers of organizational knowledge. There are some supposing that the organizational knowledge means the aggregation of the individuals' knowledge (Grant 1996), and some others say that organizational knowledge also may exist independently of the individuals, or materialized in informal routines, or in formal rulers, or even in technological procedures (Spender 1996).

The second way of arguing is accepted in the present work, for two reasons. I do not question the existence of individual knowledge and learning within the framework of an organization and even that the increase of the knowledge in the organization cannot happen without the increase of the individuals' knowledge. But as Berger and Luckman (1998) states individual learning is embedded contextually into the community. The individual's knowledge cannot exist without the previous and interpreting framework of system of it, what is created and given for him/herself in collective learning procedures, by socialization. This institutionalized system of framework as considered evident, (the language is an important element of it with its system), forms the base of knowledge on the level of community. Nonaka (1994) considers also that the individual learning should always be interpreted in a social context also because of the strong institutional pressure. Professional values, national culture, trade-union policy may all have their impact on the process. Both the individual and the organization have got an identity based upon knowledge. One should not forget from the other side, that individuals applying their knowledge materialize it at the same time in the organization, for ex. in the form of standards or plans (generally they are the result of the common work of many experts), or fixed in the form of a technical know-how. These create also the base of the knowledge of the organizations, for the change in the knowledge of individuals or even leaving of an individual will not necessarily effect it (Leonard-Barton 1992). She calls these forms of knowledge as the technical systems of the core competence.

Upon this, it has a sense to separate the levels of the individual knowledge and that of the organization from each others. But one can distinguish several steps going up from the individual. The knowledge may appear besides the individual one, on the levels of group, organizations or among organizations. The norms and routines developed during the everyday interactions and represent group knowledge. I would put here the knowledge base, the professionalism linked to some organizational functions developing during the dealing with very similar activities (for example the concept linked to the marketing and financial topics.)

IV.2.3. The Direction Of The Knowledge

The next topic, the problem of the direction of the knowledge can also be approached by several ways. One of the concepts is at a certain degree linked to Polányi's understanding (1994), who separates

the knowledge directed on a certain object or on a certain process. A very similar approach is used by Nahapiet and Goshal (1998), who attribute the difference between declarative knowledge and procedural knowledge to the different thinking of the trends of rationalism and empirical philosophy. There is also such an approach, that the first type of knowledge is called informational or factual one (know-what), and the second know-how.

Many consider that it is worthy to separate the knowledge based upon facts, knowledge and that one oriented on the use of it, and practice oriented knowledge. Kogut and Zander (1992) added to this the concept of understanding, or regular knowledge, (know-why) meaning the systematic, deep, regular understanding of the system of relationship between causes.

Finally Quinn and associated (1996) have added as a final complementation of the direction of the knowledge the conception of the self-motivated creativity (care-why), which is problem solution and success oriented. Problem solving oriented knowledge means committed knowledge, felt as a personal property.

One can make clear the difference between the types of knowledge as follows:

- The first, factual knowledge means the possessing of information (I know what a computer is, I read about it in a book or I listened to a lecture about it.)
- The know-how means some knowledge linked to the application of it. (I can make run the programs and can use them.)
- By the help of an understanding, systematic knowledge (the know-why) I can resolve the problems linked to the operation of the system or I can re-organize the whole system, or I am able to manage the whole system, I can overtake the user's difficulties (I can correct the defaults of the programs, I organize the computers into a network and make them run)
- The self-motivated creativity means that I am looking for the possibility of a renewing, I make efforts to the permanent change and adaptation. (I rewrite the original software for more efficient development, I follow up the progress of computer techniques and change the parts.)

The degree of codifiability is not the same of the differently oriented knowledge. The first three may exist in a decreasing measure in the organizational systems, in databases and technologies, but the fourth one may be found only in the culture. Their values grow in this hierarchy from the aspect of the competitive advantage.

The most important differentiation from the point of view of this work concerns the orientation of the knowledge in another dimension. One can observe in many analyses, that some authors, in an implicit or explicit manner distinguish two levels or dimensions of the basic knowledge or of the routines system:

- On the one hand, the functional knowledge concerning the effective work (whether it appears in the head of people or materialized e.g. in information systems, technological know-how),
- On the other hand, the knowledge concerning the integration and development of these (managing, integrating knowledge, what may appear in formal, managing systems, but also in routines, in tacit knowledge or values).

For example, the four dimensions of competitiveness elaborated by Leonard-Barton (1992) puts the idea that the skills and knowledge, materialized in technical systems are in one side managing systems, and the values and norms are on the other side. She interprets the first ones as dynamic knowledge storing, and the two second ones as control or driving mechanisms.

Lado and Wilson (1994) build upon another conception very similar in this regard, in their article: they distinguish an input ability and output ability, and managing and transformational abilities. The two last ones may be considered as abilities representing the ability for integration.

Marino (1996) distinguishes also two kinds of components of knowledge at the level of a firm. The first one if of a technological nature would mean the mix of abilities in the production. The other one is routine-like in nature and is based upon the linkage of the individuals and structure.

Kogut and Zander (1992) distinguish also the organizing elements serving the integration of the whole organization and call it a functional, higher system of knowledge

This distinction is important because of the criteria of the resource-based approach, the second group can be considered as having a higher degree of competitiveness. It means also the context of the formulation of the previous ones. Their more detailed analysis belongs to the topic of the integration, there I am going to deal with it in details.

Linking some factors characterizing the knowledge as shown on the next matrix the forms of knowledge influencing the competitiveness of the companies. (The figure may be considered as a development of Spender`s 2*2 matrix 1996.)

	Individual level	Organizational level
Explicit functional knowledge	Professional, factual knowledge	Data bases and analyses
Tacit functional knowledge	Procedures, applications, problem solving routines	Technological systems, regulations
Explicit integrative knowledge	Role conception, system knowledge of	Managerial and formal co-ordination systems
Tacit integrative knowledge	Values, norms, interpretation frames	System of organizational values and routines

That is, accepting the scientific manner of distinction between explicit and tacit knowledge and complementing it with the criteria that distinction is needed to see whether it concerns the concrete activity or to the operation of the whole system. Besides this, I distinguish in each dimension the form of individual knowledge and organizational one. That means, from the middle of the figure downward, the knowledge notice the previous two ones appear concerning the manner of the cooperation. The meaning and the forms of the knowledge bases:

- *Professional knowledge, factual knowledge*, professional knowledge and information in the members' heads of the organization.
- *Data bases, analyses*: stored in different information systems of the organization accessible for the members of the organization :
- *Procedures, applications*: the personal know-how, tricks and knack based on the working experience.
- *Technologic systems, regulations*: know-how embodied by the material means, the machines, descriptions of technologic operations, licenses.
- *Conception of roles, knowledge of the system*: The self-image of the individual about him/herself concerning his/her role in the organization
- *Managerial and formal coordination*: managerial methods embodied in the regulations, (for ex. Project making, stimulation, training programs)
- *Values, norms, framework of interpretation*., rules of behavior, values, framework of interpretation and observation directly not realized by the individual, but followed by him/her.
- *Organizational system of values and routines*, power and political rules of the game, methods of socialization, rituals, system of values, frames of understanding

The competitiveness creating force of the forms of the knowledge grows when passing from left towards right, from up to down in the figure.

It means, that from the aspect of the competitiveness, the system of values and of routines may potentially be among the most important sources of competitive advantage as these are the most complex ones, they depend the most on the history and the processes, they represent the greatest causal ambiguity: and they might be the less transferable and imitable.

One can observe in the corporate practice, that the organizations strive to move their knowledge base towards directions increasing their competitiveness. The today so popular knowledge management projects aim to collect, codify, structure and refresh organizational knowledge. A good example for the transforming of the individual knowledge into organizational one, is the organizations of big data bases,

and at consulting companies making inner reports after the closing of engagements. According to Davenport – De Long – Beers (1998), three possible forms for the storage of knowledge in organization exist competitive intelligence – structured inside knowledge: research reports – informal inside knowledge: circles of discussions.

Examples for the individual know-how to become organizational one: the operating of “quality circles”, the autonomous workgroups and rotation.

Companies mainly get access to knowledge related to the explicit integrative systems by the cooperation of consulting firms, or by cooperation between companies. Such formal integrating mechanisms are for example the flexible and incentive systems of compensation, the systems of performance appraisal and selection, the system of management control and the management information systems. One can realize that this kind of knowledge-base becomes more and more important, what is proved by the increasing of the consultants` market in Hungary.

The increasing role of the routines and culture is indicated by the fact that more and more organizations try to reveal the weakness and the strength of their systems of values and develop them consciously. Anyhow it is doubtless that all these factors play a more modest role than those based on the previous formal mechanism. At the same time, one must not forget, that the above mentioned formal integrating mechanisms are also deeply embedded in the tacit knowledge and their fair linkage is a precondition of efficient operation of them. (Naturally the relationship is two directional: the culture changes slowly as well, due to the impact of the formal managing systems. After a while, the achievement orientation may get strengthened due to the operation of a performance evaluation system.)

The fact, that those factors may mean the biggest competitive advantage which may be not easy to recognize and which are the most complex ones, that means at the same time that these factors may present the biggest danger as well. For these are the embedded in the history, the cultural and power texture of the organization, in this way the problem of *competence trap* is the biggest in case of them (Zucker 1977). This phenomenon develops when a company could have earned success with a product, procedure or organizational structure in a weaker competitive position. As a result, too many experience and engagement accumulate related to this factor which normally is better an obstacle. These experience and abilities impede it to switch into another, more efficient operating form.

In the literature we can find the notion of “core rigidities” (Leonard-Barton 1992). That means, that a lot of times exactly the present core competencies are the biggest threats for the renewal of the competitive advantage. This fear is the stronger, the more unquestionable is this competence.

Leonard-Barton (1998, 34) gives three possible explanations for why core competencies become easily core rigidities:

- Questioning the strengths seems often nonsense from an economic point of view, since it means the restructuring of the basic operation of the company by downsizing, selling production lines, lessening the value of current assets.
- The intent to change will lead to the opposition of the established power structure, because managers in favored positions are reluctant to give up power.
- From behavioral point of view it means changing deeply rooted and embedded cognitive and behavioral routines and the questioning of the shared value system.

Problems in connection with the factors that can be made explicit are easier to identify and their change is more controllable. Factors more in the tacit and the organizational side are more threatened by becoming core rigidities.

IV.3. Knowledge-Transfer And Creation

The approaches connected to the widening the organization knowledge-base are in close relationship with the subject of organizational learning. This subject does not belong to the exact focus of the thesis - to the knowledge-integration -, hence I show here only the most important viewpoints and questions connecting to the topic. The following two possibilities are usually distinguished relating the knowledge-base development: knowledge-transfer and knowledge-creation.

IV.3.1. Knowledge Transfer

It is worth distinguishing between the participants in the transfer.

- I already mentioned several *times the transferability of knowledge between competing organizations*. This strongly defines the competitiveness creating effect of knowledge. Hence the knowledge which is difficult to pass over means the foundation of the sustainable competitiveness.
- The effectiveness of the *knowledge-transfer* is the central problem in case of the *cooperation between organizations*. For example the 'franchise' systems are built on the notion, that the knowledge and capabilities formed at one place could be transferred with maximum thoroughness to anywhere in the world (Spender-Grant 1996). The question of the knowledge-transfer is important from the same viewpoint in cases of the multinational companies, of the privatization or, of the network type cooperation. (The questions of the knowledge-transfer in Hungarian companies refer Makó 1997). These studies emphasize primarily the problems connecting to the behavioral and cognitive conditions of the knowledge-transfer.

- The form of the knowledge-transfer *inside an organization* is a critical question from the viewpoint of organization learning. Many opinions declare that this is the single form of organization learning, for only the individuals are able to learn, and the organization can learn only when the individual learning is transferred to the organization level. One of the possible ways of the knowledge-transfer inside the organization is the providing the knowledge-flow among individuals, for example, by a help of an all-accessible database (Quinn et al. 1996). At the largest international consulting companies nowadays it became ordinary, that the employees are able to access the knowledge-base, which is accumulated through the previous works or through the internal training, and which is accessible by the help of an computerized informational system.

The notion of *absorptive capacity* was highlighted in connection to knowledge-transfer. By this approach, the absorptive capacity of the recipient defines the efficiency of the transfer (Cohen-Levithal 1990). This capacity reflects the way as the acceptor is able to evaluate the new knowledge, understand it, connect it to the old knowledge, insert it to the construction of the old knowledge and exploit it. The absorptive capacity is defined for a significant degree by the correspondence between the already existing knowledge and the new knowledge. The absorptive capacity of the organizations is defined not by the individuals' capacity, but by the system of the individuals' relationships. (This leads us again to the concept of the organization level knowledge-base.)

IV.3.2. Creation Of Knowledge

There are two main approaches in terms of the creation of knowledge in the framework of the knowledge-based theories. One of them builds on the *conversion* between different forms of knowledge, the other builds on the *combinations* of different knowledge.

The first approach is linked to the name of Nonaka (1994), who grasp the question of knowledge-creation as the possible ways of the conversions between and inside the tacit and explicit knowledge in an organization. The table below contains the possible conversions.

From / To	To tacit knowledge	To explicit knowledge
From tacit knowledge	Socialization	Externalization
From explicit knowledge	Internalization	Combination

The interpretation of each forms of conversion:

- *Socialization*: Knowledge-transfer through common experience, cooperation, non-verbal communication.

- *Externalization*: The expression of tacit knowledge, which is possible primarily through metaphors, analogies and symbols.
- *Internalization*: This is similar to the traditional comprehension of learning, when the experiences condense into behavioral and interpretive routines and schemes through actions.
- *Combinations*: The knowledge exchanges and enlarges through meetings, discussions and passing information.

According to Nonaka's opinion the knowledge-creation can be the result of the continuous dialog between the tacit and the explicit knowledge. The organizational knowledge-creation works, if all the four process go on in a continuous cycle, operated by the organization. The individuals mean the starting point, because they can accumulate tacit knowledge through experience. The organizations can support these creative individuals in this activity creating the suitable context. According to this model the knowledge-creation is an every-day process in the organizations through the existing viewpoints and through the re-formation of the framework.

The other model of the knowledge-creation (Kogut and Zander 1992) declares the combination as the primal instrument, using this word in a wider meaning as the previous model. This way the creation of the new knowledge is usually born from the recombination of the existing individual and organizational knowledge. Hence the members of the organization gain new type experiences and knowledge through the members' cooperation and exchange of information. Following the approach, it is clear, that the organizations learn most efficient and most often connecting to the present operational practice, and withdrawing from it the chance of the successful learning is reduced.

This is the combinative ability, which conception can be tracked back to Schumpeter's theory (1980). He claims that the process of combination can have different rate. One of the possibilities is the incremental development of the present knowledge, the other one is the radical re-arrangement, the innovation. In both cases the combination can have two way of mechanism: either connecting the knowledge-components not connected before, or creating new type connections between components already connected (Nahapiet and Goshal 1998, 248).

According to this model, the efficiency of learning is significantly influenced by the organizational context, which the learning is embedded into. As you see, the question area of the knowledge-creation is tightly connected to the integration of knowledge, for both process - the combination and the conversion - possess the base component of the efficient cooperation of the workers at different knowledge-areas.

IV.4. The Integration Of Knowledge-Bases

As I previously referred to it, in terms of the knowledge base the important question deals not only with the learning, namely the creation of the new knowledge, but with the application of it. This happens in organization environment most often through the integration of the individuals' separated knowledge.

This subject is especially important in terms of core competitiveness, for following the assumptions of the theory, the competitive advantage hides usually not in the separated individual knowledge, but in the efficient and unique integration of the knowledge. Especially, where is need to integrate distant knowledge-areas, for example in case of developing new products, of complex customer-service systems, it becomes especially important and the same time problematic the task of knowledge-integration.

Before the presentation of the integration mechanisms it is worth clarifying, that the integration can have more than one levels. Thus Grant (1996c, 377.) distinguishes the levels, following:

- Integration of concrete, specific tasks (work on a work-piece, or the arrangement of a selecting process).
- Integration of the necessary knowledge base to resolve similar tasks in the level of functional units of organizations (producing or marketing knowledge).
- Integration on even higher level in case of complex tasks, which have the necessity of cooperative participation of more than one function.

The realization of higher level integration becomes difficult, because the integration is possible only through individuals. In these cases, there is a need for display and application of a widely dispersed knowledge, but the limited number of the participating people means an obstacle in the implementation.

In terms of the competitiveness the ability is more and more valuable, as the knowledge-base to integrate is more and more complex and combined. Grant (1996c) claims that in terms competitiveness, an integration mechanism is more valuable, as it works more efficient, as it can integrate wider knowledge-base, and as it is more flexible in direction to accommodate new knowledge-bases.

The organization literature usually analyzes the problem of organizational integration and coordination from the aspect of goal-conflict. The agent-principal theory tracks it back to the different interests (Bakacsi 1993, Eisenhardt 1989b), the transaction cost theory to the opportunism (Williamson 1975), the contingency model of Lawrence and Lorsch (1969) to the relationships with the different environmental segments.

In the case of the knowledge-based approach, the need of coordination between specialized components stands the closest to the coordination theory of Thompson (1967). According to his opinion, technological process establish dependency relationships between the organizational units and members,

thus coordination became necessary. He describes the possibilities of the sequential, the reciprocity based and pooled dependency. Following this the character of the relationships defines the type of coordination mechanism, hence in case of sequential relationship we need to use plan-based instruments, in case of the reciprocity mutual adaptation, and in case of the indirect we use rules.

On the basis of the knowledge-based approach there is no complete model for the integration between the organization components specialized for different knowledge-types. Each of the studies analyses coordination mechanisms defined by different aspects. I review some of them below.

Nahapit and Goshal (1998) grasp the integrative and influencing context in terms of social capital. According to them, social capital can be described by three interwoven dimensions: structural, relational and cognitive.

The first means the impersonal configuration of the relationships, and includes the following concepts: network ties, network configuration, and appropriable organization. The second, the relational dimension refers to the result of the personal relationships formed through time: trust, norms, obligations and identification. The third dimension, the cognitive one signs the common interpretative and representative framework, in which they distinguish between the shared codes and language and the shared narratives.

According to them these factors influence the interactions of members inside the organizations. These factors affect each other, possibly weaken and strengthen the effect of each other. Further on, it can also happen, that their effect is a positive one from one viewpoint (in the context of the cooperation of a group), the same time it is harmful from another viewpoint (in terms of organizational result).

Another approach of the integrity mechanisms is described by Grant (1996b), which includes the next mentioned components:

- Rules and orders. With their help the need for communication can be reduced, moreover usually with low costs. Its problems are connected to the coordination of the tacit knowledge. For these coordination mechanisms are based primarily on the hierarchical information flow, thus they are usually unable to coordinate professional knowledge bases with tacit characteristic. (According to his claim this is the explanation for the emergence of the empowerment approach, which does not make necessary the tacit knowledge becoming explicit.)
- Sequential coordination, which is almost identical with the elimination of the integrity, for in this case the people does not need to communicate and meet each other, thus they evade the problem of cooperative work. (This solution lengthens the needed time-frame, moreover the possibility of the continuous feedback is missing, so it is not significant nowadays.)

- Routines, following relative automatic but complex behavioral patterns, which start operating on the effect of outside signals (according to Nelson and Winter 1982). This mechanism is able to coordinate peoples' simultaneous activity in high level. (An example is a medical surgery or the navigation of a ship, which are founded on similar routines.)
- Group-work and decision making, which is the most personal and the most intensive integrative mechanism mostly in terms of communication. Primarily it is worth the necessary additional expenses in cases of unusual, complex and very important tasks.

The basis of the operation of almost each mechanism is an already existing shared knowledge base. The parts of it: common language or other symbolic communication, the overlapping of specialized knowledge, common interpretation framework and the recognizing of the knowledge area of the others.

Leonard-Barton (1992 and 1995) distinguishes two integrating mechanisms, as I showed it previously. The management systems are the first form of the integration, including the training, compensation, formal control systems.

The other integrating instrument is the system of values and norms, they define the desirable knowledge-forms, and also the preferred behavior patterns. All of these are manifested in rituals, beliefs and in statuses.

She claims that these integrating mechanisms regularly appear as obstacles in terms of organizational performance. Sometimes core competencies become the source of the 'core rigidities'. From this viewpoint the values, the norms claim the largest inflexibility.

The new institutional theory is another relating theoretical framework (Scott 1987). This concept emphasizes the significance, habitual, reacting, socially defined character of organizational behavior, which is embedded into the contemporary cultural and power structure of the society. Oliver (1997) attempts to insert the conclusions of the institutional approach into the resource based theory. According to it, the organizations possess an „institutional capital” beside the „economic capital”, which means the supporting context of the value-creating activity. Institutional capital may manifest itself, for example in training programs, decision support systems, but also appears in informal way, for instance in power relationships and through values-systems. He also deals with the possibility, when the institutional capital act as a hindrance for the realization of the potential in the other resources (stagnant culture, loyalty to old traditions)

Taking an overview of the integrative mechanisms presented, besides the wide range of differences we may take the following statements:

- There are two general forms of integration mechanisms: mechanisms formal-explicit and informal-tacit in character. (Therefore one operates through rules and orders, while the other through organizational routines, social influence.)
- The particular coordinating mechanisms exert their influence in close interaction, embedded into each other.
- Integrating mechanisms connect knowledge bases existing on different levels of the organization, therefore they themselves operate in multiple levels (for example routines, values of a division, or the whole firm).
- Knowledge integration existing on multiple levels draws our attention to the fact that an integration mechanism working effectively on a given level may be an obstacle to a higher level integration of knowledge. A good example for this is the common system of norms existing within the various functions and the common professional jargon, which hinder efficient teamwork in the case of a project requiring the cooperation of multiple functions.
- Operating coordinating mechanisms postulates the existence of a shared knowledge base and the overlapping of the different knowledge bases, which can ensure the common understanding of the partners.

IV.5. Corporate Knowledge Bases And Integration: Summarizing Conclusions

Among the resources of the firm the knowledge base available to it plays a great role. The available knowledge base can be described in several dimensions:

- Level: individual or organizational
- Tangibility: explicit or tacit
- Direction: functional or integrative

The particular forms of knowledge can produce the more competitiveness, the more they can be described by the features organizational, tacit and integrative. The reason for this is that the competitiveness of firms originate from the hard imitability of organizational level integration of the specialized knowledge bases of individuals.

At the end of the organizational culture chapter it was shown that it is true for organizational culture that it can be described as an organizational phenomenon that:

- was formed in a learning process,
- is shared on a corporate level,
- is deeply rooted and hard to operationalize,

- has an integrative function.

Summarizing the knowledge based chapter therefore we can state that organizational culture can be described as knowledge that

- is part of the organizational knowledge base,
- exists at organizational level,
- is tacit in character,
- has an integrative function.

On the basis of the above statements we can describe organizational culture as a type of knowledge potentially leading to core competence of the firm. In connection with the integration of knowledge several authors have focused on the culturally based coordination, which happens through values or interpretive patterns. Due to its complex nature it has a great role in creating competitive advantage. However at the same time due to its rigidity and past orientation it may be a limiting factor in the course of knowledge integration. Besides there is the question of the problems arising at the integration of the knowledge bases on different organizational levels. This way organizational culture means the source of potentially supporting and hindering factors at the same time.

Based on the above listed aspects the question arises: what kinds of factors influence if the knowledge base manifesting itself in organizational culture can fulfill its function of integration?

While attempting to answer the question in the next part of the study I introduce a practical problem that is strategically important enough and due to its knowledge-intensive character it provides us with the opportunity to understand the relationship of organizational culture and competitiveness.

V. THE ROLE OF ORGANIZATIONAL CULTURE IN NEW-PRODUCT DEVELOPMENT

V.1. The Relationship Between New-Product Development And Knowledge Integration

Based on the previous chapters, it can be assumed that the role of knowledge integration becomes crucial in the case of those business matters when the following considerations can be held true:

- The added value of the activity is considerably coming from knowledge use.
- The knowledge necessary to perform the activity lays at different parts or members of the organization.
- Due to the nature of the activity, the role of tacit knowledge that is not possible to articulate directly is significant.
- It is necessary to create new knowledge while performing the activity.
- The activity involves considerable uncertainty and is not possible to perform it based on standard, preliminary regulations.
- The result of the activity increases the value building ability of the organization.

In those critical cases that can be described by more of these characteristics, more efficient knowledge integration methods than those of the competition, could mean permanent competitive advantage for the company.

These characteristics can be present in several company processes or activities, for example, strategy forming, organizational development, new market penetration, new-product development. In the focus of the project is this latter activity.

Practically, all of the above described critical characteristics appear in relation to new-product development. New-product development requires a thorough understanding of markets and technologies. However, these bases of knowledge are at different places in the organization, and this way, the ability of integrating them is also necessary (Dougherty 1996). The development process means significant uncertainty for the organization since its output is not ensured and the process is not possible to operate routinely. An essential part of the activity is creativity, to create and apply something new to the organization. Finally, new products are an important element of the competitive advantage in every industry. In some industries (e.g. software development, pharmaceutical or car industry), the ability for faster or better quality innovation could mean a critical success factor.

The capability of continuous long-term innovation of products or services acknowledged by the customers, is by all means a competitive advantage for the company. This “innovation wave” requires the

organization to build and develop its existing strengths and products at the same time, and moreover, to step further and “destroy” them (Tushman – Anderson – O’Reilly 1997). The representatives of the core competency approach also consider this ability as one of the most important forms of the basic competitiveness (Pralahad and Hamel 1990, through the case study of Sony).

One of the possible angles of the knowledge-based approach is how the creativity of the individuals can be supported within the organizational context (Ford 1996). These approaches study how the organizational characteristics – structure, management style, incentive system, atmosphere, culture – affect the individual creativity. Here are a couple of comments of the several study results:

According to Amabile et al. (1996) the factors that influence creativity can be broken down in the following groups: encouragement from part of the organization, the supervisor and the team; the level of autonomy; sufficient resources; work pressure and organizational systems. Another study finds that creativity results from the connection of personal and contextual factors. Regarding the personal side, the factors that have a positive impact on creativity are the following: wide range of interest, attraction towards complexity, intuitive thinking, esthetical sensitivity, toleration of uncertainty and self confidence. With respect to the contextual factors, they emphasize the characteristics of the objectives, deadlines and the expected evaluation, and also, the complexity of the job and the management style of the direct leader (Oldham – Cummings 1996).

However, this approach disregards that the process of new-product development means more than the single creative actions of isolated members of the organization. Innovation does not equal invention. The entire innovation process includes the integration of individual creativity into a unified product. This is followed by the implementation activity, when the creative idea has to be realized as a product or service that is possible to produce and sell. Also, the support procedures need to be developed. Some authors class the “absorption phase”, which precedes the innovation process and the “creativity moment”, among the topic of innovation. Since organizations are like a sponge, you can’t squeeze more out of them than they absorbed (Fiol 1996).

According to this approach the innovation is a multiple-stage-, and generally also a multiple-cast process. In this thesis proposal, I would like to follow the question raising of this second approach which focuses on the support and obstacle effect of the entire organizational context regarding the entire innovation process.

First, I examine shortly the general questions and characteristics of product development within the innovation literature. Then, I present the applied integration mechanisms. Finally, I study the possible impacts of the organizational culture related to the process of new-product development.

V.2. The Role Of New-Product Development

The area of new-product development is generally closely related to the topic of organizational innovation. It is considered a form of it. This approach can be traced to Schumpeter's ideas. According to him, the possible forms of innovation are (Schumpeter, quotes: Józsa – Kiss 1993):

- “Production of new, still unknown goods;
- Implementation of new, still unknown production procedures;
- Discovering new, “virgin” markets;
- Obtaining new acquisition resources;
- Develop new organization.”

Based on the above, innovation is a wide concept. According to one definition, innovation is “the adaptation of any tool, system, process, problem, program, product or service that is new to the organization (Downs and Mohr 1976).

Within this, the task of new-product development can be interpreted as “conceptualization, development, operationalization, manufacture, launch, and ongoing management of a new product or a service” (Dougherty 1996, 425). Whereas, it does not include, for example the area of administrative innovation or technology development. However these innovation processes can be in close interaction with new-product development as prerequisites or consequences.

Innovation and within this, new-product development are of key importance to companies since they can lead to performance and competitiveness increase in many ways. They can mean the basic source of organizational survival and renewal. This way, for example, new-product development ensures the following for a company:

- Improve its product quality
- Renew old lines
- Penetrate to new markets
- React to the actions of the competition
- Learn new technologies
- Alternative use of existing product categories (Dougherty 1996)

This way, companies aiming for long-term survival and business success continuously face a double challenge. On one hand, they have to use their resources the most efficiently in the present competition. On the other hand, innovations ensuring future efficiency have to be continuously developed and implemented.

However, companies striving for efficient innovation have to face difficulties. Mainly, these arise from the fact that operational and innovational logic is difficult to match within the organizational framework. These activities often require contradictory practice and methodology from the same organization. The efficient “operating and innovating organizations represent opposing logics ” (Katz 1997, p. xiii.). Operation requires stability, predictability and short-term thinking. Whereas, innovation originates from creativity, risk taking and long-term oriented thinking.

In such a conflict situation, the considerations of the operational logic easily could gain priority. Organizations are first of all prepared for routine operation. “Human beings and their organizations are mostly designed to focus on, harvest, and protect existing practices rather than to pave new directions” (Van de Ven 1986, 108).

Therefore, it is not surprising that there are several studies in the literature about what problems and failure companies face during new-product development and introduction (Henderson and Clark 1990, Leonard-Barton 1992, Dougherty and Heller 1994). There are some who simply state that most of new products and services are not marketed by organizations operating for a long time but by new companies that are created in relation to the innovation (Tushman and Anderson 1997). There is a large risk in this process for existing organizations since it requires them to abandon their developed routine-like operation. The question is how the innovation ability of established, complex organizations can be retained and renewed.

The problem lies in the segmentation and differentiation of complex organizations (Kanter 1983). The complexity is solved by segmentation and specialization of distinct units. Nevertheless, during the process of problem solving, if the sub-units reach the limit of their expertise (either in the sense of knowledge or competence), the process stops. In the organizational life of today, one of the biggest challenges is the cross-functional integration. In my opinion, reengineering, process optimization and project support approaches, popularity of consultancy know-how also relates to this question. Organizations do not have appropriate “internal competency ” to handle these integration processes quickly and efficiently. Moreover, the power structures within the organization also reinforce the internal fragmentation and differentiation and also, the inflexibility and inefficiency based on this. The reason is that the power sources are connected to the existing borders and routines (Nelson –Winter 1982), which consultants for example face at all BPR-type reorganization.

Product development is also an activity, which basically requires functional cooperation. According to an opinion, it is an activity, following strategy forming-, that includes all management functions (Crawford 1983). The marketing, production, research & development and economic-type units regularly have to communicate, make decisions or cooperate. In many cases, it happens in some kind of team-

form. For the participants of the innovation process, all this means a further element that increases uncertainty.

The integration between the functional units plays a key role in product development. Most of the problems arising during the development process mean a connection problem or an “interface” problem, caused by differentiation (e.g. Dobák 1981, Pisano 1994).

First, I describe shortly what other integration possibilities the management has in addition to corporate culture. The importance of these is showed by the tendency towards emphasizing structural attributes as the most important characteristic of innovation ability – described by several summary studies (Wolfe 1994, Damanpour 1988).

V.3. Formal, Explicit Integration Methods In The New-Product Development Process

Companies can choose from different basic concepts of coordination in order to realize cross-functional cooperation. The three possible principles are the following (Adler 1995):

- There is no coordination at all. There is total separation among the different organizational units.
- The principle of sequence. The problems arising from cooperation are mostly avoided. Each other's output is taken and carried on in the process.
- Finally, the principle of cooperation and common adjustment when continuous cooperation is needed among the participants or organizational units.

We can talk about the *lack of coordination* when following the classic model. Here the burden of product development falls only on the management of the company and the R&D department. In this case, the whole innovation process takes place within a functional organizational unit. In other organizational units only the unchangeable final product appears. This approach reinforced the borders among functions and also, created obstacles for the innovation process.

An entirely different application of this principle is when a product development project is moved out of the organization and it is managed as a new, independent business (Galbraith 1982). However, this solution also means avoiding the integration or, sooner or later the company faces the problem that the “pirate” establishment and its results have to be reintegrated into the operative part of the organization. This way, the management cannot avoid the task of integration.

The *sequence approach* already requires some kind of coordination. Its forms can be standards and/or the use of plans and schedule plans (Adler 1995). In case of using standards, there are already

more functional units involved in the process (at least R&D and production.) However, there is no direct contact between them. Although, their corresponding activities are given a frame by certain pre-defined basic standards just like certain product specifications, technology characteristics, etc. This ensures that prototypes coming out of laboratories or design tables meet at least minimal production and/or distribution requirements. The schedule- and other plans fix the critical points regarding the process and allocate resources and instruments to the participants.

According to this traditional approach, the starting point of the process can be the development or marketing unit. In the first case, we can talk about technological push, while in the second, a sales-driven (pull) development (Galbraith 1982). Using another wording it is a push- or pull-based process.

In the simplest form of *cooperation*, any encounter of the participants is temporary. It takes place in committees or brief meetings at determined phases, decision points of the development process. The form of continuous cooperation is generally through cross-functional teams of participants.

Such product development teams are possible to create in several ways. According to Clark and Wheelwright (1992), we can differentiate “light-weight”, “heavy-weight” and autonomous product development teams.

In case of *light-weight* teams, the team members stay at their usual work-place. They only gather for direct meetings when they represent their own functional area. The team leader is a middle or a junior manager who although might have significant professional experience, has a lower status and political power. The functional managers dispose over resources, including human resources.

In case of the *heavy-weight* product development teams, the project manager is a senior manager or at least is on the same level with the functional managers. The project manager has a direct disposal over team members and necessary resources. In this case, the participants usually leave temporarily their original jobs and physically “move together”. However, they do not give up their original jobs; their long-term career still depends on the judgment of their functional supervisor.

In case of *autonomous* teams, participants are even formally assigned to the developing new organizational unit. The project manager has full responsibility over all the resources and is the only supervisor of the project team members. In case of a successful development, these groups often can be the core of new, bigger organizational units, for example divisions.

Different versions of the cooperation-based approach are very popular nowadays. This can be explained by the possibility of speeding up the development process. Besides, the correspondent activities allow continuous feedback avoiding planning and other problems. Moreover, in case of high-technology products, it is practically impossible to avoid its application since the solution of the arising issues can not be expected from individuals or even from one single function.

Apparently, in the literature there are several formal or structural methodologies recommended to increase integration efficiency among functions related to the innovation process. These solutions can increase innovation potential through their following impacts:

- Closer cooperation;
- More intensive information flow;
- Considering more viewpoints at the same time;
- Continuous feedback;
- Appropriate level of resource allocation;

However, structural solutions ensure only the possibility regarding innovation efficiency. The question is how these tools are interpreted and operated in everyday practice. And this is significantly dependent on the organizational culture.

Advance functions, integrate them into one team and designate a responsible person still does not mean breaking the borders among them. Closeness and cooperation assure possibility for knowledge integration. However, it can lead to more intense conflicts. Conflicts can result in reinforcing resistance instead of pulling down the walls.

To understand the success and failures of an organization related to product development projects, it is worth considering the informal side of the organization, the cultural aspects.

V.4. Cultural Challenges In The Product Development Process

To fulfill its innovation potential, an organization needs to break not only its structural but also its cultural barriers. According Burns and Stalker's (1966) findings, culture is at least as important regarding innovation as structure. An organic company that supports innovation cannot exist without certain codes of conduct which are the manifestation of a common belief system or culture (1966, 119, quotes Dougherty 1996).

The definition of Van de Ven (1986, 104) calls attention to the important role of culture regarding innovation: innovation is the development and implementation of new ideas by people who over time engage in transactions with others within an institutional order. This definition also emphasizes –among other things-, the importance of contextual factors where the institutional order can relate both to the formal and symbolic side of the organization. Even Van de Ven himself articulates the importance of symbolic factors in relation to organizational culture. "...institutional processes focus on the creation of an ideology to supports the founding ideals, the use of personal networks and value-based criteria for recruitment, socialization and learning by sharing rituals and symbols, charismatic leadership and the

infusion of values as paramount to structure and formalize activities” (Van de Ven 1986, 116). All these phenomena belong to the area of organizational culture.

The consideration of cultural factors besides the structural ones can be justified by the following:

1. Uncertainty of the development activity.
2. Problems of operating control mechanisms based on formal and external incentives.
3. The special values people possess in knowledge-intensive jobs.
4. Potential conflicts of subcultures of organizational units and professions participating in the process

The first three considerations emphasize the advantages of cultural integration because of the limits of formal integration mechanisms. The last one holds the importance of the integrating role of culture because of handling conflicts with cultural roots. Thus, I study these in more details separately.

V.4.1. Cultural Integration: Answer To The Problems Of Formal Instruments

The importance of cultural integration is reinforced by the fact that development activity is surrounded by above-average uncertainty. The uncertainty originates from the following factors:

- The uniqueness of the process. A product or service is developed only once, nobody has experience about them.
- There is always the possibility that the previously developed organizational systems (planning, resource allocation, control and incentive) are not entirely able to handle the uniqueness of the process.
- The intangible nature of the output. Thus, the new product is only a possibility until full completeness and nobody knows all of its attributes.
- The participants work outside their usual job and relationships.
- The risk factor of the process is above average since there is no guarantee neither for the realization of the product or service or, more importantly, nor for its market success.

As the impact of the high level risk resulting from the above characteristics, the observation and social construction activities gain an important role during the process (Daft – Weick 1984). As I already mentioned in relation with the organizational culture theories, its background is that as an impact of the increasing environmental uncertainty, our observation and behavior are more and more determined by previously imprinted cultural schemes.

Another approach gets to the role of cultural integration considering the possible management and control methods of the manager responsible for the success of the process. During product development,

control mechanisms based on formal pre-planning, standardization and external incentives are problematic to operate. The process followed by uncertainty, risk taking and non-standard processes stress the controlling and behavior-influencing role of norms and values (O'Reilly – Tushman 1997). Managers leading such an activity have to rely more on the ideology of the value-based management due to the limitations of other tools.

There is an additional related aspect to the above. Related to the knowledge-intensive processes, due to the unique cultural and motivational background of the participants, there is a narrower space for formal structures. Coordination can be better done through incentive systems based on social norms and internal motivation. People dedicated to such activities usually have higher education. Because of the longer education time, most of the values come from university. This emphasizes autonomy, flexibility and usually informal aspects, internal norms and commitment (Van Maanen and Kunda 1989).

The above calls attention to the fact that the success of the product development process requires a special cultural context where the weight of value- and internal motivation-based control and coordination is above average.

This way, it is not surprising that since the literature of “excellence” (Kanter 1983, Peters-Waterman 1986) several studies emphasize the role of supporting innovation potential of corporate culture. In these studies, customer orientation, possibility of individual participation, acknowledgment of performance, change orientation and common corporate vision are more stressed than important cultural characteristics.

Besides all this, there have been several attempts to discover the characteristics of the organizational context and the innovative or innovation-friendly cultures that are favorable regarding product development.

As a result of Zien and Buckler's study (1997) the following seven characteristics of innovative cultures are identified: innovative identity, encouragement of experiments, close relationship of marketing and technology, customer intimacy, involvement of the entire organization into the development process, emphasis on the individual performance and its acknowledgment, conscious story telling that reinforce culture.

The “one-firm culture” concept was born as a characteristic of the knowledge-intensive cultures (Maister 1985). The characteristics of these companies among others are cooperation, high commitment and free information flow.

Amabile (1988) describes the innovative organizational cultures as follows: innovation is appreciated, risk taking, employees are proud of the organization and of themselves, offensive view regarding the future.

The success of the product development process first of all can be achieved by cultural control-based coordination says O'Reilly and Tushman (1997). They think that the efficient cooperation in certain phases of the development process is supported by the following norms.

In the phase of creativity:

- Norms supporting risk taking and change
- Norms supporting tolerance of mistakes

In the phase of implementation of ideas:

- Norms supporting effective group functions
- Norms supporting speed of action

As it seems, the above studies describe fairly similarly the characteristics of cultures that support efficient product development. Repeated expressions are change orientation, risk taking, open information flow and corporate commitment. All these attributes well correspond with the general characteristics of the organic organizations also described regarding structural integration.

The above recommendations to create an innovation-friendly cultural context do not consider that it might be easy to develop such a culture in case of a new, small company with highly educated employees. However, in case of big, older companies with a complex organizational structure, it is not natural that the whole organization is characterized by the above described organic culture. In their case, the impact of the established culture might be even negative regarding knowledge integration.

The organizational culture does not necessarily support the product development process. In the following, I look into the cause of the possible problems.

V.4.2. Cultural Integration: Conflict Of Subcultures In Innovation

The cultural conflicts related to new-product development might emerge on two levels. On one hand, at the connection point of the development project and the organization, where the logic of innovation and operation clash. On the other hand, within the development project where the subcultures of different functional units, professions and management levels conflict. Nevertheless, they both have the same background – insistence to habitual thinking and behavior patterns, defensive reaction when noticing difference. Also, they arise together in relation with an actual development. Therefore, I handle the two problems together in the following.

In the process of new-product development, the problems caused by organizational segmentation also have cultural routes. The different organizational units and levels are not simply characterized by

different processes and informational basis but different organizational subcultures also probably develop in them. The previously described structural coordination tools that support innovation oriented activity (teams, projects), also support the appearance of cultural differences since the encounter of the distinct subcultures increases cultural tension. The team formation, which helps to integrate the knowledge of a marketing and a technological expert, at the same time brings the opportunity, that cross-cultural conflicts will surface between them.

All this can result in the different parts not being accumulated, but subtracted (Hackman 1991). According to another approach, the difficult thing is not to create cross-functional teams but to reach that those entirely use and integrate the functional knowledge (Grant 1996c).

In each organizational unit different subcultures are formed naturally since they have different learning experience (Van Maanen - Barley 1984, Schein 1996). As I already mentioned in the chapter dedicated to the organizational culture theories, cultural separation and subculture formation can originate from several reasons. Besides different core technology, physical separation and relationship with different environmental segments, now I would emphasize the especially strong impact of professional cultures.

Learning different professions and activities and working within their framework means a very strong socialization process. It is possible that the organizational impacts and actions will never be able to re-socialize the individual. Therefore, mostly the professional culture will influence the ideas, problem interpretation and solution routines of the individual.

Accordingly, the culture of a certain organization may be described as a loose combination of different professional cultures. It is especially true in case of those professions, which externally are recognized as unified and have an own traditional institutional system. This can be the case of lawyers or doctors. According to Schriesheim - Von Glinow - Kerrs (1977), in these professions there are four influencing factors in sustaining professional identity and culture: a formal or informal ethical codices, continuous cohesion (events, conferences, clubs), making working standards to be followed (studying literature, manuals) and autonomy (recognized competency in certain professional skills, influencing possibility of legal regulations). As a result of this, the representatives of the technical, economic or medical profession see the organizational reality through different glasses. Therefore, they create different reaction routines regarding the environment.

According to Dubinskas (1992), an important characteristic of forming professional cultures is that cultural identity also has an emotional side as well. The statement that "I am an engineer" or "economist", does not simply mean that the person deals with engineer- or economics-type work. It is also a self-

definition, a group identity. This emotional abundance imprints more deeply the perceptual and behavioral routines.

As a result of developing professional or other subcultures an efficient cultural integration can be formed within the different organizational units. A common observation and interpretation framework as well as a behavior routine system is formed that are supported by common values and norms.

According to Dougherty (1992), in the different organizational units the outside information combines in different ideas. Each idea can be described by different objectives and time orientations, also, by different grade of formality (Lawrence – Lorsch 1969). Moreover, they are also characterized by specific local and professional language. Existing power differences easily become an obstacle for common thinking since they result in schematic observation of the other party. As a consequence, when solving tasks that require joint efforts the information and knowledge are separated instead of being integrated.

The developed functional ideas can be broken down in two parts. The separation is not only in the professional knowledge but also in the integrative system knowledge, which relates to cooperation and corporate life. Therefore, these ideas can be described as divided interpretation systems based on common procedures, judgments and methods. These survive since they possess some kind of defense mechanism. Their functioning makes perception selective and biased. It creates internal harmony and any information that would damage it will be ignored or reconfigured in order to defend the existing thinking estate. Everyday life makes people follow standard, routine procedures.

Regarding the product development process, the different approaches describe similar, although slightly distinct typical subcultures:

- Based on functional division: production, R&D, marketing, sales and planning (Dougherty 1992).
- Technical people (research or design engineers) – field people (sales, marketing) – Manufacturing people (production, purchase) – planning people (market research, business analysis; not directly related to the markets) (Dougherty 1992).
- Three subcultures that are in continuous conflict: the “fuzzy front end” which means the team of researchers, - “developers”, those dealing with structural feasibility, final realization, - “market activity”, those with a financial and regulation-oriented view (Zien and Buckler 1997).
- Schein (1996) describes three subcultures that are present in every organization: operators, engineers and executives.

The success of the development process highly depends on the efficiency of the cooperation of the different organizational units, which relies on the effective communication of the subcultures. This communication however, can easily mean challenge for the usual ideas and value system. Through

product development for example, the different functional representatives might consider the esthetics, quality, usefulness and cost of the product differently. For the participants, the ideas of the others can cause uncertainty and challenge. As a consequence, the above described defense mechanisms begin working. Thus, obstruct the way of that external information, which question their own developed ideas or value system. It would be too much uncertainty to step out of the settled routines and roles. Moreover, according to certain observations, the more complex and uncertain situation we get into the more we rely on our stereotypes and routine schemes and not on defense mechanisms (Van de Ven 1986, 108). The result is the lack of communication or communication based on continuous misunderstandings which dangers the success of the development process.

Several empirical studies showed the limiting effect of functional barriers in case of the product development activity of cross-functional teams (Dougherty 1992, Dougherty and Hardy 1996, Workman 1992). Thus, tendencies do not unanimously indicate the characteristics of the organic culture described in the previous chapter.

The research of cultural differences in the development process mainly focused on the conflicts of the relationship of developing engineers and marketing experts as well as that of developing and production engineers. Regarding the typical cultural differences, the results were the following.

Dougherty (1992) found the following three dimensions of the interpretation schemes different among the subcultures:

- What is seen when looking into future/uncertainties.
- Aspects of development considered most critical.
- How development task is conceptualized, the concepts on the product.

Song and Parry (1997) showed social-cultural differences between marketing and R&D managers. These differences mainly appeared regarding time-orientation, bureaucracy-orientation, professional-orientation, tolerating uncertainty and taking risk.

Workman (1992) also studied the difference of these two functions. He showed how the beliefs and interpretation schemes about each other of the two functions lead to contempt and to low degree of cooperation (e.g. the view about each other's professionalism, the opinion about the value source of the product, assessment of time needs).

Integrate planning and production also means a problem, since the engineers with different background have a different educational background, they do not have a common language and their objectives are not compatible. Designers focus on the performance and esthetics of the product while manufacturers focus on plant efficiency (Dean – Susman 1989).

Rigid thinking and behavior routines can be an obstacle to the organization for taking advantage of the potential of structural knowledge-integration mechanisms.

V.4.3. Factors That Support The Solution Of Integration Problems

There have been several studies undertaken regarding by what tools the operation of integration mechanism can be increased. The following factors supporting efficiency were discovered.

- Connecting roles to ensure communication among functions (Ancona and Caldwell 1992).
- Multi-team structures for the exploitation of technologies through different products (Jelinek – Schoonhoven 1990).
- Continuous support role of senior management and its manifestation even through “heavy-weight” product managers in order to solve problems with senior functional managers (Clark – Fujimoto 1991).
- Support of the so-called “product champions” who function as entrepreneurs within the organization and support the creation and implementation of new ideas through the political and social labyrinths of the organization (Day 1994).
- Rotation among the different functions in order to understand different viewpoints and form wider information possibilities (Glynn 1996).
- Involve customers and suppliers into the development process, ensuring their closeness (Brown - Eisenhardt 1995, Zien – Buckler 1997).

According to Van de Ven's (1986) approach the following principles have to serve as a basis for the cooperation among different functions:

- Ensure the biggest possible autonomy for the development unit.
- Integrate redundant functions into the team. Thus, everybody should try to understand the problem from the point of view of all the functional aspects and not only represent their own area.
- “Requisite variety”, appropriate segmentation of the critical dimensions and elements of the environment within the group. It also emphasizes that it is not enough if only a couple of people is in touch with the team environment, everybody has to take part in this activity.
- Ensure transitional sensation. Show the possibility and need of parting from the past, breaking from usual solutions and commitments.

Looking at the above, evidently, these support mechanisms work on two levels. On one hand, they serve as a protection from the logic of operative organization (such as senior management, higher autonomy and product-champions). On the other hand, they support the conflict solution throughout the

development process. In the second case a common factor is that they try to serve as a bridge between the separated functional and hierarchical subcultures.

An example for this could be the support of a common language beside the different jargons. This could serve as a link between the different “ideologies” of the functions. The general possibility of interaction with customers can help the development of a common language.

Another possibility might be studying and learning the “ideology” of the other organizational unit. This could happen through common meetings, rotation programs and cross-functional career systems.

A common approach can also be formed through working together. Thus, for example, past successful common works can support breaking barriers. Another possibility could be if during development they shortly turn from theoretical discussions and planning to practical experiments such as creating a limited prototype. This allows learning together and smoothing the conflicts arising from cooperation (Peters 1983). Its fulfillment though, requires openness and learning-orientation.

The strong organizational identification and commitment can support the abolishment of cultural barriers. It can create the trust basis for handling conflicts and also, a unified way of thinking.

The starting points of cooperation can be those elements of the common value system that support cooperation and learning orientation. This allows the members to reflect to conflicts caused by their routine actions or to other misunderstandings, as well as start a change process. The organizational culture itself might contain those routine searching procedures that enable participants to escape the cultural trap.

V.4.4. Summary

Summarizing the above, it is clear that regarding new-product development, corporate culture means a potentially efficient integration mechanism and at the same time, barriers that are difficult to break. The cultural integration mechanism that works efficiently on the level of subcultures might become an obstacle in case of development tasks that need cooperation. And again, only a cultural, but in this case, a company-wide integration mechanism is able to abolish these obstacles.

It is evident that the existence of subcultures might mean strong barriers regarding innovation ability. On the other hand, this variety might mean the basis for a value building, permanent innovation ability that it is difficult to copy by the competitors. Companies, which through cultural integration are able to overcome structural and cultural conflicts originating from organizational segmentation, have a permanent competitive advantage.

Obviously, simply abolishing different subcultures cannot solve this problem. This would terminate its basis for competitiveness. Instead of this it needs a common framework that integrates the different

subcultures of the company in a way that their members participate in the product development projects as cooperative, open partners.

In my opinion, it is worth a look in what way and through what processes work at Hungarian companies. Through an empirical study we can create a picture about what factors influence in a positive or negative way this integration mechanism. What affects whether the employees of a company are able to come out of the potentially threatening cultural trap?

VI. INITIAL QUESTIONS AND ASSUMPTIONS OF THE RESEARCH

VI.1. Defining the research question

Corporate culture as one of the integration tool of the corporate knowledge basis is able to influence strongly the success of the innovation process. In this thesis proposal I would like to examine the organizational contextual background of the product development process with special attention to the questions related to organizational culture.

Therefore, the wide definition of my core research question is the following:

To what extent the organizational culture, - as a highly important integration factor regarding separated knowledge bases -, supports or serves as an obstacle to the product development process?

The final objective is to form a theoretical framework that shows the most important factors and their connections, which help to understand the impact of cultural context on the success of innovation.

Success of the innovation process can be interpreted in two different ways.

1. In terms of the *conclusion of the process*, when success is the development of a product or service that is possible to launch to market, as well as the development of supporting manufacturing or distribution processes.
2. In terms of the *business and financial results* of the developed product, when success can be defined based on the comparison of the invested resources and revenues related to the product.

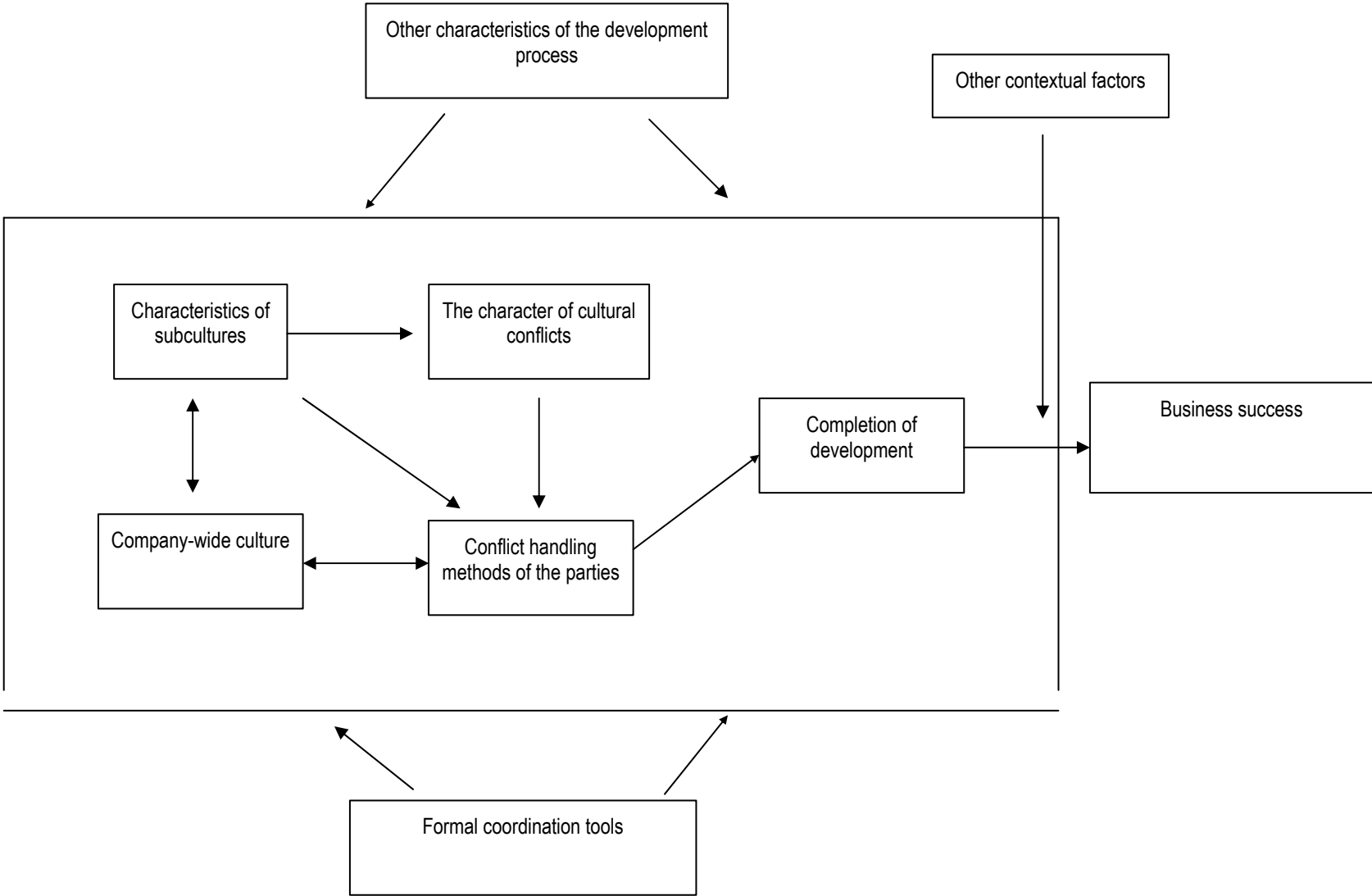
From the point of view of present research, the success criterion is first of all the successful completion of the process ("efficiency"). Business success interpretation (result of the "effectiveness") raises several further measurement and interpretation problems, which are out of the scope of present area. The short listing of related problems:

- Interpretation of success timeframe (short-, long-term).
- Basis for comparison of success (costs, plans, competitors' products, strategic objectives, etc.).
- Levels of success (it is possible that the experience and knowledge gained from developing a product with little success or loss lead to the development of a successful product).

Therefore, present study stays on the level of the process-oriented interpretation of success: efficiency, and does not aim at the effectiveness interpretation of it.

The following interpretation model is in the background of the research question.

Pre-research interpretation framework



VI.2. Applied organizational culture approach

To understand the research framework, the essential characteristics of the organizational culture used in the research have to be clarified. In the chapter discussing the corporate culture theories I showed that there is no unanimous concept regarding the question. The theoreticians are divided in several questions. Present research uses the following assumptions regarding the nature and research method of culture.

1. *Interpretation of organizational culture.* – Definition problem: in present research, the focus is on the internal integration role of the corporate culture. This approach setting out from the general competitiveness and knowledge integration viewpoint does include the risk mitigating and reality construction function of the corporate culture on the individual level. The core question of the research can also be interpreted as the following. In what way does the operation of the organizational culture mean problems or potential advantages on these two different levels?
2. *The content of the organizational culture.* – In this case, based on the traditions of the interpretive approach, I consider core elements of the culture the common social interpretation schemes, its symbols and role systems. This does not exclude the examination of values, since, according to Berger and Luckman's (1998) ideas, the connection of these two is the basis for the social reality construction mechanisms.
3. *Interpretation and operationalization of culture.* – Due to the possibilities of qualitative research methods, the phenomena of organizational culture can be interpreted widely. It is not necessary to narrow them first. However, because of the interview methodology, it can be assumed that the oral and behavioral phenomena will play a bigger role than the material, since, observation as data gathering tool does not play an important part. Besides those phenomena that can be revealed directly, studying and identifying interpretation schemes and scripts can also help the understanding of the given culture or subculture.
4. Regarding the *relationship of the organization and culture*, present research follows the differentiating approach. This acknowledges the existence of the different subcultures but also assumes the possibility of the development of a wider organizational culture. One of the core questions of the study focuses on the connection of the culture interpreted on two different levels.
5. *Methodology issues* will be more emphasized in the next chapter. For now, I just mention that the approach applied here is consistent with the understanding-oriented, theory development approach.

VI.3. Detailed research questions

The main research question can be answered based on studying the factors and their connections shown on the previous chart. Accordingly, more detailed study questions and aspects based on the basic research question are the following. (After the questions, the preliminary assumptions are described shortly. The grounded-theory type of the research justifies the draft description. Thus, this is not a hypothesis testing research.)

VI.3.1. Which Typical Subcultures Appear Related To The Development Process?

Previous literature analyses have already shown the existence of several subcultures related to the development process. For a starting point, synthesizing previous models (Dougherty 1992, Zien and Buckler 1997) the appearance of the following subcultures can be assumed:

- “Customer-oriented”. Usually they are those members of the organization who have direct relationship with customers and represent their needs and financial aspects. Supposedly, employers working at marketing, sales or finance have typically these characteristics.
- “Researchers”. They are mainly the ones in connection with the world of science. They appreciate the novelty, perfection and elegance of the product or service. They are mostly employers of the R&D department.
- “Manufacturers”. Those who work in production and logistics. They care the most about the production possibilities and simplicity of the product.

Although, it is not closely related to the topic of product development, I still think that it is worth paying attention to the subculture division of Schein (1996) in the beginning framework. Executives, experts and managers can also play a part related to product development.

The objective of the research is to specify the circle of these subcultures and describe those characteristics that determine their conflicts and their way of cooperation. The subcultures presumably differ in their objectives, perception schemes, value systems, problem solving and other routines.

Important characteristic of subcultures can be their perception schemes regarding each other and also, the way of judging the others. Rigid stereotypes, contempt of others, considering others inferior could all increase the development of conflicts.

VI.3.2. What Are The Typical Cultural Clashes In The Relationship Of Subcultures?

Subcultures might conflict in relation to several questions of the development process. Throughout the conflicts, cooperation-related routines and observation schemes can be developed that hinder or support the development process. Based on the literature shown earlier, (Dubinskas 1992, Dougherty 1982, Workman 1995, Dougherty-Heller 1994) I define the following potential conflict sources as a starting point for the research. Obviously, they can influence each other as well:

- success factors: the most important objectives, point of comparison followed during the development;
- critical characteristics: observation of the potential product, interpretation of important characteristics and parameters;
- problem definition: interpretation of the tasks to solve and the approach method;
- solution methods: applicable procedures, interpretation of the critical, value building parts of know-how;
- communication problems: norms and expectations regarding cooperation, information flow, personal and formal communication;
- questioning each other's status and competency, distrust.

VI.3.3. How Are Conflicts Handled?

According to the general conflict-handling models, the participants have several options to handle developing conflicts. This way, conflicts can be avoided or practically even unnoticed by blaming some external factor for the problems. Such as, scarce resources, bad planning, etc. Naturally, it is also imaginable that there are no possible reasons for conflicts. This could be due to the applied structural solutions or the nature of the innovation process.

Another possible solution is based on the dominance of one of the parties. In this case, one of the participants reaches a permanent dominance. Therefore, when solving conflicts, their interests succeed. This can be a result of power and structural reasons or reasons grounded in the general corporate culture. For instance, in Workmann's (1995) study there are examples for the dominance of engineers' culture at a company. Therefore, their opinion and ideas dominate in conflict with marketing related to the development process in every question.

The next possibility is characterized by an open and equal competitive situation. Here, participants take on conflicts that they try to solve by maximizing their own gains. Here, the conflict solution is open it depends on the present power structures and personal tension.

A fourth, widely interpreted possibility is the cooperation of an open, partner relationship that might result in mutual learning. Souder (1988) describes this situation as a harmonic, equal partner relationship.

A question of the research is what factors determine the way parties handle their conflicts. And also, how the conflict handling strategies in practice influence the success of the development process.

VI.3.4. What Is The Impact Of The Corporate Culture On The Development Process?

As I mentioned before, one of the important assumptions of the research is that the success of the product development process is highly affected by the conflicts of the participating subcultures. A further assumption is that the general corporate culture is an important influencing factor to the existence of subcultures and also, to the development of conflicts between them as well as to the way of handling them. The existence and cooperation of professional and functional cultures is highly influenced by the common company history and the presence of routines and observation schemes originating from this.

An interesting question is which factors of the general corporate culture obstruct and which support the product development process. As I have already shown it earlier, many tried to present those cultural characteristics that support innovation. They tried to reveal the value orientation that supports innovation (O'Reilly and Tushman 1997, Zien – Buckler 1997). This study can help to control and add to these hypotheses and also, to understand their context.

VI.3.5. Which Characteristics Of The Dprocess Affect The Impact Of Cultural Integration?

Throughout the research, it also has to be considered which are those general contextual factors that can influence the nature of the connection to be revealed. The industrial, structural and technological aspects related to the development process can be shown by the sample selection.

Supposedly, the following aspects of the development process can be also influencing factors regarding knowledge integration:

- time frame,
- grade of uncertainty and risk,
- complexity and other technological aspects,
- its similarity to previous developments,

- number and professional background of participants,
- the role, support and participation of senior management.

In given organizational situations it is possible to interpret the impacts and relationship of these and other influencing factors.

VII. RESEARCH METHODOLOGY

In this chapter those questions should be answered that help to show that logically built way which leads from 'putting the research question' through 'data gathering and analysis' to 'giving the answers'. Accordingly I present my arguments for choosing the methodology, the important characteristics of which will also be discussed, plus I will introduce in detail the tools I used throughout the research.

VII.1. The Chosen Methodology

Present research, according to the nature of the examined question, uses case study methodology based on inductive logic and qualitative interviews for data gathering and analysis. This research methodology is part of the understanding-oriented culture-research theories presented earlier.

Inductive logic means that it is not a hypothesis-testing research. Consequently, the way of thought does not serve the testing of suppositions deduced from a general theoretical framework. The purpose is the further formation and enrichment of an original theoretical framework based on the empirical data. This is possible by the deeper, contextual analytical method ensured by case studies during which a more general theory can be formed from the detailed empirical data.

This research objective corresponds with the "grounded theory"¹ (Glaser – Strauss 1967) logic. In case of this methodology, the research plan is based on the following logical steps:

- original assumption framework system: based on literature studies and previous experience – (pure "grounded theory" even refuses this original theoretical framework);
- theoretical sampling, (opposed to statistical sampling method);
- data collection and data selection at the same time, according to the objectives of the theory development;

¹ I have thought a lot about translating 'grounded theory' into Hungarian, and these are the ideas that came to me: the initial 'founded theory' – which stood the closest to the original English term appeared a little too value-packed as other methodologies are also well founded. Besides such dry, not too distinctive expressions as 'practice based' or 'coming from practice' theory some more associative terms have also appeared including 'raised theory' and 'original theory' – which is perhaps a step too far.

- summary and presentation of the research results after reaching the appropriate theoretical saturation.

Yin's (1994) supposition supports the selection of the given methodology. Yin says that it is worth using case studies when we ask "how and why questions related to those present events that the researcher has very little control over" (Yin 1994, 9).

The main characteristics of the case-study method:

- examines real-life situations;
- border lines between the studied phenomenon and the context cannot be determined precisely, thus, there is a possibility to examine contextual phenomena more thoroughly;
- it deals with a situation where there is a bigger number of factors to study than the data gathering points;
- it is based on data from several different sources which are tried to be summarized by the method of triangulation;
- it also uses previous theoretical assumptions during data gathering and analysis. (Yin 1994)

According to the above, it is evident that the case-study method is not a simple data gathering technique but also an independent methodological approach. (In this aspect, it should not be confused with case studies used for education. In that case the didactic objectives are emphasized versus realism. With the research methodology, validity and integrity are in focus.)

The case-study method should be also separated from the ethnographic and anthropological methodology. The latter requires a long personal relationship by the researcher, which is not necessary with case studies.

Of course, the chosen methodology is not the perfect solution by itself. It involves several potential problem sources. For example, some of the method's difficulties are confidentiality; above-average amount of data gathering, processing and analysis need; multiple definitions and softness of qualitative data as well as theoretical constructions based on them; and problems in classical generalization (Pettigrew 1990, Yin 1994, Van de Ven-Huber 1990).

The researcher status is independent from the studied organizations. Thus, in present case it is not a participatory or action research.

The starting theory framework was described in the previous chapter. Therefore, now I discuss the questions of sample selection, data gathering and analysis adding the questions of validity and integrity of the research.

VII.2. The Researcher's Role

The open role of the researcher and the interpretation schemes created for the purpose of data collection either establish or destroy trust between the interviewees and the researcher. Trust is of paramount importance concerning the reliability and relevance of the collected information.

I totally revealed my role and my intentions both to the contact people and the interviewees. The contact people accepted my research objectives and asked for a shorter analysis of the strengths and weaknesses of their culture, and they also requested to read the study prior to its completion. Before starting the study I have signed a secrecy and confidence declaration.

The first contact person in the organization was an expert working in the HR field. He introduced me to a middle manager from the field of product management – it was him with whom we started to prepare the research.

In the beginning of the interviews, and often before them, I have discussed the purpose of my research and the way results were going to be analysed with my partners. I have handled the name and opinion of my interviewees confidentially, and made it unidentifiable for others. (Later when quoting their opinion I refer to them with a code in order to allow ex-post searches and thus reliability.)

A number of interviewees have indicated their interest in the study, so I let them have the first version and also had their opinion included in the final form of the thesis.

VII.3. Sample Selection

To solve the problem of sample selection it is necessary to clarify what the research unit, the case is within this research framework.

Since the objective of the research is to reveal how cultural factors influence the success of the product development projects, the basic research units are these product development projects.

Naturally, these projects are grounded into a bigger organizational context, in the framework of which several projects can be examined at the same time. (Either parallel or consecutive projects.) This way, the entire organization as well as the culture of it are a research unit. Going to the other direction, different subcultures or individuals representing them participate related to projects which also can be objects for examination.

Yin (1994) calls the approach that considers stratified research levels, embedded case-study method. Based on this approach, present study can be defined as an embedded multiple case-study

method. Since several case-study preparation will be included, it is worth looking into their selection criteria.

In accordance with the qualitative, case-study-based methodology, the question of sample selection is not a statistical but a theory formation issue. The characteristics of the two sample selection systems are summarized in the following table (based on Yin 1994, and Miles–Huberman 1994):

Statistical sampling	Qualitative samplings
Big sample	Small sample
Random	Theoretical sampling
Representation is an objective	Refining and discovering theoretical concepts is an objective
Predetermined, defined	Continuously forming, implemented in steps

In statistical sampling, the most important is that the results of a certain sample should be representative regarding the entire examined population. As I describe it in detail later, in case of the qualitative method, the generalization is not regarding a population but a theoretical model or framework. Thus, there could be different aspects when forming the sample.

Miles and Huberman (1994, 28) summarize several possibilities in relation with qualitative research sampling:

(Star marks those that can be taken into consideration in this research as well.)

Maximum variation*	Documents diverse variations and identifies important common patterns
Homogeneous	Focuses, reduces, simplifies, facilitates group interviewing
Critical case	Permits logical generalization and maximum application of information to other cases
Theory based*	Finding examples of a theoretical construct and thereby elaborate and examine it
Confirming and disconfirming cases*	Elaborating initial analysis, seeking exceptions, looking for variation
Snowball or chain	Identifies cases of interest from people who know people who know what cases are information-rich
Extreme or deviant case *	Learning from highly unusual manifestations of the phenomenon of interest

Typical case*	Highlights what is normal or average
Intensity*	Information-rich cases, that manifest the phenomenon intensely, but not extremely
Politically important cases	Attracts desired attention or avoids attracting undesired attention
Randomly purposeful	Adds credibility to sample when potential purposeful sample is too large
Stratified purposeful	Illustrates subgroups, facilitates comparisons.
Criterion*	All cases that meet some criterion, useful for quality assurance
Opportunistic	Following new leads, taking advantage of the unexpected
Combination or mixed	Triangulation, flexibility, meets multiple interests and needs.
Convenience	Saves time, money and effort, but at the expense of information and credibility.

Naturally, the above aspects are not exclusive. They can build upon each other within a research according to the nature of actual problems.

Another important difference compared to the statistical methodology is that the cases in the sample cannot be pre-defined. The theoretical aspects select only the initial one or two cases, the following ones will be chosen based on the results of the unfolding analysis. During the process, new cases can be chosen based on two general considerations. On one hand, to repeat and reinforce previous results. On the other hand, to discover new theoretical constructions and supposed connections. (Yin 1994, "literal and theoretical replication".)

The theory forming nature of the case-study methodology is given by its flexible separation (evidently, appropriately documented and reasoned) from the initial assumptions.

In accordance with the above aspects, when selecting the sample for present research I take into account the following considerations.

The basic units are the product development projects. The projects selected in the sample have to fulfill the following requirements:

Criteria related to the competitiveness influencing role of product development:

- Projects of organizations that operate in dynamic, turbulent environment where, because of the high adaptation pressure, the success of the project is important regarding competitiveness.

- Where innovation and R&D has an emphasized role concerning corporate success. Therefore, innovation competence exists.

Criteria related to cultural aspects

- Projects that require the cooperation of several functions and professions where cultural conflicts can be expected.
- Projects running in relatively matured organizations so that developed routines, corporate culture and subcultures can be calculated.
- Project members belong to formally different organizational units where subcultures might have been formed.

Criteria related to validity and trustworthiness

- The development project is either completed or is approaching its end so that an overall picture of the process can be seen.
- It is practical to select in the sample projects both considered in the organization successful and failed in order to gain a wider understanding of relationships.
- Organizations where several product development projects can be observed. This increases the trustworthiness of the conclusions.
- Projects running in different industries to increase distinction.
- Also, projects with extreme characteristics in order to better understand particularities.

Naturally, besides the above aspects of sample selection, accessibility is also an important consideration.

To start the research, a pilot case study will be prepared which helps to recognize and avoid methodological problems in advance and also, to reveal certain initial theoretical connections. The above considerations are also valid when choosing the pilot case study, which could possibly be an information-intensive situation that allows examination of different patterns.

Selection of interviewees

The above sampling perspectives are related to the selection of projects and the organization. When deciding about the interviewees the following factors had to be reckoned with:

- I have made interviews with people from every participating unit of the product development process. From the more influential fields of product development I tried to talk to as many people as possible.
- I have selected interviewees from all levels in the organization: from top managers through middle managers to subordinates. (The managers of all critical areas have been interviewed.)
- In order to get better acquainted with organizational culture, I also made interviews with people working in the HR field – although they did not participate in the development process.

Based on these criteria I have tried to define the interviewees already at the stage of preparation. This however was only the start, as I tried to go hand-by-hand and get recommendations for further interviewees. An important difference compared to statistical methodology is that the type of formation that enters the study is not predefined. Theoretical perspectives only determine the initial steps, but later it is the result of the first few analysis which lay the ground for further exploration. In the course of the process there are two reasons why new interviewees can be added: in order to repeat or strengthen previous results, or to reveal new theoretical constructions and supposed relations. (Yin 1994, 'literal and theoretical replication')

As a summary of the sampling standpoints it can be said that I have primarily applied the 'method of criteria' and 'the principle of maximum difference' from the previously presented sampling dimensions of Miles and Huberman (1994, 28). So I did not look for exceptional or extreme development projects, but typical and characteristic processes. Among typical cases however I looked for the greatest possible difference, which allowed for a deeper understanding of the different influencing factors.

The characteristics of sample that was created as a result of the preparation of the empirical research:

- In order to guarantee the deepness and focus of the analysis the different product development projects were selected from the same company.
- I have made 26 interviews all together in relation with the selected and analyzed three projects – two of these in English. I had 21 interviewees, which means that there are people with whom I have had more than one conversation. (The total number of people working at that time in PanTel was around 160.)

The interviews took several months to complete: preparation (getting acquainted with the organization, selecting the project) took place in March, while conversations were held throughout April and May.

VII.4. Data Gathering And Data Analysis

VII.4.1. Interview Questions

I have used half-structured interviews during data gathering. The conversations lasted 40-120 minutes, with an average of 60-70 minutes.

The interview questions can be grouped into the following groups:

- relationship-builder, frame-definer questions;
- questions about product development;
- questions about the whole organization;
- questions about the critical characteristics of the respondent, and his/her background;
- check and clarifying questions.

Preformulated open questions were characteristic of the interviews, which meant that my partners had a large room to openly formulate their own, personal opinion, by using their own vocabulary. Because of the open character of the interviews I have not asked every question, and often I only gave a brief description of my perspectives and reminded my partners about these when they got stuck somewhere.

In accordance with the method of 'grounded theory' new topics also surfaced in the course of data gathering. Questions about these topics were also fitted into the interviews. Of course it was a smaller number of conversation partners from whom I could gather information.

Interview questions applied from the beginning of the research:

1. Introduction, presenting the purpose of the research
2. What is the role of my partner and his/her responsibility?

3. Tell me about the project! How did it go along, what were the critical points, to what extent was it different from other projects in which you participated previously?
4. Who were the players, what was their responsibility, what were their interests? Who was the leader?
5. What typical conflicts were there in the project?
6. How did you solve these problems?
7. Give a valuation on a scale from 1-10 about the finished product and the co-operation. Why did you give that point? What was missing to give 10 points?
8. What are the characteristics of PanTel's culture? How would he describe it?
9. How do the Dutch strengthen the company, what problems do they cause? Characterize them! Perhaps the Hungarians as well!
10. How long have you been working here? Where did you work previously?
11. Any further remarks? May I call up later, in case I would have further questions?

If it was necessary, I asked further clarifying questions, such that helped deeper understanding and avoided misinterpretations.

The list of questions was complemented by the following items in the course of the interviews:

1. Is it true that this is a sales-driven company? How does this show?
2. How do you see the role of top management? What is their influence on the process?
3. What is the role of middle management? Why?
4. Characterize your current workplace compared to the previous one!
5. If you were a top manager, what were your priorities, and what would you do first?

VII.4.2. Tools of Analysis

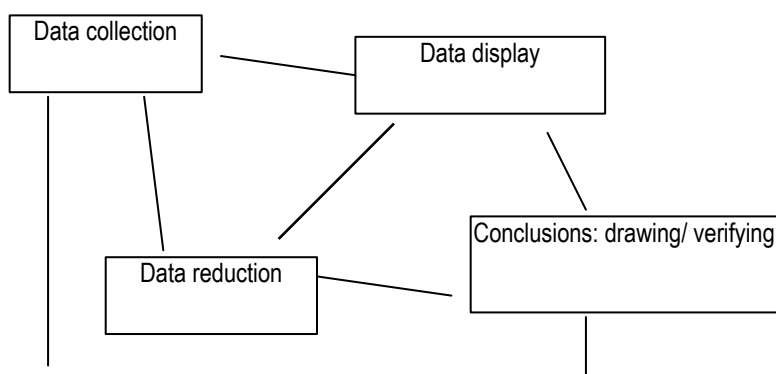
The coding of the gathered and documented data in the course of data analysis, its content analysis and its structuring along the developing theoretical frames.

The process of the analysis

In case of qualitative, case-study based research, data gathering and a data analysis are performed parallel, in an iterative way. The steps of the process are (Miles – Huberman 1994):

- Reduction, simplification and extraction of raw data in order to identify relevant information.
- Displaying of information in a comprehensible and supporting manner.
- Conclusion drawing and verification, consistent with the forming theoretical framework.

The following chart shows the process and the connection of its steps (Miles – Huberman 1994, 12):



The process lasts until theoretical saturation is reached (Glaser – Strauss 1967), meaning that new information or case studies do not add to the theoretical framework. This generally used term is hard to define and rather subjective. It refers to a stage in the research when new information or further case studies do not cause any quality change, and also do not contribute to the expansion of the theoretical frame.

Characteristics of data in the analysis

A special characteristic of data sampling applied throughout the study is that it does not really rely on objective, factual information. E.g. I did not intend to learn or accurately describe 'official' process descriptions, job definitions, performance measurement- and bonus systems. I have an idea of these only through the perception and interpretation filters of the respondents. The only 'tangible', objective document I use is the organigram of the company.

The analysis therefore relies almost solely on personal reports and opinion. Thus, it is possible that the information I collected does not match 'objective' reality, and events that actually unfolded, on every point. But as the analyzed topic is organizational culture, this does not cause severe

difficulties: it is exactly these opinion and interpretation schemes through which culture can be understood. The exploration of these perception and interpretation schemes was exactly what the research set out to accomplish.

Besides the text of the interviews I also tried to use my observations in the analysis. When setting the dates of the interview, when conducting them, or just waiting for one, I had the opportunity to observe the everyday life of the organization. So I included the following elements in the analysis: the description of the physical environment, the interaction of organizational members, and the observation of their individual work. These were often directly linked to the topic of my research: the management of conflicts. But they were also helpful when they were not directly related to the topic as they enriched, and toned the information I got from other sources.

The steps of registering and processing data

- I took hand-written notes in the interviews. These were immediately complemented with my observations and impressions about the interview, or the prompt perceptions throughout it. (E.g. the characteristics of the organizational environment, the happenings in the course of the interview, the metacommunication of my conversation partner.)
- In the early stages of interviewing I made further hand-written summaries, in which I tried to stick to the original text as much as possible, but this time I put this in a better structured form to allow for greater transparency and readability. Finally I decided to put all interviews in electronic format, in the original structure which unfolded in the conversations.
- I have read through this printed electronic format several times looking for themes and categories. Parts of the script were shown to my colleagues whom I asked to check my developing impressions and share their experience with me. With their help I was able to question my developing interpretation and rethink them.
- First I defined the main topics by reading through the interviews using content analysis tools (Dey 1993; Strauss-Corbin 1990). (Two examples of topics: the position of the Dutch within PanTel – conflicts between the players.) Within these topics I gathered and compared basic codes. ('supremacy', 'representative of the owners', 'good relationship building skills', 'negligence of the other's opinion' – 'the different interpretation of profit', 'different priorities for deadlines and quality', 'prestige fights', 'the undervaluation of the other') By grouping these codes and putting them next to one another I have created categories by which the topic can be fully interpreted and described (e.g. impersonal and personal opinion about the Dutch – or task

vs. contextual conflicts). Finally I have recoded the original text of the interview in the new category system. In order to better understand the content of categories and codes I give original quotations – which also increases relevance and reliability.

- The developing categories were also discussed with my interview partners – when it was possible – which was a constant check of my interpretation frame.
- In order to support analysis and coding after the initial topics had crystallised, I have reedited parts of the text and printed it in this new thematic format. This allowed the refinement and analysis of codes and categories within the topics.
- As a further support of coding I prepared an 'Excel' table where the opinion of interviews stood horizontally and the analysis' dimensions vertically. This table again helped me find typical, reappearing patterns in the different groups of players (horizontally) and the different topics (vertically).

Finally, the size of this sample does not allow for statistical analysis of results, as the number of research dimension largely exceeds the number of respondents in the various categories. The lack of statistical analysis does not cause methodological problems, because the research's objective was to understand the concrete situation and context, plus the interpretation schemes of the different players.

VII.5. Validity, Reliability, Generalization

It is difficult to match qualitative research with classic validity and reliability requirements (Nunnally 1978, Carmines-Zeller 1979) since context dependence and multiple interpretation possibilities do not allow the strict approach.

Acknowledging the problem of absolute truth-criteria, it is still impossible to avoid the question what gives the credibility and explanation potential of a research. To maintain an intelligent and scientific discussion, it is necessary to be able to judge the weight of the partner's arguments. Thus, it is worthwhile and necessary to establish and develop certain common standards and points for comparison.

Regarding qualitative research there has not been a common interpretation framework developed for the classic problems of validity, reliability and generalization. Moreover, there were also attempts to re-interpret or re-name the notions (Lincoln 1990, Lincoln-Guba 1985) since the

statistical concepts and approach cannot be invariably applied. Here, I shortly summarize the considerations of Miles-Huberman's work (1994, 278-280) which is considered the definitive work of qualitative research.

According to them, the following five aspects can be also valid in case of qualitative research even if they cannot be precisely defined and only general considerations can be set in order to keep them.

VII.5.1. Objectivity

Relative neutralism to avoid unconscious researcher distortions. The following tools can be recommended to reach it:

- Detailed, explicit presentation of methods and tools.
- The ability to trace how data was collected, processed, condensed and presented related to the conclusions.
- Explicit connection of conclusions to the presented data.
- To make personal assumptions and emotional factors conscious and explicit.
- Considering rival, alternative explanations.
- Presentation of data for reconsideration.

VII.5.2. Reliability

It indicates the stability of the research and the measuring process. This could mean stability in time (whether later arrivals experience the same), or also comparison with other researchers (different people at the same time) – do they find the same using a certain measurement tool.

- Clear research question, fitting research plan.
- Explicit researcher role and status.
- Sensible correspondence of data sources.
- Clarity of basic paradigms and analysis tools.
- Broad data collection.
- Coding control, equivalency examinations.
- Quality control (distortion, competency of informants).
- Overlook and control of partner researchers and colleagues.

VII.5.3. Internal Validity

One of the basic questions is: Are the conclusions sensible and authentic for the reader? (For different interpretation of validity: Bailey 1978, Van Maanen 1988)

- Context-rich, meaning-rich, “thick” description.
- Convincing, clear description.
- Comprehensive description with authentic time and structure profile of the local circumstances.
- Whether the triangulation based on different additional methods lead to consistent results.
- Presentation of data in accordance with the categories of the developing theory.
- Internally coherent, organized results.
- Making the aspects used in the supposition examination explicit.
- Identification and revelation of existing uncertainties.
- Conscious search for refutations.
- Active search and consideration of alternative explanations.
- Checking with the original informants.
- Preparing and control of predictions.

VII.5.4. External Validity, Transferability

Relevance farther on the given context, generalization, applicability for other situations. Three possible levels:

- from sample to population,
- theoretical,
- from research case to case.

In qualitative research, mainly the last two can be done. The latter one is mostly interesting within the research framework, while the theoretical generalization means the real question of the external validity.

With help of the given research method, the general findings cannot be directly concluded to a wider population (e.g. national product development projects, or certain organizations). Here, generalization means that a general theoretical framework is set up which is also valid in other context, therefore, those become explainable in case of suitable conditions.

Generalization is supported by:

- Careful identification and description of sample characteristics.
- Presentation of limiting factors.

- Appropriate sample dispersion and expanse.
- Sufficient “dense” description so that the reader can identify the corresponding conditions to his/her own situation.
- Fitting and connections to preliminary theories.
- General descriptions of processes and their results.
- Making generalized theory explicit.
- Replication, repetition attempts.

VII.5.5. Applicability

The pragmatic interest (Kvale 1996) and applicability of the research for its participants, subjects and readers.

- Possibility for intellectual and physical access to results.
- Incentive for new working hypotheses.
- The usable knowledge level: from creating consciousness to specific action alternatives.
- Actual intervention to solve local problems.
- Presentation of value-based or ethical considerations.

VII.5.6. Some More Tools For Achieving Reliability And Validity

Besides the above general considerations, Miles and Huberman (1994, 263) recommends the following specific , -however, sometimes overlapping-, research techniques. These can also establish the validity of the research results.

1. Check representation regarding information sources, events and processes by increasing case number, conscious grouping of cases, searching contradicting cases and involving randomness.
2. Eliminate influence of researcher and “case” on each other.
3. Triangulation in the data sources and applied analysis methods.
4. Weight results on behalf for the benefit of the “stronger” data (data directly observed, coming from trustworthy information sources, gathered informally and privately).
5. Checking and thorough examination of exceptions, prominent cases (people, events, circumstances).
6. Use extreme cases. (Looking for those who are the most concerned in the certain question, who can win or lose the most in the studied case.)

7. Follow up surprises in order to make internal assumptions conscious or shake.
8. Conscious search and challenge negative evidence.
9. Carry out “If...then” tests in order to check supposed relationships.
10. Eliminate background variables in order to identify direct relationships.
11. Repeat and replicate results and conclusions.
12. Check rival explanations.
13. Getting feedback from informants.

Overall, it is certain that the classic, quantitative approach is characterized by end-control – such as sample selection, developing scales and statistical analysis methods. However, qualitative methods emphasize continuous process control and validity fitting to each step of the research process (Kvale 1996). On the other hand, the used considerations are less objective and formalized.

To present the entire research process, Eisenhardt's (1989, 533) summarizing table is very well applicable. It includes the most important phases of qualitative case study preparation emphasizing those that are suitable also for present study:

Step	Activity	Reason
Getting started	Definition of research question*	Focuses efforts
	Possibly a priori constructs*	Provides better grounding of construct measures
Selecting cases	Neither theory nor hypotheses*	Retains theoretical flexibility
	Specified population*	Constrains extraneous variations, sharpens external validity
Crafting instruments and protocols	Theoretical, not random sampling*	Focuses efforts on theoretically useful cases
	Multiple data collection methods*	Strengthens grounding of theory by triangulation of evidence
Entering the field	Multiple investigators	Fosters divergent perspectives and strengthens grounding
	Overlap data collection and analysis, including field notes*	Speeds analyses and reveals helpful adjustments to data collection
Analyzing data	Flexible and opportunistic data collection methods*	Allows investigators to take advantage of emergent themes and unique case features
	Within-case analysis*	Gains familiarity with data and preliminary theory generation
Shaping hypotheses	Cross-case pattern search using divergent techniques*	Forces investigators to look beyond initial impressions and see evidence thru multiple lenses
	Iterative tabulation of evidence for each construct	Sharpens construct definition, validity, and measurability
	Replication, not sampling, logic across cases *	Confirms, extends, and sharpens theory
Enfolding literature	Search evidence for "why" behind relationships*	Builds internal validity
	Comparison with conflicting literature*	Builds internal validity, raises theoretical level, and sharpens construct definitions
Reaching closure	Comparison with similar literature*	Sharpens generalizability, improves construct definition, and raises theoretical level
	Theoretical saturation when possible*	End process when marginal improvement becomes small

Eisenhardt (1989a, 553)

VII.5.7. Tools and Risks in the Research

In the case of qualitative research an important aspect is the transparency of the research process, and the persuasibility of conclusions – as this is the primary method of checking validity and reliability. Hereunder I briefly present the tools I use and the dangers that challenge the validity of the research.

Tools applied to increase reliability and validity

One of the basic tools that appears several times is triangulation, which this time is conducted with using several sources, various analysts and a number of analysis methods in order to reach the highest reliability possible. Of course, other previously presented tools are also used.

- The prior definition of the researcher's role. The acceptance of him as an external and independent player (independent of the other organizational members such as top managers).
- Interviewing all the relevant players concerning the analyzed projects.
- Comparing the information from the interviews with the opinion of others, and intentionally checking the validity of information in later interviews.
- Comparing information from observations with information from interviews.
- The rereading of interviews several times, a hierarchically structured coding and categorizing process.
- Bringing in independent third parties into the analysis. There was a possibility for this during the reading of the interviews, the preparation of the primary codes and during the development of the first versions of the study.
- Making the first version available for some interviewees, asking their opinion.
- Clearing implicit and literature-based premises at the beginning of the research, and inclusion of these into the initial research questions.
- The detailed and explicit presentation of data gathering and analysis tools.
- The intentional trial for denying my developing conclusions, the gathering of possible 'counter evidence'. (E.g. a separate sampling of positive opinion in connection with negative cultural stereotypes.)
- Presenting the relationship between conclusions and 'raw data', frequent quotations from the interviews.

Barriers and dangers

- One of the biggest disadvantages of researches based on interviews is that we are not present when events unfold, we are not in the midst of things, thus important pieces of information and bits are lost for the research.
- A further problem is that information gets biased with the passing of time, current events and everyday problems overwrite typical opinion and interpretation schemes once characteristic of the project.
- I did not manage to reach everybody. Some have existed the organization since then, and perhaps they had relevant information that was lost for the research.
- My own professional background, the fact that I am a business economist, influences what I understand and how I do so, and this also has an impact on the premises of my interview partners about me. (This factor, however, has some positive consequences as well, namely I have the opportunity to observe communication between different professions as it unfolds.)
- My questions emphasize certain topics, these draw the attention of my interviewees, and perhaps some more important factors remain in the background.
- In spite of clarifying the researcher's role and the objective of the research itself, it is possible that the interviewees want to use this opportunity for their own purposes: namely they want to send messages to somebody on these channels.
- The unique characteristics of the analyzed organization may limit the possibility of establishing a theoretical model.

The above problems pose real dangers and there is no way to totally eliminate them. Researches in the field of social sciences can never reach full objectivity. The following analysis neither can be more than the creation of a possible interpretation based on the information available. On the other hand an advantage of qualitative researches is that there is the possibility of constantly monitoring dangers and traps, plus constantly refining or even replacing information gathered in the early stages of research. The researcher can check and strengthen reliability and validity in the full course of data collection and processing, as opposed to quantitative research methods where this is possible only in the beginning and at the end.

VIII. Empirical Analysis: Product Development at PanTel Rt².

VIII.1. General Introduction of the Firm

Besides giving a description of the most important characteristics of the firm, in this chapter I also seek to find the answer why the product development process is so crucial for PanTel Rt. I do not intend to provide a detailed analysis of the environmental and organizational characteristics and their interrelations, as this does not stand in the focus of the current study. Instead some contextual factors and the introduction of the firm, which is subject of the analysis, will be presented. These pieces of information are relevant from the cultural analysis' point of view as the organization's age, size, strategy and certain elements of its environment are supposedly influential on the development of the organization's culture and on the product development process.

VIII.1.1. Organizational Milestones³

PanTel Rt. was founded in April, 1998 with an equity of 20 billion HUF and with the intention to become the leading alternative telecommunication services provider in the Hungarian market. Capital was raised to 30 billion HUF in April, 2000 by the shareholders, which leaves the company with the soundest fiscal background among the alternative telecom service providers in the Hungarian market.

The current stockholders of PanTel are:

- KPN (The Royal Dutch Telecommunications Company) 75,2%
- PT Invest Rt. (The investment affiliate of KFKI Számítástechnikai Rt.) 14,7%
- MÁV Rt. 10,1%

PanTel maintains strong business relationships with all of its shareholders. KPN and KPNQwest offers technological, commercial and management support. IT developments are conducted mainly by KFKI affiliates and the two companies are planning further cooperation in

² Hereafter PanTel Rt. will be referred to as PanTel or the analyzed organization for the reason of simplicity.

³ In this part I rely heavily on the company's homepage www.PanTel.hu and on the information bulletins of the company.

fulfilling their customers' system integration demands. MÁV offers the line and usage rights to the main national network, plus conducts related operational and maintenance tasks.

In the first stages of company development a modern infrastructure was built out, customer relationship systems were developed parallel with the internal customer-connection and service processes. By the early summer of 1999 PanTel became capable of fulfilling its customers' needs and thus was able to step into the next phase of its development. In this phase the rapid extension of the customer base, continuous development of novel services, extension of the network and the development of sophisticated systems became top priorities.

By the summer of this year PanTel has integrated 270 customers into its network, many of which are leading companies of their industries. The customers include: large industrial corporations, construction companies, international technological corporations, internet service providers, representatives of the financial sector, international IT commerce companies, hotel chains, international media companies.

During the course of 1999 PanTel went on to develop its organization. The number of employees has jumped from 64 in January to 146 at the end of the year (the number does not include foreign employees). The figure stood at 166 in May, 2000. Their aim is to remain small, with respect to their number of employees, preserving flexibility by it. To achieve this PanTel is in strategic collaboration with its owners and outsources the activities that do not fall into its field of competence.

VIII.1.2. Environmental Conditions

The telecommunications industry, thus PanTel, is influenced predominantly by the following trends (Hajdu, 1999):

- Concentration: 65% of industry revenue is gained by the 20 biggest players. The largest three companies – NTT, AT&T and Deutsche Telekom – have a share of 25%. The industry is characterized by strong M&A activity.
- Liberalization and Deregulation: The greatest obstacle to cheaper and more versatile services is government ownership in the industry throughout the world, especially the ownership of the infrastructure background. The catalyzing potential of the industry over the whole economy can be put into motion by privatization and deregulation. The Hungarian situation was made more complex by an uncertain legislature, the shortcomings of the Concession Act especially with

respect to IP (Internet Protocol) – affecting PanTel severely. In the end, however, PanTel was the first to obtain the rights from the Telecommunication Supervisory Board to provide IP based voice and fax services.

- **Rapid Technological Development:** Radical technological development is one of the main characteristics of the industry. Advances appear in each and every component of services starting from cables (optical cables, the use of electronic wires) through microelectronic elements to software development. As a result services, markets and competitors are redefined. The appearance of IP based communication represents a technological shift to which PanTel is heavily exposed.
- **Industry Convergence:** This is the term used by experts to mark the increasing combination of three, previously separate industries: telecommunications, multimedia and computer technology.

In the Hungarian telecom market (the market being the narrowly defined service providers) PanTel's competitors fall into one of the following two categories:

- **Matáv Rt.,** as a result of the rights granted to it by the Concession Act the company practically enjoys a monopoly in most of the industry's segments. At the same time, through its affiliates, the company is also present in every liberalized sector of the industry, where it has built out strong competitive positions (mobile service providers, internet connection and substantive services, network development).
- **The other competitors (Novacom, GTS Hungary)** are characterized by typically much smaller equity and by products that are still under development. These define themselves as alternative service providers and they are trying to build out their positions by the time Matáv's monopoly terminates. Until deregulation is completed these companies need a sufficiently extended network and flexible, high quality service packages to be able to compete with Matáv and other alternative service providers.

VIII.1.3. The Role of Product Development in the Firm's Strategy

PanTel can be taken as the best-capitalised firm among the alternative service providers and also has the greatest potential. Their strategic aim is to become the second largest player in the domestic market after MATÁV. The company places the emphasis on services targeting the business segment of the market and not the consumer segment. In the business segment availability, reliability and quality, plus maintenance and repair services are the key criteria of

success. In order to achieve high quality PanTel is working hard to offer broader and broader bandwidth, which is currently required only by a few customers in Hungary, but which can dramatically increase the speed of information flow.

There are three reasons why product development is critical in achieving this goal:

- The rapid technological advances in the industry: As previously stated, companies in this industry constantly have to keep up with the advances in technology and the appearance of novel services. Among basic customer demands are the continuous development of existing products and the introduction of those technical novelties that improve the speed and quality of data flow. This challenge and the central role of product development is also stated in PanTel's mission: "Our customers choose us because we offer them innovative and integrated solutions, plus constant help in achieving business success in our rapidly changing world."
- The competitive environment of Hungary: In the race with other alternative service providers one of the key elements of success is the ability of a firm to be the first to offer products by which large users can be attracted. The appearance and radical spread of new technologies – especially Internet Protocol – enables the company to build out strong competitive positions against Matáv even before its concession contracts terminate.
- A special phase in the development of the company (because of the current strategic focus): The focal point of strategy in the beginning was network development (according to one of my interviewees "thousands and billions have been buried under ground" P8). However as of the summer of 1999 attention shifted to the services that could be provided by using this infrastructure. The basic goal of developing the first products was to achieve the targeted market positions in the targeted segments. In the background we can see the objective of elevating revenues over a critical level – financial goal – and more importantly outperforming the competition – in order to improve long-term competitive positions.

I believe that the strategic importance of product development is underpinned by the characteristics of the broader industry, the competitive situation in the domestic market and also by the current focus of the firm's strategy.

VIII.2. A Description of the Analyzed Projects' Characteristics and Processes

In cooperation with the company's contact people we have chosen three projects: the Post Tender, the development of PanConnect and the '+0' product. The three were different in a number of aspects including the way they proceeded, the number of participants and the extent to which they were judged successful.

The greatest difference – undoubtedly – was that one of the three projects was a tender. This is different from usual product development projects in two dimensions:

- In case of a tender the leading role within the development team is in the hands of the sales department, while in the case of traditional product developments it is the product manager – coming from the field of marketing – who leads the team. Therefore the authority of key players is different in the two cases. There are some differences between the rest of the teams as well, e.g. the offer writer is only present in the case of tenders.
- Another characteristic of tenders is that they are aimed at fulfilling a more or less well defined set of customer needs. In the case of product development projects the needs are defined from the inside, therefore the process is more open and contains several alternatives.

The interviews however showed that from the perspective of cultural integration and the analysis of conflicts there was no major difference between the two types of development processes. In both cases new products had to be developed for the organization on a deadline and in the form of cross-functional teams. Thus I discuss the tender together with the other two projects.

The development process at the company theoretically is made up of the following steps:

- Idea generation: Ideas come from people involved in marketing, market research, from people in the technical department but also from other parts of the organization.
- Preparation of the product proposal: determining the major characteristics of the product as well as its potential market.
- Preparation of a detailed business plan: the costs of developing and manufacturing the product, the calculation of the expected revenues and returns, the planning and analysis of the product's life cycle.
- Defining and distributing the tasks within the development team.
- Actual development.
- Testing: the product is first tested by the technical developers themselves.

- The 'Friendly Customer' test: the product is tested by one of the important customers who has strong ties with PanTel.

In the following section I will present the most important characteristics of the projects and products and the unfolding processes. As the emphasis is not only analysing the actual happenings the descriptions will be short: containing facts, events and characteristics that are only important from the cultural analysis' point of view.

VIII.2.1. The '+0' Project

Brief description of the product. It is an Internet based international call service. The novelty for customers is that by avoiding Matáv, and instead linking to the KPN centre in Holland, Pannon GSM mobile phone customers enjoy much lower tariffs by dialling '+0' before their calls.

The product presented relatively little technical novelty for PanTel as it was based on existing foundations and products (PanPhone, PanTalk), but on the other hand the large number of customers (more than 700,000 subscribers) and the large public exposure of the service was rather new and challenging for PanTel. (As some of my interviewees underlined it: in December huge billboards advertised the '+0' service throughout the country, the smell of success was in the air.) The other challenge was the deadline as development was knowingly underway at the competing mobile service provider; and it was a business and prestige race to be the first on the market with the new product.

The project took place in the second part of last year. The tight deadline was met and the product was the first to appear on the market. Based on customer response general satisfaction is good, but there seem to be some problems with parts of the service. (Voice quality scored mediocre and sometimes there are problems with availability too.) Inside the organization the project is considered a success, everybody asked about it said it was a hit, and internal cooperation is also considered to be without examples.

Characteristics of the project. Besides the tight deadline a high degree of secrecy surrounded the project. Non-participants learned about the project only in the official news conference. Only a few people in the organization were involved in the development: 4-5 people on a permanent basis (project management, product management, and from the fields of sales and technical development), others received occasional tasks sometimes even without knowing about the final product, which they were contributing to.

Most of the time participants were working in two subteams: one group was working on the business and market aspects of the project, meanwhile the other group was solving technical problems. Another distinctive characteristic of the project was that it required tighter collaboration with the mother company's Amsterdam headquarters as their infrastructure was also being used.

VIII.2.2. The Post Tender

Brief description of the product: The tender was about the development of a virtual private network for the Hungarian Post Company with 1300 end point. The tender was divided into two sub-tenders (small and big portal) both of which have been applied to by PanTel.

The specialty of the development process is that it was a tender, and indeed one that fell into the scope of the Public Procurement Act. The tender offer was prepared by a team, which was coordinated by the sales department. As it was a joint tender external coordination had to be managed too. The partners were KFKI and GTS Hungary. After the tender was announced a great amount of time was spent on selecting the partners, whose circle originally would have been much larger. In the end it was KFKI who coordinated the tender, meetings also took place in its offices. (In the interviews I only analyzed the operation of the team within PanTel.)

The preparation of the tender material required constant cooperation with the partners and even the customer because of the uncertainties surrounding the tender invitation and the legal regulations, plus because of the applicability of alternative technological solutions.

The tender material in the end met the deadline. It was PanTel's offer, which the jury of the ordering company labeled as the winner. (The sub tender with the smaller volume turned out to be invalid, where the only bidder was PanTel.) Matáv however has handed in an appeal based on various technical and legal arguments. In the end an external committee invalidated the tender. According to the unanimous opinion of some of my interviewees this decision was based on some legal argument that had not even been presented by Matáv. After the contra appeal of PanTel the discussion continues in court with little hope for a favorable outcome.

Opinion about the project is rather varied within the organization: some consider it a success, while others refer to it as a failure. As general opinion in the company has it: the offer was good on the content side, but the competitor undermined it on every possible point. Therefore the project did not result in any revenue. This is the basis of the negative opinion, although everybody adds that this was not the fault of the people participating in the team: the competitor would have found its reason

anyhow. With respect to internal cooperation the project generally scores high (besides some negative voices). This is already due to the mere physical and financial size of it, which in itself was quite inspiring for participants. (“Those few weeks were spent under the spell of the Post”. P7)

VIII.2.3. PanConnect

Brief description of the product: Internet Protocol based virtual private network. It connects the various own establishments of a company into a unified, integrated voice and data transfer network on a shared or a dedicated own platform. There are several extra service packages available on top of the basic package: turnover data, help-desk, PanTalk based international calls, Internet services, ‘dial-in’ from long distance networks.

The advantages offered to customers by Pan Connect can be summed up by the following four categories: reliability, security, flexibility and significant cost reductions. The users of PanConnect services can largely reduce the cost of their long distance international calls, plus they get access to different Internet services by using the developed infrastructure. The scope of application is extended by the possibility of accessing these virtual private networks from wired and mobile networks as well. There is a choice of flexible data and voice bandwidth. Availability reaches 99,9% on a yearly basis.

The result of the project was one of the first PanTel products. This meant PanTel’s entry into the IP industry and a radically novel technological platform at the same time. Besides this, legal regulation also was quite influential, as it was here where a possibility appeared to avoid the Concession Act. Therefore the initiation of product development was a strategic decision. (“PanTel goes IP”. P7)

Development – especially in the first few stages – meant an incredible technical challenge. The service provider was selected through a tender in which an important criteria was the service provider’s ability to be drawn into development work – this way procuring the lacking knowledge from outside. For the same reasons Dutch consultants also participated in the early stages of development.

Many have participated in the process with changing roles. The person fulfilling the product coordinator’s role also changed in the course of the project: in the beginning it was a Dutch coordinator who later handed over the task to a Hungarian coming from outside.

Opinion about the product varies and it is rather mediocre. According to the majority of colleagues the current state of the product offers a good basis for further development, but its 'infant diseases' still have to be cured. Documentation is lagging behind and invoicing problems are waiting to be resolved. Internal cooperation was judged the lowest among the three cases; colleagues talk about unclear priorities, an excess in the number of participants, parallel activities and ambiguous competencies. According to many: solving technical problems and developing technology still ought to have greater attention.

I conclude this brief introduction by comparing the main characteristics of the projects. (The characteristics should be interpreted in relationship with each other and present a kind of average of the interviewees' opinion. These were quite similar, even in the case of judging the success of the projects.)

6.table.: Major characteristics of the projects under study

	'+0'	Hungarian Post Tender	PanConnect
TIME PRESSURE	BIG	MEDIOCRE – BIG	BIG
THE PRODUCT'S LEVEL OF NOVELTY	SMALL	SMALL	BIG
THE PRODUCT'S COMPLEXITY	SMALL	BIG	BIG
NUMBER OF PARTICIPANTS	FEW	MANY	MANY
OPINION ABOUT THE PRODUCT	GREAT SUCCESS	GOOD	MEDIOCRE
OPINION ABOUT INTERNAL COOPERATION	GREAT SUCCESS	GOOD	POOR

VIII.3. The Logic Behind the Empirical Analysis

After the introduction of the projects follows the processing and analysis of the participants' opinion in the order defined by the research questions.

- The first task is to define subcultures. In order to achieve this goal I attempt to reveal the participants' way of thinking and their cognitive schemes. To do so, I first analyze the way they look at themselves after which I discuss the perceptions others have about them. With content-analysis of these opinion I try to present those cultural dimensions along which significant differences appear. Based on these differences I can define the role of subcultures in the development process. With respect to PanTel's special situation the characteristics and relationship between subcultures representing Dutch and Hungarian national cultures will be analyzed separately.
- In the second step follows the analysis of PanTel's organizational culture with focus being placed on those factors that have a significant impact on the appearance and resolution of conflicts arising in the course of the development process.
- The next question is directed at the appearing conflicts in the development process. In order to reveal these conflicts I present the conflicting situations between subcultures in a conflict matrix as perceived by participants. Afterwards by identifying the important characteristics of conflicts I offer a possible system of categories.
- The question that follows is aimed at grasping contextual effects. Therefore I overview and categorise the factors considered important by participants.
- Finally I analyze the integration of different knowledge components, which are necessary to carry out the development process, plus I also look at the way conflicts are managed, with special attention dedicated in both cases to culture based coordination practices.

This order of logic does not match the chronological order of data processing and analysis. In the actual course of data analysis it were the conflicts, which were identified and analyzed first, as these were easy to recognise and there was the opportunity to gather direct information about them from the interviewees. Subcultures were identified and characterized by going 'backwards' and by revealing the background factors, while analysis required indirect and hidden information.

The analysis of Dutch subculture is also an exception. Because it was pretty much evident to everybody the identification of cultural perception schemes, stereotypes and conflicts was easier in this case. This is why I analyzed this topic first and used it as a pilot project for the upcoming subculture analysis.

In the course of analysis I will return to the logic of the research frame, because I think it provides for a better understanding if I kick off with the presentation of the participants and deal with conflicts only after they had been introduced.

VIII.4. Presenting the Players

In this subchapter I analyze the way the participants characterize their own role and tasks in the product development projects. This is by all means a subjective and normative image, which shows how – independently of the others – the participants would like to see their own role and the cooperation itself.

This picture will provide us with the opportunity to identify the different interpretation schemes that play a role in the development process, while this will allow for the definition of subcultures and the interpretation of conflicts between them.

I have been able to draw this picture by answering the following questions:

- The characterization of their own role and tasks;
- The description of other participants;
- Their judgement about the critical points of the development process;
- Their judgment about the success of the development process and the cooperation, the reasons behind success;
- What changes would the person consider necessary in connection with the development process or the operation of the organization itself?

The answers I got for the last question turned out to be rather unanimous, therefore they were not suitable for the characterization of subcultures; instead they were used in the description of PanTel as a whole.

In the following paragraphs I do not separate sharply the answers I got for these questions, but instead I handle them together to present the interpretation schemes of the participants. It should be taken into account that in the case of some less important functions concerning the development process the answers came from only a few people, which means that the possibility of generalisation is limited. However the reliability of the answers is unquestionable as they came from the people involved in the processes.

VIII.4.1. Presenting the Players– as They See Themselves

In the following pages I present the way the different groups of interviewees see themselves, the way they think. I also try to present what makes a product successful in their eyes and which is their critical set of criteria.

It is worth to underline once more that the roles described hereunder do not necessarily match reality or especially the opinion of other participants. The respondents on the other hand see themselves as shown below, and for me this is important in order to allow for the definition of subcultures.

Top Management

They see their primary task in maintaining the product portfolio. This means decisions about products – or increasingly product lines – proposed by others. In their eyes their role is to scrutinise the people making the proposals, in order to see whether the new product would bring enough revenue. Generally it is also their task to define the rules of the product development process, within which others can conduct their job. In their opinion among the most important rules are the cornerstone figures of the business plan. ('We put the people making the proposals under heavy scrutiny' P21; 'Our managers should do their work on their own ..., within the boundaries defined by the rules.' P9)

With respect to their frame of mind a strong external orientation was detectable. This could be seen from frequent references to the competition and strategic alliances, and the effect of these on business results. ('This was the first time that an alternative was able to win against Matáv'. P21; 'The competition started to use the name we gave [to the product].'P21 'We should have created a politically preferred alliance with the other alternative service providers.' P9; 'The morale of the project is that we have underestimated Matáv's reaction.' P21; 'The challenges lying ahead of the company include the cooperation and – at the same time – dependence from Matáv, ... government policy, the Telecommunications Act, ... competition with other alternative service providers.' P9)

They are interested in meeting the business plan, that is the major base of their yearly bonus.

A product is successful if it generates the appropriate amount of cash-flow for the company, if it increases market recognition, if it provides advantages compared to the competition, and if all at

the same time demonstrates successful internal cooperation. ('We have to analyze, which [product] brings cash.' P9; 'We reached our goal before the competition would have done so.' P21)

The characterization of their interpretation schemes from the cultural point of view (the detailed and comparative analysis of the characteristics described hereafter will be discussed later):

Long-term, strategic frame of mind – Strong external orientation – Non direct role, definition of the boundaries – A manager and decision maker with respect to the frames – Their decision criteria: achieving financial returns, successful internal operation.

Product Manager (Often Referred to as the “Marketing” within the Organization)

In their view they perform a central task as the responsables of the products and the conductors of the 'orchestra'. They are present from the beginning to the end of the development process; and even before it as they are the ones who prepare and present the sketched business plan (referred to as business case) that is the basis of development. Their responsibility for the product does not end with the termination of the development process, they follow the product through its entire life-cycle.

After the approval of the development plan, their task is to specify the product by integrating the ideas collected from other people. They define and detail the tasks necessary to execute the project, plus they coordinate execution and the flow of information. (The PM's [Product Manager's] task is coordination, he is the conductor. P14) Primarily they are the ones responsible for keeping the deadlines. Accordingly they are the ones who keep contact with all the participants. Their job is project management, which is supported by purpose software to some extent.

They are the ones who make trade-offs in development decisions, therefore they 'try to reach an optimum by taking into account both technical and financial considerations'. (P17) They have decision authority over another important subject: pricing and the setting of the price/value ratio. Most of all, they are interested in the profit generated by the product.

They typically have technical backgrounds (not necessarily telecommunications), some however also have business education. They almost exclusively come from Matáv, as somebody noted: 'complete product managers can only be found in Matáv, this is where you have to bring them from'. (P17)

A successful product in their eyes is one that is ready fast, has good quality and generates an appropriate amount of revenue for the company. ('The primary responsibility of the product manager is the price/value ratio.' P17; 'Our responsibility is to meet both the deadlines and the business plan.' P14)

The characterization of their interpretation schemes from the cultural point of view.

Primarily an inward orientation: towards the other participants of the project – A direct managerial role in the project, which is however based mainly on coordination authority – Decision criteria: based on deadlines, business considerations and financial revenue – As a result of the optimisation perspective they take a limited amount of risk.

Sales

In their view they have a central role, as they are the ones who deliver the demand for new products and services, which results in business opportunities and money, and ultimately market share gains from the competition. The importance of the latter is indicated by the fact that great risk is taken by 'selling products that do not yet exist', and by 'aggressing existing internal processes' (P13). Based on explicit consumer demand they initiate the development of new products and the improvement of existing ones. (As in the case of PanConnect's additional features.)

A further role – in their judgement mainly a complementary one – is to map potential new customers and their demands. They are the ones who are familiar with the market, with the expected trends and potential customers. At the same time they themselves do not believe to have 'deep' information, which rather stands closer to the level of gossip. In their understanding the Sales Department is not responsible for gathering general market information, there is a separate organizational unit for this (MIRA). Instead they bring concrete ideas about developing new products, improving, extending and fitting existing products – or those, which are under construction – with unique services.

Another task is the definition and maintenance of contracts.

In case of a tender they fulfil a managerial role, which is mainly coordination. Accordingly they define the tasks, provide for the flow of information and for keeping deadlines, plus they manage the formulated team.

They think that their position nowadays is strengthened by the fact that winning new customers and new markets is of strategic importance for the firm, which largely depends on their work. One of them said that it is the strength of the Sales Department that it does not get lost in the details, and represents the interests of the company.

Their decisions are guided by the principles of low prices, fast fulfilment, and the development of products that have a large variety of features and fulfil all kinds of consumer demand. They are interested in revenue and the stock of orders.

The characteristics of a successful product are as follows: it can be finished fast, it is capable of everything that the customer demands, and new markets can be gained by it against the competition.

The characterization of their interpretation schemes from the cultural point of view.

Strong external orientation – A managerial role in the case of tenders, in other projects the role of the initiator – Short-run time orientation – Decision criteria: market gains, fulfilling customer demand – Taking high risks.

Technicians (Planning and Development)

Their role is to define the technical substance of products and they are also responsible for the materialisation of these products. In conducting their tasks they often rely on external or Dutch experts or on suppliers and subcontractors. What they do is hard to see and hard to understand by others, their professional work somewhat resembles a 'black box'. They 'solve the problems', where for the rest only the output is defined and critical. They do their job mainly independently of others and are even separated physically.

The work they have to do, on the other hand, is well structured and consists of well-defined stages that follow one another. Standing against the well-structured logic are however the incredible pace of technology development, the constantly changing hardware and software basis, which results in an increased uncertainty and the need of taking risks. (This is why external and Dutch expert are brought in and cooperation with suppliers is so close.)

Their decisions primarily are based on technical parameters, which support the reliable operation of products. The product appears in front of them in its physical reality and operation, and

it can be characterized by its parameters (such as dataflow management, call-number problems, availability etc.). At the same time they also consider costs. ('Not simply technicians.' 'We also think about budgets and processes.' P21; 'What we faced was a larger example of an already existent service, there were no surprises. Operational problems surfaced already in the tests.' P4; 'Management of data flow is not perfect. Reliability is good, but we have some call-number difficulties.' P19; 'There are a minimal number of stoppages.' P4)

A critical element of both the development process and the product is the extent to which these represent new technology. This what gives weigh and difficulty to the tasks. An other reappearing perspective is the tightness of deadlines. The interviews showed that it is a common feeling among technicians that the rest of the organization is 'waiting for them'. ('The conflict with technicians comes from time pressure: it has to be ready in time.' P17; 'Technicians are only fighting fire: they try to tailor products that are half thought out.' P5)

The characteristics of a successful product in their eyes are: reliability and security, which is equivalent of being simple, unambiguous, and perfectly running. ('The main characteristics are reliability and security.' P4; 'The engineers are straightforward, pragmatic, but they want perfect [products].' P17; 'Their perspective is a product that is simple, unambiguous and without risks.' P14)

The characterization of their interpretation schemes from the cultural point of view.

Their time orientation is twofold: 'fire fighting' of current products is present, just as the observation and mastering of long term trends and continuous novelties – They are solving problems defined by others – Their thinking is overwhelmingly professional – They are typically risk averse, trying to minimise uncertainty.

The Lawyer

The layer comes to the spotlight in the case of tenders and when it is time for contracts in the selling process. (This is why his work is linked closest to the sales area.) His concrete tasks include: the preparation of contracts, arranging declarations and legal licences. He believes to fulfil a special service provider's role within the organization from a 'not so important' legal perspective. For the other members of the organization the lawyer represents a relatively distant, unique professional

orientation, which in certain situations can become of utmost importance. (See e.g. the legal turmoil surrounding the Post tender, and the general uncertainty of public procurements.)

Critical points are the uncertainties in a tender invitation and their impact on contracting conditions. There is a tendency towards regulation, plus the discovery and operation of general solutions.

The characteristics of a successful product: it complies with the law and the regulation of authorities, there is no legal trouble with it.

The characterization of their interpretation schemes from the cultural point of view.

They are characteristic of long-term thinking, because legal consequences can appear years later. – Its role is that of a service provider from a special field of expertise, which at the same time secures a kind of control, which in certain decisions can be quite influential. – Primarily special, professional thinking. – There is a tendency to minimise risk.

MIRA (Market Intelligence, Research and Analysis)

Its typical tasks includes the gathering, processing and distribution of information about external market and technology trends, and events; plus the detection and analysis of potential and current customers.

They conduct their work partly according to internal orders and partly according to their own schedule. Within projects they are called upon to conduct analysis on products and their characteristics before decisions are made. It is another role when product development projects are initiated by their analysis and information. ('We tell them in advance what is going to happen, and it is up to technicians and product managers to find out how it could be implemented.' P1)

Market analysis does not necessarily require technical background: they do not need a deep understanding of processes, they only want to forecast them. ('We do not need to understand the content, only the scale of things.' P1) People work here with many backgrounds: from sociologists to economists.

In the course of development it is important to adjust to customer demands and to technological trends that are still evolving; just as to develop a proactive conduct towards radical

changes. ('If a firm is not driven forward by external information, it is going to perish.' P1; 'You should not only concentrate on the current sales tasks, ... this is myopia and results in death.' P1)

In their opinion the success of a product cannot be judged from a single dimension: business success is important but it should not be the solo criteria.

The characterization of their interpretation schemes from the cultural point of view.

Thinking about long-term trends – Strong external orientation: observing consumer demands and technological changes.

Invoicing

It demands to be on the product team, which in the past was often not the case. If it is on the team, its role is to make the process more complete by securing that the new product fits into the invoicing systems.

From its point of view it is important that the invoicing system does not get overloaded with additional services, and the invoice is kept simple, understandable and 'it [the invoice] will not contain too much information.' Another important product characteristic is good measurability of the amount of service consumed, for this is the basis of conducting the department's tasks.

A successful product in their view generates a lot of money for the company, and it can be easily fitted with an invoicing system, which is helped when the product and the related services are kept simple.

The characterization of their interpretation schemes from the cultural point of view.

A typical internal orientation, emphasizing already existing processes – The intention to minimize risk.

Finance

The role of this function is to calculate the potential and actual return indicators of a product and to make the organization accountable for meeting them.

Currently there is no such – business analyst – task within product management, it has been relocated to the Finance Department. It is there from where they account the organization for meeting these figures in the form of reports. Accordingly, regular and formal coordination elements are applied more often: e.g. weekly reporting or the templates and tables that enables data recording and processing.

Currently they are not members of the product development team, their task has been overtaken by the product manager. However product managers report to them about the potential and actual returns of the products.

Accuracy is important for them: counting and analysing things, not ‘just saying something’. Financial indicators are of critical importance to them: costs, revenues, cash-flow and returns – most of all.

Characteristics of a successful product: high returns, good cash flow, and there is a registering and analysis system attached to it which makes the above indicators easy to calculate.

The characterization of their interpretation schemes from the cultural point of view.

Long term (or middle term) orientation: they need to solve not only the question of today, but they have to provide for the returns of tomorrow. – It does not get a direct role in product development, but fulfils a control role as the product managers report to them. – Aimed at regulation and exactness. – Business thinking. – Minimising and calculating risks.

Customer Care

Previously they had no role in product development; nowadays they have delegates in product development teams.

Their task is to represent the customer within the organization and keep personal contact with it. Their contribution can be the bringing in of the customer into the phases of idea generation or final testing. Later on they have access to feedback from the customers, which can be used to improve products.

An important aspect for them is the total and complex 'packaging' of the product, which includes additional services and advertisement.

The characteristics of a successful product: complex, totally finished package with no customer complaints.

The characterization of their interpretation schemes from the cultural point of view.

Strong external orientation, representing customer demands – Keeping contact with the customer in the development process, providing information back and forth – Quality orientation, fulfilling customer demands – A relatively short focus: answering buyer complaints as soon as possible.

The Tender Writer

He has a role only in tenders and does not participate in product development teams.

In case of a tender he is responsible for thoroughly analysing the tender invitation, for gathering the necessary materials, the technical coordination of other people's jobs, finally the alignment and rectification of the final tender offer.

Success factors are: keeping the deadlines and the alignment of participants without conflicts.

The characterization of their interpretation schemes from the cultural point of view.

Short term orientation, focusing on the exact task that has to be performed – Technical coordination – Keeping the deadlines – Minimising risks and complying with tender criteria.

Summary of the self-portraits

All of the players presented above – at least in their own opinion – should have a role in the product development process, which to some extent is true indeed. It is by no means surprising that they find their contribution critical to the success of these projects, and they all would like to see their role and influence increased.

It is also evident that there are some central figures such as the product manager, the technicians or the sales people; and there are complementary players who are not necessarily part of the processes like: finance, invoicing, the lawyer, the tender writer, customer care and MIRA. It is understandable that the latter would like to increase their role and influence. They feel that their contribution is just as relevant in the success of development.

In the case of tenders – although these also require teamwork – the composition of the teams and the roles within them are typically different from regular product development, e.g. the leading role in the team shifts from the product manager to the sales people. This change already foreshadows the ambiguous opinion about the sales people, which will be presented in the following pages.

There are major differences in several dimensions in the interpretation schemes, which are the basis of subculture characteristics. These comparative dimensions have already been indicated to some extent in the structure of the previous description but will be returned to later in a separate subchapter.

To summarise the self-portraits of the players I present some characteristics in the following table. In addition to their own opinion I define metaphors in which I try to sum up these characteristics in a single expression. These metaphors grasp the cross-functional qualities by identifying the different roles with that of a soccer team. Of course these do not perfectly match the opinion and also allow for not intended associations. However I believe they enlarge the decisive elements of the self-portraits by which the players grasp their contribution and weigh within the teams. These metaphors also show that every player feels he has a central role in contributing to a successful development process, ultimately to the triumph of the company.

7.table: Self-portrait of the project participants

	Top managers	Product Managers	Sales	Technicians	Complementary players
Tasks	Decides; Provides the frame	Coordinates; Optimises	'They go for it' by bringing ideas and buyers	Planning and materialising technical parameters	Supporting the team; Adjusting to basic activities
Meaning of Product	Market position; Source of shareholder value	Projects with deadlines; Optimising a multivariable function	Fulfilling customer demand; Source of revenue	Technical parameters; In physical reality	(Changing)
Success Criteria	Competitors; Returns	Returns; Deadline	Amount of revenue; Stock of orders	Reliability; Being operational	There is no trouble with it; It can be adjusted to basic operations
Self-portrait, role	Coach, responsible for the formation	Organiser; conductor, midfielder	Magic forwards delivering goals	Libero, a defence serving the others with balls	Secret talents on the bench

VIII.4.2. Presenting the players – as the Others See Them

In the previous subchapter I have presented the self-portraits of the players, which they defined for themselves in the development process. As the next step I try to present the 'mirror reflected view' drawn by the others. This images of course shows just as much about the interpretation scheme of the person holding the mirror, as of the person being reflected on. This means that in the following matrix it makes sense to do an analysis both in a vertical and a horizontal direction.

As opinion about other players is rather unanimous therefore I attempt to construct a cultural stereotype in every case. This summarises the 'prejudices' and obstacles the players have to overcome when they make contact with others in the organization, or if they have to cooperate. For the current thesis is focused on cultural conflicts, I tried to compress mainly the negative elements into these images. This is why these pictures are exaggerated, biased and one-sided. Based on my experience in the interviews I believe that although exaggerated, they in fact hinder cooperation, and have a big impact on arising conflicts.

This hypothesis has also been proved by the counter-test. Not even after having reviewed the total text of the interviews have I found a statement that would have shown the contribution of other departments or subcultures in a positive tone, not to speak about praising them. Besides the numerous critical statements there are some neutral ones, which describe the tasks or authority of others, but not a single word of acknowledgement! (I do not count here those sentences in which top

managers describe various groups in their organization positively.) Perhaps the situation is a little bit less obscure if we take into account those four remarks, according to which the situation previously was much worse compared to what it is now. These statements are about the technical department without exception: twice they refer to the growing – but still not sufficient – customer orientation of the department, once to the improving relationship with sales, and once to improving channeling-in activity.

In other form – however – there are five acknowledging remarks, but all addressed to individuals. On two occasions it reflects the trust towards a newly assigned middle manager, in another case it is the mutual praise of a well-working pair of middle managers. The last acknowledging remark is targeted at one of these two men from a third person. This means that personal remarks are also restricted to a well-defined group of participants: middle managers.

If we treat the Dutch as a separate subculture, the number of positive remarks increases. In their case among the higher number of negative reflections, we also heard more positive remarks – but as we are going to see later, these also refer to the personal level. Their role is discussed however in a separate subchapter, therefore these remarks are not detailed here.

Hereafter I pass on to analyze the negative cultural stereotypes. Before discussing the players in detail, however, I shortly present a matrix that summarizes the most important opinion. In a horizontal direction you will find the opinion presenters, and in the columns their opinion about the others. The table contains typical quotations from the interviews. Finally, by using this data – and the self-portraits presented earlier – subcultures and their characteristics can be identified together with the conflicts arising between them.

8.table: Perceptions of the other parties, based on quotes from the interviews.

What is perceived by the players	PRODUCT MANAGERS	SALES	TECHNICIANS	COMPLEMENTARY FUNCTIONS
PRODUCT MANAGERS		<ul style="list-style-type: none"> • Buyer demands just flow through them • They do not know what they are selling 	<ul style="list-style-type: none"> • They speak a different language • They do not bend to them • They are straight and pragmatic • They want to have it perfect • They are not so sensitive to prices 	<ul style="list-style-type: none"> • We have to battle for resources with them • They slow down the processes
SALES	<ul style="list-style-type: none"> • They're short-sighted • They're buzzing • They are dependent on sales • They are only interested in profit • They have the information • They don't have market experience 		<ul style="list-style-type: none"> • They take on everything • The final test is always missing • Mistakes appear only later at the customers • They are not price/cost sensitive 	<ul style="list-style-type: none"> • They are out of sight*
TECHNICIANS	<ul style="list-style-type: none"> • They lead but they never ask • They don't have the skills, they are not professional enough • They just say numbers without knowing the technology 	<ul style="list-style-type: none"> • They bring terrible orders because of a wrong bonus system • They bring in every customer • 'That is sales talk' • They are hazardous with numbers • Get them out of development 		<ul style="list-style-type: none"> • They are out of sight*
COMPLEMENTARY FUNCTIONS	<ul style="list-style-type: none"> • They deny information • They find out stupid things • They are satisfied with half-finished products • They are not interested in customer complaints • They are not clear with the picture • They don't control to the necessary extent 	<ul style="list-style-type: none"> • They're short-sighted • They are only interested in the stock of contracts • They are always occupied • They don't fulfil their promises and plans • They bring orders that are not profitable • They are on the outside of the organization 	<ul style="list-style-type: none"> • They are not protagonists • They bring solutions to a given problem • Others give them their tasks • They are short of people • They want to understand technology, that is why they are slow • They are not open enough for customer complaints. 	

*They are out of sight' means that they do not speak about these people and do not see them, and although they should be on the team, they are not because others do not see them either.

Top Management

In their case self-judgement and the perception of others is pretty different and not concerning the content of their role, but much more its weight. They are rather unanimously considered to be far from actual processes, and although nobody questions their position as decision makers, they are easy to manipulate by a well-prepared proposal. Many say that they lack conflict management skills. Should not this be the case these skills could be coming from a more clear set of priorities, or from solving personal problems – but they keep a fair distance from such issues. ('They lack the "Go for it" spirit'. P13; 'With good preparation they can be manipulated easily, they have no unanswered questions in this case.' P17; 'Top management generally does not get involved in anything.' P15)

Top management's role is therefore concentrated in the initiation of development and not the development process itself. As all interviewees agreed on this answer, I will not return to their role in detail later on.

If a summarising stereotype description could be formulated, it would sound something like this: 'The knights of the ivory tower.' (By now leaving the soccer metaphors behind.)

Product Managers

The 'conductor's' role they have drawn of themselves is felt by others as well: they fulfil a central role in everybody's eyes. They are the most influential players of the development process. Their weight is based on their access to information, which leaves them being able to play their cards against everybody else and in their own interest of course.

Many have indicated that a lot depends on their personal characteristics and preparedness. It was in their case where the most personal remarks have been made. They are the ones seen most differentiated among organizational players, so they are perceived not just by their positions in the organization. As opinion has it within the company: it is the set of characteristics of the individual that decides what can be made of this organizational position.

It is natural that they become part of a great number of conflicts, and that their judgement varies most among organizational members. Just the most important aspects before a detailed analysis – coming later below:

- For the technical people they are not professional enough (P19)

- From a sales point of view they are too much focused on returns, follow short-term interests, and do not have appropriate market knowledge.
- Complementary players think product managers often have crazy ideas, and feel that they are neglected concerning their opinion. In addition they define products too narrowly, and details just as long-term returns are not important for them.

Of course it is difficult to formulate any stereotype in their case, still I would describe them as 'Skilful gamblers'. (Others feel that the cards are in the hands of product managers, so they can influence the course of events, as they would like to. But gambling is not equal to cheating.)

Sales

Judgement about sales people is more unified. They are believed to have less important roles in the development process compared to what they think of themselves. Others expect them to serve two roles: one should be the 'information channel' role, the other: finding the buyer at the end of the development process, that is the selling of the finished product. According to many they are in fact not part of the development process, and it is only a necessity that they have to be drawn in at such an early stage.

Many bitterly remark that sales people come into the picture too early because of the market conditions. At the same time people say that this function is in the spotlight too much, as revenue and new markets have paramount importance in the organization's strategy. This central role suggests the accusation of the behaviour of taking credit for whatever they can.

Further accusations include: shortsightedness, insufficient skills, nonsense rhetoric, lack of time – falsely justified by being overloaded, and the taking on of too much risk. People refer most often in their case to the bonus system as a key influencing factor in their conduct. Some voices say that they have distanced themselves, even separated from the organization, while others point out that this is largely due to conflicts caused by the personal characteristics of the previous sales manager.

The picture is not too charming, but the situation is expected to change shortly since a new manager is responsible for the function.

The negative stereotype shared by the players: 'Over occupied little star alike'

Technicians

The gap between the self-portrait and the perception of others is the smallest of all groups. The view that development ideas do not come from the technical department – which means that there is no technological push in the company – is shared by everybody. Their work is characterized much more by covering the demands of others. As they are primarily concerned with technical issues, cost and customer demand considerations remain second rank questions. ([The final joke of a story about technicians] ...if only the customer would not complain.' P5; 'I would hold trainings for the technicians about handling customer demand.' P6) Everybody stresses however that compared to other firms the situation in this respect is far less bad. This is underpinned by the qualities mentioned by technicians, which stand close to customer demand: reliability, simplicity, security, and not state-of-the-art nuances.

By reading the various opinions it becomes clear that others do not really have an insight into the technicians' work, most of the time they are waiting for them to come up with some solution. (For me too, interviews with the technicians proved to be the most difficult, it was hard to find a common language. Often it was not clear for them what sense this study could make.)

Their jargon differs most from that of the other players, they used the most number of professional terms throughout the interviews. Somebody noted: 'they speak a little different language, they "should make more effort" to translate that to the rest of the organization'. (P14) This is why the others encounter only the results of the technicians' work, they feel that technicians are overloaded and deadlines are not met. Many say that at the end of the development process there is not enough time to conduct testing to find out problems, which in the end occur at the customers.

Their cultural stereotype: 'Overloaded geniuses somewhere in the building.'

Complementary Players: The Tender Writer – The Lawyer – MIRA – Invoicing – Finance – Customer Care

In contrast with the previous subchapters I handle these players together as their role is considered marginal by the others. (It is perhaps also not accidental that nobody suggested them in the first round of interviewee nominations – with the exception of the lawyer, which is understandable in the light of the legal turmoil surrounding the Post Tender – they were not looked upon as necessary parts of product development.)

There is a huge gap therefore between the self-portraits and the way others see them. They are either out of sight (e.g. customer care); or considered bad but necessary obstacles and blocks in the process (e.g. the lawyer); or would think of their role as important, but under current strategic circumstances their influence is small (e.g. finance). The judgement naturally depends on the opinion's formulator: where, when and with whom he has/would have to collaborate in the development process. An exception is the tender writer, who does not have a role in development processes, just in the case of tenders – where his role however is not questioned by anyone.

A common characteristic of them is that the product is finished without their contribution; maybe not in its most perfect or total form, but it runs, it can be marketed, and has a price too. The task can be accomplished on a minimal level and on the short run without them as well.

The cultural stereotype: 'Ambitious ballasts'.

A Summary of the Pictures About the Other

By looking at these characterizations the following can be stated: the pictures are rather stereotypic, sketched and negative. There are two general signs of this:

one targets the expertise, the quality and value of the other's contribution;

the other targets motivation.

In the self-descriptions their own role, professional expertise and weight is emphasised, as everybody has a clear view how they could contribute to the success of development. All this is less understandable concerning the description of others. They often encounter each other in situations where they do not understand each other's arguments. And misunderstanding is blamed on the lack of knowledge and expertise, or motivation – as we will see. The doubts in expertise are coupled with the undervaluing of the other's contribution – as in the case of sales people who are not really considered part of the process. Technicians fall into the same category: they only solve questions defined by others. (Not to mention complementary players, who are barely even recognised.)

This contrasted picture even comes from a positive factor: the high self-esteem of the professional background and the organizational unit – the subculture. Almost all of my conversation partners loved his/her job and thought it was important. (A remark of a third analyst: 'Reading the interviews we could think that everybody is a project manager here.') This strong self-esteem – however – comes with the underestimation of the other's work, which is good soil for misunderstanding and conflicts.

Some examples of these underestimations:

'He was building the line and I put sense into it.' P19

'I knew...(a representative of a profession) what the problem was.' P3

'We don't need technical people over here..., they want to understand it, that's why development is so fast for them.' P1

'We say in vain that it is not going to work, they do it anyhow. I bet we would need MBA-s, ...MBAs' with technical degrees here.' P2

'I have all sorts of backgrounds, things wouldn't be running here without me.' P4

When describing the different players I did not go into details about the effects of the bonus system. When reading the interview it occurs how many times people refer to the bonus system of the other, and how this influences its behaviour in a negative way. (E.g. sales people are motivated by the stock of contracts, top managers by revenue, and product managers by profit.)

What is more, the influence of the bonus system not only means that others are motivated in the wrong direction, but also that they are motivated externally, mainly by money. The bonus system in their own respective cases is not considered particularly important. (With the exception of sales people, who on more occasions, have underlined how much they were influenced by the targets and the associated bonus system.)

The combination of these two perspectives appears when their own interests are that of the organization too, meanwhile the objectives of the others are considered to be particular.

The comparison of the self-portraits and pictures about the others are often in stark contrast, behind which – in my interpretation – the following schemes can be found:

Me	↔	The Others
<ul style="list-style-type: none">• Valuable, important professional knowledge• Critical contribution to the success of the project• The interest of the whole company• Internal motivation (professional aspects)		<ul style="list-style-type: none">• Not so valuable professional knowledge• Not so important knowledge• Particular interests• External motivation (bonus system)

In the light of the previously presented positive remarks, it would of-course be an exaggeration to characterize relationships between the players solely with negative attitudes. However on the general level, and also often with specific individuals, these are the general interpretation schemes and the attitudes coming from the inside.

These negative stereotypes and sketched views about the other already project the existence of conflicts in the development process. But first it is the subcultures that are going to be identified and described here, in order to understand the source of differences and the type of conflicts that are generated by them throughout the development process.

VIII.5. Subcultures – Their Identification and Characteristics

Based on the above descriptions I present those questions along which the interpretation schemes of the development process' participants can be categorised; that is I identify the dimensions describing the different subcultures. This is followed by the description of the subcultures themselves.

VIII.5.1. The Dimensions Describing Subcultures

The dimensions describing cultural differences below were not to be identified in all subcultures, nor were they present in every participant's interpretation scheme. If, however, they made a difference comparing at least two interpretation schemes (subcultures), they were included in the analysis.

The dimensions were created as a result of the content analysis of the interviews. The way these categories are approached and phrased are of course not only influenced by local characteristics and empiric evidence, but also by the theoretical frameworks and experiences brought with me. The relationship of these categories to those present in the literature and to well-known theoretical concepts (e.g. values, believes) will be presented in the closing chapter, where I discuss the theoretical conclusions of the analysis.

Every dimension used, has a theoretical extreme, which is however rarely observed in reality. To topple this, the extremes often do not disclose each other, which sometimes leaves both of them appearing in the same interpretation scheme. (The attitude towards risk is a disclosing category, but short and long time orientation can exist side by side.) Thus it is more appropriate to speak about the intensity of these dimensions in the various interpretation schemes.

1. Internal or external focus

The dimension focuses on the respondents' source of information and the interests they consider when making their decisions.

One of the extremes is when a player is almost exclusively externally focused. An example is Customer Care. People here define themselves as the 'customer's foot' in the organization: for the rest of the organization they should be the customer. Obviously also these players are interested in the interests and goals of their organization, but they believe to achieve these best by complying and forecasting customer demand.

The other extreme is easy to define theoretically but hard to show in reality. This is a consequence of the fact that each and every organizational player has to take notice of some relevant segments of the external environment, including the source of information, the source of knowledge and the affected interests at least. Who we can speak of are organizational members whose attention is directed mainly on internal players. (Examples are internal service units, especially those, which work with slowly changing technology and take responsibility for mainly unchanged tasks.) Swift changes in the telecommunications industry left very few intact; therefore to speak of high internal orientation within PanTel is only possible in relative terms. Internal orientation is the strongest with people from invoicing and product managers. The former is due to compliance requirements with existing processes, while the latter to the high degree of internal coordination associated with their work.

(The internal orientation of invoicing is not natural: according to a study 99% of all customer relations in the industry is handled through the invoicing system. (Hajdu, 1999) Supposedly the strong internal orientation of invoicing is due to the development phase of the system.)

Conflict between the two orientations surfaced in relation with the characteristics of the products: externally oriented players are aimed at delivering products that perfectly suite customer expectations, even at the prices of increasing costs and complexity. Similarly externally orientated players would place greater emphasis on the closing phase of development when additional services are designed, customer complaints handled and 'children's' diseases' cured. The primarily externally oriented people are satisfied with an operating product already, and instead of fulfilling external demands they are focused on the use and returns of internal resources.

The characterization of the players along this dimension:

Stronger internal orientation	Equal or undetectable orientation	Stronger external orientation
Product Managers	Technicians	Customer Care
Invoicing	Tender Writers	Sales
Finance		MIRA
		Top Managers
		The Lawyer

2.. Attitude towards risk

The dimension can be approached by answering the following questions: To what extent do players dare to take uncertain decisions?; How long do they maintain or adjust to uncertain situations?; How often do they quit organizational processes and well introduced routines? A further indicator could be the generality and time focus of their solutions: weather they give occasional and short-term, or general and long-term answers to the problems. (This of course is stronger related to time orientation.)

On one extreme of the attitude towards risk people are ready to quit previous agreements, plans and processes; they take bold decisions and they initiate. In PanTel a typical example of this kind of conduct and frame of mind are sales people. In their own judgement and in other people's opinion too, if they see a potential customer, they are ready to sell even not-yet-existing products and go into promises that they cannot be sure of being able to fulfil. (P13, P17, P2, P5)

On the other extreme stand the risk minimisers, who stick to rules and plans, who reject uncertain decisions, and choose secure alternatives – even if these come with smaller profits. Examples are technicians and the lawyer. Both aim for reliability and try to avoid or hedge dangerous situations. ('Their criteria is the simple and least risky product.' P14; 'Critical points of a project are: the tender invitation and the uncertainties of the Public Procurement Act.' P3; 'We try to find general solutions for occasional problems too.' P3)

The following conflicts can appear between subcultures that have very different attitudes towards risk:

- Forcing the other party to take on orders, the fulfilment of which are impossible or risky.
- Breaking previous agreements and well established routines and causing stress by this.
- The same from the opposite side: being late, circumstantial and loosing the opportunity because of being too careful.

The characterization of the players:

	Taking on risks	Equal or undetectable	Rejecting risks
			Finance
Sales		Product Managers	Technicians
MIRA		Top Managers	Invoicing
		Customer Care	Tender Writers
			The Lawyer

3. Time horizon of the interpretation scheme: short-term or long-term

The dimension looks at the time horizon, on which the various players look ahead, sense problems and search for solutions of these problems. It also looks at the disposable time they have for finding the answers, and the frequency at which new tasks appear.

The analysis of the dimension is made difficult by the fact that most players feel it is a value-laden subject. To put it in another way: a reappearing element of the others' characterization is that their arguments and frame of mind are focused on the short run, for which one day they will have to pay the toll. It is remarkable that 'short-term' orientation has such a negative tone in an industry that changes so rapidly and demands exceptional flexibility. I think however that 'long-term and short-term orientation' in company terminology covers the 'strategic vs. non-strategic approach', which can be well fitted into the reasoning of arguments. The 'long-term frame of mind' symbolises the projection and adoption of company interests as opposed to following particular interests.

My interpretation of course does not fit this approach. In my view this dimension is as value neutral as possible, meaning that a short-term focus is not necessarily worse than a long-term one. It rather refers to often-changing and foreseeable tasks, and to the focus on problems that appear on

the daily level. Obviously, the character and weight of problems define the time spent on resolving them, and the sort of information that should be taken into account when deliberating an answer.

One extreme of the dimension – short-term focus – is therefore characterized by the following: swiftly changing tasks, the resolution of daily problems, the ability of rapid adaptation, and the search for direct solutions. Examples are again sales and customer care. Every day sales people contact new customers with very different needs, they usually sign unique contracts with unique requirements. Customer Care also deals with individual problems of different customers on a daily basis, during which flexibility and swift reaction is an important requirement.

The other extreme of the dimension represents a focus on long-term and relatively stable tasks, the quest for general solutions, and the emphasis on the long-term impact and profitability of alternatives – even at the cost of short-term losses. Within PanTel MIRA is an excellent example of this type, the task of which is to identify and analyze long-term trends. Another obvious example is the group of top managers, who predominantly deal with strategic issues; and whose interpretation schemes are focused on the long-term dynamics of their markets and industry (e.g. laws and regulations).

Typical conflicts between the two sides along this dimension include:

- Debate over the valuation of decision alternatives, differing cost-benefit analysis (different interpretation of costs, revenue and associated risks).
- Typical problems in collaboration: perceiving the other party always being in delays as opposed to the suspicion of being superfluous.

By analysing the conflicts referred to in the interviews it appears however, that this dimension has the smallest impact in developing conflicts. The time frame of the product development process is given for everybody, and a usually intense time pressure means that all the players are working on actual problems – with the differences presented earlier of course.

The characterization of the players:

Short-term horizon	Equal or undetectable horizon	Long-term horizon
Sales	Product Managers	Top Managers
Invoicing	Technicians	Finance
Tender Writers		MIRA
Customer Care		The Lawyer

4. Professional Expertise vs. Task Oriented Approach

The dimension distinguishes between the players according to their orientation on either the processes and means, or the end result of these. The different approaches can be best identified by answering the question whether it is quality or the deadline that comes first – if at all it is possible to choose between them. (This, at the same time, shows that the dimension is linked to the question of time orientation too. We could also phrase the question as follows: ‘What is more important, to “somehow solve it in time” or “to solve it well sometime”?)

The dimension also aligns to the question whether the task a player completes is related to basic processes or to complementary processes. Undoubtedly there is a greater chance of the expert approach appearing in the second case. However – as it is also the case within PanTel – basic processes can incorporate professional tasks as well, which cannot be standardised, cannot become a routine and require special knowledge (e.g. the work of technicians). The type of role within organizational processes is therefore not exclusive in this cultural dimension.

The extreme of the professional approach is manifested by the following characteristics: greater emphasis is placed on quality issues; they work separately and with using knowledge that is hardly accessible for others, other encounter only the results of their work.

The best examples of this type within PanTel are the technicians and the lawyer. They possess unique knowledge barely accessible for others. Others see only the results of their work. However they are often blamed for missed deadlines; and the quality of their work can only be judged indirectly through the feedback of customers.

The other extreme is task orientation. It is not professional expertise that counts most here, but communications and coordination skills. The primary goal is to keep the deadlines. The quality of

their work can be well judged also by others along the most important parameters, without the help and mediation of experts or customers.

Examples include product managers and sales people. In conducting their tasks they rely less on unique professional expertise – this is why they are not taken for much by others – they are focused on meeting deadlines, and they all like to show solutions – true especially for sales people. ('It is possible to present to the outside that we are selling “solutions”.' P13)

Typical conflicts between the two frameworks include:

- Taking the others work and expertise for low value-added and vice versa: insufficient knowledge, and the lack of professionalism confront the accusations of slowness, unimportance and intangible contribution on the other side.
- Typical conflicts around deadlines and quality.
- Mistrust in the other's work.

The characterization of the players:

Professional approach	Equal or undetectable approach	Task oriented approach
Finance		Top Managers
Technicians	MIRA	Sales
The Lawyer		Product Managers
		Invoicing
		Customer Care
		Tender Writers

5. Professional or Business Focus

The dimension being described below is in a way hard to distinguish from the previous. The similarity is obvious for me as well, therefore I leave one extreme practically unchanged, but on the other end a very different mindset can be spotted. I think that it is business thinking that gets polarised along this dimension opposed to other professional approaches.

Accordingly: professional way of thinking is very much the same as described in the previous paragraphs – perhaps in this case greater emphasis would be placed on professional standards in deciding between alternatives and in evaluating the quality of work. This approach – in accordance with the above described – is represented mainly by technicians and the lawyer, however finance does not belong here anymore.

On the other end stands business thinking, which accepts a more unified and general metric: value expressed in money – were it cash-flow, returns, or simply revenue. (Accordingly these different frames of mind stand on different points of the same continuum; perhaps the one mentioned first is the extreme, while the last is a ‘milder’ one.) The most characteristic representative of this category is finance, but top management, product managers and sales people to some extent also belong here. These participants refer to the above indicators many times as success criteria and as perspectives that need to be taken into account when making decisions. (A number of task-oriented groups are not characterized by such an approach. The aim of finishing projects and fulfilling customer demands does not mean such a direct and intended business mindset.)

During cooperation the following typical conflicts appear when the different frameworks clash:

- Different evaluation of alternatives: a different interpretation of costs and benefits (revenue or returns are needed).
- Different approach to product valuation. Some possible alternatives: good quality, technological breakthrough, low cost, high revenue, good returns, secure cash-flow.
- The depreciation of the other’s work and expertise.

The characterization of the players:

Professional approach	Equal or undetectable approach	Business approach
		Top Managers
Technicians	MIRA	Finance
The Lawyer	Tender Writers	Sales
	Customer Care	Product Managers
		Invoicing

A summary of the dimensions and some further questions

After presenting the dimensions questions as follows surface: what is their influence on each other and the extent to which they can be considered independent. As it was already pointed out in connection with the last two dimensions, there supposedly exist various connections and interrelations between them. The pair of 'attitude towards risk' and 'time orientation' is an example of two connected dimensions. However I do not intend to discuss these interrelations in detail in this paper – but I consider it a rather promising field of research.

Another related question is whether there is any difference between the weight of the dimensions and the extent they influence conflicts. At the moment I do not discuss these questions, rather I will return to them after the analysis of conflicts.

A further question – which will be returned to in the closing chapter – goes into the general validity of these dimensions that describe interpretation schemes, and the extent they are specific for any given organization.

There is the question about the character of these dimensions. How theoretical are they? Or on the contrary: are they practical enough so that they 'speak' for organizational players as well fitting into their frame of mind and dictionary? I believe that this varies from dimension to dimension. They stand close to organizational vocabulary and frames in reverse order of their presentation: the last stands the closest, while the first is the furthest. This also means that the latter dimensions are packed more with emotions and are experienced more personally. In developing conflicts therefore these have larger roles, as they cause conflicts that are harder to handle and are of higher intensity.

Finally I have to discuss a factor that is not primarily a cultural dimension, but one that has great impact on the participants' cooperation and their interpretation schemes. A little paradoxically this is based on the player's perception about the influence of their work on the success of developing a product. This determines how others see them and to what extent they are considered members of the team and contributors to success. Thus this factor also becomes a force in shaping subcultures as it deeply influences the participants' perception about themselves and the others.

VIII.5.2. Subcultures in PanTel

Based on the dimensions described in the previous subchapter I identify four subcultures in connection with the product development process. Three of these can be defined easily and I

consider the m generally valid, while the fourth differs from the set-up described by cultural dimensions and it is rather specific of the organization.

The Subculture of Technicians (Profession Culture)

Technicians fall into this category, who according to themselves and others form a subculture that is easy to differentiate within the organization. Based on the above dimensions they can be characterized as follows:

- In a sense, strong external focus as they maintain relations with suppliers and subcontractors, and rely heavily on an external knowledge base in conducting their tasks. Partners, who really speak their language are also outside the organization – within it there are not many of the kind. The necessity of keeping up with technologic development also strengthens external focus. It should be also noted – however – that the segment observed by technicians is rather specialised, concentrated on the supplier side – customers and competitors are mainly out of the picture.
- They try to avoid the smallest of risks, which shows in their set of critical product characteristics: reliability and simplicity. They are made responsible for product parameters that are also linked to avoiding risk, namely accessibility and disposability. Another perspective pushing them in this direction: every interviewee coming from this field expressed the desire of better regulations and a more transparent division of tasks.
- Concerning time orientation the picture is rather varied. They are characterized at the same time by fire fighting like instant solutions and also by the observation of long-term trends in order to find long-term solutions.
- It is unquestionable that the most important characteristic of this subculture is professional expertise in contrast both with task and business orientation. This professionalism and expertise is what they miss most in other organizational players. They are the ones who open the 'black box' of technology and place the emphasis on quality issues and not on costs or revenues. (Here I underline again what others have pointed out: technicians in PanTel see the cost and customer side much better then their counterparts usually do in other organizations.)
- A further characteristic of this subculture is that people here see the product as a physical reality and not as the services provided by it or the cash flow it generates. The product in their eyes does not have to comply with fast changing and unique customer demands, up-to-date

organizational goals or strategy for that matter, but rather with stable professional standards and prescriptions.

The term in brackets, 'Profession Culture', indicates that in my view this subculture is represented not only by technicians, but other players as well – mainly those who fulfil some expert role. In the case of PanTel it is the lawyers who do fall into this category. They also have special external environmental focus, with primarily external partners, and judge the quality of products according to internal professional standards. However I consider their complementary role more important, so in my view they belong to that subculture.

The Subculture of the Customer Orientated (Market Culture)

This again is an easy-to-identify subculture in the development process, both for themselves and for the others. Primarily it the sales people who belong here, but customer care could also fall into this category. Their characteristics along the different dimensions is as follows:

One of their main characteristics is a strong external focus. They pass on customer demands to the rest of the organization, and it is also them who represent the company in the race with the competitors. An evidence of strong external orientation is that they spend the least time within the company among the players (which of course leaves them hard to reach). Thus, they are in the closest and most continuous relation with the organization's external environment.

Their thinking is characterized by strong risk absorbance and a bold approach towards opportunities, which often creates overload on internal partners and forces these into undesired situations. Of course it happens that risks do not pay off, which is the source of further conflicts. Undoubtedly, however, they are also forced into taking these risks, as they enter development at a very early stage and have to sell uncompleted products.

The relative short-term time orientation means that they focus their attention on current issues, and the one-time solution of these problems. A characteristic of the short-term orientation is that they are heavily influenced by current business objectives and income plans with typical time horizons of a quarter year to one year maximum. Their short-term orientation is also a result of their heavy occupation, hard-to-forecast daily agendas, and the constant changes in their preset meetings. Sales people however see themselves as long-term oriented. They argue with the fact that increasing revenue and market share are of strategic importance to the company, and this elevates and focuses their role to the level of strategy.

The subculture is characterized by strong task orientation, which again results in focusing on individual issues and the solution of individual problems with tight deadlines. They do not work according to general standards, but according to current problems and targeted goals.

They are more business oriented than professionally oriented: thinking primarily in financial indicators – concerned not with costs and returns, but revenues and the stock of contracts. (In addition sometimes they sign too risky contracts.) Therefore they are characterized more by a business frame, but by no means with the extreme.

The product is equal to the demands it fulfils and the cash that it generates, thus it does not appear in its physical and technical parameters, but rather as the sort of utility generated by it. (The way a problem is solved or a customer demand fulfilled is not important, what counts is that they are done.)

Based on their characteristics MIRA, Customer Care and to some extent the Tender Writer can also be put into this category as their focus of attention is directed to the outside. However MIRA and Customer Care are not integral parts of the development process at the moment, although they themselves could imagine an important role in it. Tender Writers on the other hand come into the picture in the case of tenders, when they indeed fall into this category. Part of their job is to read the tender 'well' and appropriately communicate the demands of the customer to the rest of the organization.

The Subculture of the Business Oriented (Return Culture)

People in this subculture look at products as a kind of investment, leaving the returns over this investment the critical decision criteria. Representatives of this group include Top Managers and Product Managers. Finance would also belong here, however its small – to say the least – influence puts them into the complementary group. (In their case strong professional orientation of course is a major distinguishing factor within that group.) The subculture is characterized by the following qualities:

External and internal orientation is not decisive. While Top Managers have a strong external orientation (on top of all towards competitors), Product Managers remain internally focused as a consequence of their coordination tasks. (They of course should also know whom the product is destined to: '[On the customer side] ... "bit hunters" have other expectations than financial officers'. P17) So external or internal orientation is not a major dimension in their case.

Regarding their attitude towards risk a certain balance can be observed, which puts them somewhere in the middle of the spectrum. This in turn is a crucial dimension. They are trying to find

a kind of optimum among the many aspects, which pushes them towards alternatives with appropriate profit outlooks.

Judging time orientation is rather difficult in their case. Top Managers are focused on the long run for sure, but Product Managers are a more complicated issue. Although they have long-term responsibility for the products, they tend to give greater importance to short- and medium run problems as a result of the high pressure to develop products. Important is to come out with an operational product, additional features and documentation are second rank questions.

They are clearly characterized by task orientation. Indeed, they are the ones who define the tasks, coordinate execution and make others responsible for deadlines. Thus task orientation is of utmost importance for them, making them enter a lot of conflicts, as ultimately they are responsible for getting things done.

Besides actual problems, their frame of mind is also focused on returns and on maximising shareholder value. (But not enough, if Finance would have to judge Product Managers.) To achieve this, they even build models, and rely on their forecasts before making decisions. This is the strongest characteristic in the interpretation scheme of this group.

It is also worth to notice that this subculture has the most influence on product development questions. As a result the business perspective dominates PanTel products. (Neither 'technology push' nor 'sales pull' play a role here: see later the analysis "sales vs. technology-driven".)

A Subculture in Shadow: the Subculture of the 'Small Labourers'

This is a strange mix. By looking at its basic characteristics this would be a subculture supporting the fit to internal operations. This comes from the fact that people in this group try to integrate product development and the output of this process into basic organizational operations. Instead, their perceived or actual influence is what becomes dominant (how much they really contribute to the creation of a basically operating product): all in this group feel that they do not get a role in the process. They feel left out, which others agree with.

In the background, the following factors are responsible for this situation:

PanTel's organization is relatively young, and complementary functions have not yet gained strength. Processes, tasks and authority are not clear enough to determine their contribution. Their tasks are sometimes overtaken by major players.

The products were among the first PanTel products on the market, and there was no room for adjustments, instead they had to be out there. This means that emphasis had shifted from the area where these functions would have played an important role.

This is why some players – who normally would fall into other categories as pointed out earlier – are put into this subculture: such as Finance, Customer Care, the Tender Writer and the Lawyer. (Their interpretation schemes were characterized when the respective subcultures were introduced.) Narrowly speaking, this is not a real subculture: people here do not think that they belong together, nor are their interpretation schemes actually similar to each other.

But from the product development process' point of view, and the conflicts that arise during this process, they actually belong to the same group: they are left unquestioned, their perspectives are forgotten and their problems come to light only with customer complaints.

In this sense their thinking is similar to those falling originally into this group and whose slogan is: 'let it be a complete [development] process' P16. Above all I would put Invoicing here, which is often forgotten about in the course of development. But Implementation (the people who fit and install the products) also belongs to this group, as they are hindered by the lack of appropriate documentation.

This subculture that assists the fit to internal operations is characterized by internal focus, a strong desire to avoid risks, medium to long-term focus and task orientation.

VIII.6. A Unique Subculture: the Dutch within PanTel

The situation, contribution and judgement of the Dutch was a reappearing topic in my conversations. This is part of PanTel's general organizational culture and more or less could also have influenced the product development process. Because of its intermediate situation I deal with this question separately, and besides presenting the characteristics I also include the conflicts associated to them. This chapter practically is a mini case study within the big one, and served as a kind of pilot project for the analysis of other subcultures.

It has to be taken into account that I had very few Dutch interviewees (2 people, plus a Swiss-Hungarian manager as an intermediate), which means that the picture is not balanced, and primarily offers a perspective into how the Hungarians see their Dutch counterparts and how they relate to them. However the total number of Dutch people working in the organization on a permanent basis is also decreasing: there are 5-6 of them working here at the moment.

The analysis of the interviews show that there are two levels of distinguishable questions, which will be discussed separately. Afterwards conclusions coupled with related dilemmas are presented.

VIII.6.1. The Dutch in PanTel: the Level of Non-Personal Relations

This level exists for everybody as the majority of the stocks are in the hands of a Dutch company: KPN. During my conversations many have talked about the Dutch in this role: as the foreign owners of the company and their representatives – and not as individuals. So in this case they are described not by their personal characteristics but their contextual roles. The role and impact of the Dutch is described by the interviewees as follows:

9.table: The Characterization of the Dutch on the Non-Personal Level (quotations from the interviews)

Summarising Association	Interpretation
FOREIGNERS	'They don't understand local culture.' – 'They have a hard time communicating' – They are not familiar with meta-communication.'
PROPRIETARIES	'They have the power.' – 'They decide in every important issue.' – 'They think they are the boss just because they came from KPN.'
SUPREMACY	'They come from a developed country.' – 'They think that this the Balkans.' – 'They make us feel their supremacy.' – 'They send here only second class people.'
BIG COMPANY	'They are the Dutch Matáv: the big bureaucratic company.'
INVESTORS	'They invest a lot of money.' – 'They make developments possible.'

As it is obvious from this table, that on this level of relations, attitude is unanimously negative. At the same time it lacks all kind of specifics judgement is totally general. Supposedly the set of believes is very similar in other companies owned by foreigners, independent of their nationality. As it is not the subject of the current study I only refer to the fact that behind this attitude stand our country's history (the change of central and peripheral roles), our specific national self-image (pride and self-pity), the frustration caused by our economic gap, and simply resistance against the mighty and rich (Lövey, 1996; Simon, 1998).

It is important to notice however that on the level of non-personal relations everybody shares a negative attitude towards the Dutch.

Especially remarkable is the term: 'Dutch Matáv', which echoes as a refrain even from the mouth Dutch interviewees when it come to KPN. This approach raises some dilemmas, as deep within the culture of PanTel is a strong 'resistance towards Matáv'. This comes from their mission

statement, which defines them as the alternative service provider that in spite of its size is capable of delivering services of higher quality, flexibility and speed on the scale of its competitor. Based on this reasoning 'Dutch Matáv' gets a rather negative and rejective tone. Of course for PanTel people this also embodies a positive identity against the 'big Dutch' mother company.

The picture is a little more positive if we put it in the light of attitudes towards other nationalities. Most of my interviewees have worked with foreigners at their previous companies, and their judgement was formulated relative to these experiences. This analysis provides us here with a more personal level than that of the subscribed before, as the subjects of comparison were individuals in those cases. The statements are, however, so general, that I present them on this level.

(As this topic did not stand in the focus of the current study, I did not always get information on it from my interviewees, and positive remarks were mostly restricted to one or two sentences as well.)

The responses were rather favourable for the Dutch (although comparisons were made along totally different dimensions). They came out above the French, the English, the Germans and the Swiss. (Dutch are more direct, more open, more tolerant and more cooperative.) The only exception are the Americans: some thought they were more positive, some thought it were the Dutch. (They keep the laws, but make decisions slower and in a more circumstantial way.)

VIII.6.2. VIII.6.2. The Dutch in PanTel: the Level of Personal Relations

Of course most of my interviewees have personal relations with the Dutch working in the organization, so they were able to formulate their opinion on this level as well. The picture this time is much more complex and definitely more positive compared to the non-personal level.

10.table: The characterization of the Dutch on the Personal Level (The opinions are characteristics to which at least three interviewees have referred to. Practically all of them are widely believed to be true.)

Summarising Association	Interpretation
YOUNG & DYNAMIC	They are sure and represent what PanTel has to be.
RISK TAKING	They take risks, they search and grasp opportunities.
STARTERS, INITIATORS	They have ideas, they put these on the track of implementation, and they do not get lost in details.
GOOD PERSONAL SKILLS	They are open, make relations easily, and they take part and have fun in common programmes.
BUSINESS THINKING	They think logical, see the problems and know the priorities.
SLOW DECISIONS	They talk too much instead of making decisions.
THE LACK OF DEAPTH IN THEIR THINKING	They are superfluous; details are out of their interest.
TOO MUCH SELF RELIANCE	They do not involve others in their work, have greater influence than the Hungarians on the same organizational level, and they are devoted to the mother company.

The picture painted by personal relations is much more positive. (It is interesting to note that although my Dutch interview partners were few in number – and therefore their answers are statistically not representative, they still feel pretty much the same as described in the table above. Actually, they describe Hungarians as people who get lost in details, who try to avoid risk and aim for too much security.)

Taking risks and the slowness of decisions are not contradictory in the table above as they refer to different hierarchical levels in the organization. Slow decisions characterize Top Management, while on the operative level, concerning product development, decisions are swift.

Negative and positive characteristics fit one another well, this comes from the fact that most of the time are strengths are the bases of our weaknesses if we exaggerate them. Of course this also depends on the observer's judgement of a certain conduct.

In addition, the previously described negative attitude gives another explanation why the level of initiation and self-reliance were thought to be exaggerated. In the minds of people this often does not originate from individual risk taking, but from the proprietor's role and they explain it instead with supremacy and overheated self-confidence. The question is weather personal relations can overcome negative non-personal stereotypes.

VIII.6.3. The Dutch in PanTel: Cultural Conflicts

So far I have presented general conducts, typical attitudes and stereotypes. This time it is the open or repressed conflicts stemming from these that are analyzed. (Remember again: we are looking at a picture painted from a Hungarian point of view.)

By discussing Dutch related conflicts here I somewhat break the structure of the analysis. Together with this I still feel that it is appropriate to go into discussing conflicts at this point because the situation and conflicts concerning the Dutch are pretty much different from those of other subcultures.

Besides the general characterization of the situation my partners also described three specific conflicts in Dutch – Hungarian relations. These are as follows:

1. Dutch Dominance in Decision Making, an Informal Influence

Those who sense this conflict say that there are no real decisions made without the Dutch, in spite of the fact that the CEO is Hungarian and the ratio of Dutch and Hungarians on the top managerial level is balanced. Some even say that it is in fact the Dutch who move the organization by negotiating among each other. ('Obviously they don't let the other one down.' P5; 'Real decisions are always made by the Dutch.' P1; 'They feel, they don't have to consult [us].' P1) This might as well be seen as a power struggle, but as the quotations indicate: for many these are just guesses based on their attitudes and not real life experience. If only at the perceived level, we still speak of a conflict. (Although one of my interviewees saw this as a positive sign, saying that this informal management has really given the organization a boost.)

This conflict does not surface, it only increases mistrust towards the other party. The roots of the conflict are embedded in the non-personal level of relations, where the Hungarian party believes that the Dutch consider themselves supreme and all mighty based on their proprietary rights. (Although it is hard to prove, but I had the impression that mostly those organizational members developed such an opinion, who did not have many personal relations with the Dutch who worked in the company.)

2. Judging Professional Expertise, a Fight of Prestige

This conflict is typical – but not exclusive – of the people working in the technical fields. The conflict centred around the deepness, the field and on the relative situation of professional expertise. ('Each party thinks it the cleverer.' P1; '[ironically] It's surprising, but there happened to be some Dutch with good professional knowledge.' P2; 'They have less exact professional experience.' P16; 'They don't send here first class people.' P20)

This conflict is clearly linked to the previous one, which focuses on the leading role of the Dutch. As we have seen in the description of subcultures, there are some fields where professionalism is a key characteristic of identification, and therefore easily becomes the subject of prestige fights. After linking this with the 'all mightiness' of the Dutch professional rivalry speaks for itself. What makes it even more understandable is that 'the leading team' and 'the innovative free trooper' mentality occupies centre stage in the self-portraits of PanTel people, and indeed there are some developments for which there is no appropriate professional expertise even in Holland.

Interestingly some otherwise positively judged characteristics of the Dutch (being initiative and having an overview of things) are also related to this conflict. The reason for this is that after getting things started and having drawn the general sketched picture they are not anymore interested in the details and the full completion of tasks. This again leaves some feel their supremacy and their lack of appropriate professional expertise. ('He didn't really knew what he wanted there were just clouds.' P6; 'They leave the topic fast..., they are not interested in details.' P7)

The conflict seems to be easing however: as two of my interviewees have indicated, the problem was characteristic mainly of the Dutch, who have already left the organization. ('There were some parachuters, but they have gone by now.' P12; 'The weak have left already.' P2)

3. Language Difficulties

Several interviewees have pointed to the use of English as the official corporate language as a source of conflict. (Notes and memos are prepared in English, in meetings where the Dutch are also present discussions flow in English.) The use of English has become an integral part of PanTel's culture in spite of the conflict presented hereafter. From the quotations the use of English words and widespread general expressions – sometimes half translated into Hungarian – are apparent. Besides the technological background and foreign ownership, the relatively large number of younger generations must be influential too.

The official 'corporate English' and the reappearance of the Hungarian language in everyday conversations between Hungarians is clearly a source of conflict. Several have indicated that there are regular notices coming from the Dutch complaining about the large number of Hungarian e-mails. (P13; P9) On the other hand limited depth and expressiveness can cause problems, but more a serious case is when some feels hurt in his/her national pride and identity.

English is still a kind of compromise as it is a foreign language for both the Hungarians and the Dutch. This is why this conflict is usually free of emotions, and those who have mentioned it have done so in brackets. Some even underlined that language is not a factor in personal relationships:

they are able to discuss everything with each other. (P3; P12) This suggests that it is not English the language that people have trouble with, but rather the way it is being dictated.

It has to be seen that English is important for the Dutch not only from the communication's point of view. They consider it a strategic choice, which helps them keep up with technological developments. There is no need for translations all the time, they can easily adapt technological novelties from external partners, and can keep up with trends more easily. ('English would remain the official language, even if there were no Dutch left here anymore.' P21)

VIII.6.4. Summary and Dilemmas

As we have seen the relationship between Hungarian and Dutch subcultures has a kind of double character. There is a non-personal level which can perhaps be best characterized by 'the supreme foreign owner and his men' stereotype. The strong phrasing is intended to underline the heavy emotional filling of the picture, and its independence from PanTel. I believe all foreign companies should prepare for the same 'anti-multi' attitude.

A strange paradox appears already on this non-personal level, but reaching PanTel's characteristics. This foreign investor can also be identified as the great Hungarian rival Matáv – described also in very negative terms. This means a new conflict and a counter point at the same time as it weakens the professional credibility of the Dutch who arrive here, and strengthens negative attitudes towards them. On the other side however it decreases their supremacy and strengthens the 'us' feeling in people working here. (It is not accidental that many have indicated that the Dutch centre has little direct influence, their systems were not compulsory to copy, as is the case with HR, instead individual systems were set up that fit the unique needs of this organization.)

By analysing personal relationships we can see that after the initial conflicts the Dutch have altered general negative expectations. They are not representatives of the supreme, 'Dutch Matáv' culture, but rather stand for the values what PanTel should be aiming for: they are dynamic, risk taking, initiating with a good business sense. Unfortunately I do not have information on how these Dutch expatriates were chosen, but one thing is sure: the selection was a successful one.

Now conflicts on the personal level have two sources at the same time: negative non-personal attitudes and the exaggeration of positive characteristics on the personal level. This is how 'initiation' and 'risk taking' transform into 'autocratic management style' and 'Professional superficiality' respectively.

Conflicts generally remain repressed but are felt by the parties. ('Problems are only felt, and not articulated'. P9) The most amount of conflicts that reach the surface are related to the question of language use, supposedly because this is the least delicate issue.

Some of my interviewees – mainly Top Managers – have indicated that they are aware of these cultural conflicts, and a more open and joint communication has already started about it. There have been workshops, where presumptions about the others were brought to light.

The situation is made difficult by the fact that these conflicts are emotionally packed: the sense of unfairness, the lack of recognition and appreciation plus self-diminution stand in the background. It is encouraging however, that with the passing of time and with the creation of personal relationships conflicts tend to be easing up.

VIII.7. The Characteristics of PanTel's Culture

After the introduction of the different subcultures, now follows the description of PanTel's culture, which is the background of these subcultures. We have to take into account however that the current study is focused on the cultural aspects of the product development process, which means that the mirror through which we see PanTel's culture is rather small and presumably biased. It is very likely that there remain some important players whom I had not encountered but play a vital role in shaping the overall culture of the company.

This is why the underlying analysis of the organizational culture in PanTel is not total, which presumably will leave some levels and parts unobserved. My intention was only to reveal that part of the cultural context, by which the integration mechanisms in the product development process can be analyzed. I have asked for information on this topic from all of my interviewees, so I hope to draw a relevant picture here. (In order to get better acquainted with PanTel's organizational culture I made additional interviews with the manager of the HR filed and with an expert working in this department.) Thus hereafter I intend to identify the cultural impacts on the product development process.

The role of subcultures is not discussed here; this has been presented in previous chapters. I instead focus my attention on the factors that combine these subcultures and work as a kind of integrating force over them.

VIII.7.1. Young and Developing Culture

It should be noted already at the beginning of the analysis that we are talking about a recently founded company, that is only two years old, and whose culture is still in the formation phase. The answers, values and routines that will form the deep and subconscious levels of PanTel's culture are being born now. This is why presumptions and routines coming from previous times – previous jobs and education – play such a vital role at the moment.

A major indicator of this is that the thinking of my interviewees was severely influenced by the constant reference to their previous workplaces. This had its impact in the judgement of the Dutch, in the characterization of the products, in the evaluation of other organizational units, and in the thinking about regulations. Obviously there was a big difference between the people coming from a large and heavily regulated company, and those who came from small, informal firms. Many have indicated that the latter had an easier time finding their place in PanTel.

Two interviewees (P21 and P7) have noted another important difference about previous experiences: they said it was crucial whether people came from traditional or 'new wave' (PC-IP-Internet) companies. This factor – which appears primarily on the technical field – did not come out for me directly in the interviews. (This might have been the result of my business-economic education from where it is more difficult to realise differences between various technical frames of mind.)

A further differentiation made by one of my interviewees (P10) may be interesting because of its impact on the relations between subcultures and their effect on the product development process: what the position of sales was in the previous workplace. E.g. people coming from computer, sales oriented companies ('box sellers') 'have a hard time accepting, that they are not central figures now'. (P10) In their previous firms they had a more important role and a heavier weight.

A further characteristic of the development phase is that the formally, by the top management developed values and vision did not have a major influence until now. Many lack a more precisely defined vision. When I asked people about the points that they would change, what came out most often was the better communication of priorities and strategic objectives: they still don't have the answer to the question, how PanTel is going to look like after liberalisation is completed.

In this formulating culture the relation to the big competitor is extremely strong. On some occasions we see a negatively defined identity: 'we are not like Matáv, and we don't want to be like it.' This is valid for both internal behavioural patterns (big bureaucratic organization) and for market conduct ('we offer speedier and higher quality services'). As it has already been pointed out in the

part where I discussed the Dutch: the picture painted about the mother company belongs here as well. She is also thought to be bureaucratic and slowly reacting.

The fact that the organization's culture is still in the formation means that the different subcultures or even differences between individuals have a greater impact on cooperation than they would do in a stronger culture with clear behavioural schemes and routines.

VIII.7.2. The Dominance of Informal and Personal Relations

A returning element of my conversations was the constant emphasis of personal, informal relationships. Independent of experiencing this as something positive or something negative, the interviewees definitely considered it a strong characteristic of PanTel. (Its effects will be discussed in detail when I talk about their impact on conflict resolution.)

Informality can be observed mainly in the descriptions of communication. Many have underlined that personal contact and conversations are a dominant form of communication in the company. In the early days there were two Dutch managers here who even 'prohibited the use of e-mail', they required that 'you went there in person'. (P10)

- 'People here know each other, even top managers walk to the person himself and don't consult his superior or send a letter instead.' P3
- 'Everybody reads e-mail, but personal visits are also characteristic.' P18
- 'The weight of writing is relatively small here.' P10

Slowly there are steps to increase the weight of written materials. An example is the growing number of e-mails, the effectiveness and value of which is however debated. The perceived importance of personal contacts is also indicated by the fact that resistance towards e-mail – which in other companies is considered an informal medium of communication – is fuelled by its impersonal and slow character. During the course of my study there was a transition going on among the three forms of communication: personal contacts, written materials and e-mail.

- 'Today primarily it is the e-mail that is the default.' P15
- 'There are some who read e-mail and there are some who don't.' P1
- 'E-mail gains ground more and more. Although it is awkward to send an e-mail to the floor above.' P3

The strength of informal relations is also underpinned by the fact that many have indicated joint programmes (birthdays, Christmas, sports day etc.) as strong culture-shaping forces. This is where people can 'let out steam', celebrate together and form personal relationships. In the very beginning these parties had a very family like character where everybody could make contact with anybody else.

An indirect indicator of informality's weight and the little role of hierarchical relations, is that during the interviews not everybody was able to give a perfect picture of the organization. They either put another person to the wrong place in the organigram, or were able to give only his approximate location. ('I don't know, who the project manager is.' P2; 'By now they have established this position somewhere under X top manager' P6; 'This would be the task of X group, but I don't know where they belong in the organization.' P16)

The signs observed on the surface also underpin informal operations. Work is done in large common rooms, discussions and meetings often took place over the table with the participants shouting out loud. (Of course important meetings take place in separate rooms.) Only top managers have separate rooms, but the principle of 'open doors' is valid in their case too, even if they guests. This symbolises their approachability and accessibility, which other feel to be true.

Many factors could have influenced the importance of informal operations:

- The average age of people working here (30-31 years) makes them open to such communication in contrast with different rules and directions.
- The small or medium size of the company made it possible for individuals to know each other and to come up to each other with different problems. But in the near past they have reached a point where this was no more possible, 'unknown' faces have appeared in the organization. (P18)
- The industry itself is a relatively young and fast changing one; and presumably it would be impossible to keep up with technologic development and rapidly evolving markets by relying solely on impersonal bureaucratic practices.
- Part of the equation could be the fact that informality represents the opposition against both Matáv and its Dutch counterpart KPN.

Finally I believe that the declared and pursued central values – speed, flexibility and the rejection of hierarchy – strengthen the role of informality.

VIII.7.3. Declared and Pursued Values

Hereunder I present the values which declared or not, form the basis of PanTel's developing organizational culture.

Customer Orientation

Customer orientation is a central value of any company whose strategic focus is on gaining market share and increasing revenues. This value is well represented in the everyday life of the company: almost everybody is in contact with the customers, who are not only the issue of a few individuals. This perspective appears in the thinking about products and in the set of critical success criteria. They believe to be pretty different in this sense from their competitors. This is also true for the technicians, about whom it has been remarked that their customer orientation could be strengthened. ('This is the most important, we have to listen to the customer.' P5)

I think that this value does not need any special underpinning here, as the rest of the values all stand for it.

However one may wonder about the implementation of all this in the light of the fact that Customer Care is at the periphery of organizational operations, and neither does sales fulfil a central role – at least not in the product development process.

Speed and Flexibility

I handle these two categories together as I feel that they belong together, and they were mentioned together by the interviewees too. They definitely belong to the officially declared values suggested from above. They fit strategy and the 'alternative service provider' definition well; this is what the company has to offer against Matáv. These values at the same time fit the thinking of people as well. According to them they came to the company looking for exactly these values: they have been searching for a long time and have not found them in their previous workplaces. (Mainly people coming from Matáv argued this way.)

Speed and flexibility is present in the everyday life of the organization. This is underpinned by my observations, as it was always very difficult to find some time for the interviews. Most of the interviews were interrupted by the appearance of a colleague in some urgent matter, and on 3 or 4 occasions the interview even had to be broken up because of unscheduled meetings.

The situation was described pretty much the same by others: 'This is a spinning young company.' (P18) 'This is a flexible, dynamic non-ossificated firm.' (P12) 'We work like an combat group.' (P16) 'There are no clear processes, it is improvisation.' (P19) Speed is also a crucial factor in choosing technology and suppliers.

Hierarchy: it is not an issue

Strongly related to the previous two values is the phenomenon that formal authority and position rights are not held for much. (Many times they do not even know the organizational position of the other party – as I have indicated earlier.)

The ability to react and decide fast are of utmost importance, and a strong hierarchy would be the greatest obstacle to it. This is again a strong competitive advantage against Matáv. ('Our strength is the lean organization: today we decide something, and tomorrow we are going to execute.' P21; 'There are no problems concerning hierarchy.' P18)

This is also a widely shared value within the company, but as one or two have pointed out: the concern about one's position has appeared in the organization. Examples include:

'... there is the defence of positions, you can see 'cc' –mails going everywhere.' P19

'For some the only goal is to be covered by paper and documentations' P1

It can be seen that with the growth of the company and the accompanying phenomenon (the operation becoming more formal and the strengthening of the hierarchy) weakens informality and acts against the declared values of organizational members.

The Quality Perspective (Professionalism)

The main element of their differentiation strategy is quality – say the people working in PanTel. Above all this has appeared on the technical fields, but everybody would like to see it as the characteristic of the whole company.

Quality appears in the finished product, but also in the process of preparation and in professional expertise. This is professionalism – put into brackets above – referring to the professional subculture.

According to my observation the appearance of offices and workplaces suggest professionalism. In spite of being informal and 'young' tables are empty by the end of the day, there

are no personal items, knick-knacks around. The blue and grey colours dominating the offices also show composure and independent expertise. (Only HR is an exception: they have a lot of personal items, pictures and drawings all around.)

This is the place to speak about the strong internal motivation and the importance of personal contribution. During the presentation of the self-portraits it became obvious that all of my interviewees saw their work and contribution important. All the organizational members have strong performance motivation since this was one of their main reasons to come here. This is the place where you can develop new systems, new products, and 'you can do big things'. In addition everybody thinks that professionalism and expertise was one of the key criteria in selection, which is a boost to their self-confidence.

Small Team, One Family

Because it was small, it was a start-up and that personal ties were so dominant the sense of being one team emerged in PanTel people, and for those being here from the very beginning this articulated in the 'family' metaphor.

'This is good because the whole process has one owner, one family.' [That is one organizational unit.] P9

'The spirit was like being in a family, there were a lot of parties.' P18

It is presumably not accidental that top managers and HR announce parties that are aimed at shaping culture as family feasts: company birthday, Christmas, even Sports Day fits into the picture. This is a perfect fit to informal, swift, flexible operations and the rejection of the hierarchy. Of course with the growing number of employees the family atmosphere is hard to maintain, many have said that it was strange to see 'alien' faces that are to remain alien. The 'one company culture', which is also discussed by the literature (Maister, 1985), does not function undisturbed anymore. As the introduction of the subcultures has indicated, ties within one organizational unit became tighter, and difference between these groups has grown larger.

When comparing the values typical of PanTel's operations with literature's analysis (O'Reilly and Tushman, 1997; Zien and Buckler 1997, Amabile, 1988) we can see that it fits the picture described by innovative cultures. However the PanTel's picture is a little bit more complex. It appears that within the general innovation-oriented picture there are some value conflicts, which slow down processes and increase 'drag' in cooperation.

VIII.7.4. Tensions Between Values and Their Everyday Implementation

The values above of course do not get implemented without contradictions. I took notice of the following problems in the course of product development:

- *Teamwork vs. Individual Contribution:* Apparently strong internal motivation and performance pressure leads to overemphasising the ego and devaluing the perspectives and contribution of the other party. This problem will be introduced when discussing the different types of conflicts. However I do not consider this an organization specific problem, but one that is characteristic of knowledge-intensive industries.(Drucker, 1992; Workman, 1992)
- *Quality vs. Speed:* We are facing one of the central questions of product development, and we could put business value as a third pole to the question. There is typically a trade-off between these aspects, and different subcultures favour different values. One of the main tasks of product managers is to find the right balance between them. (One of the product managers quoted the example of Microsoft: 'put the product on the market in an operational state, but far not in a perfectly finished stage.')

P21

I discuss here a topic that presents the mixture and conflicts between declared and pursued values pretty well, and at the same time it also influences the relations between subcultures. As it appeared in many initial interviews, I decided to add the following question to my list: Which is more characteristic of the organization: Is it more sales-driven, or on the contrary technology-drive? The answers were very miscellaneous. The picture looks something like this: according to sales people the company is technology driven, according to technicians it is sale-driven, according to the rest it is neither, or perhaps stands closer to being product-driven.

From a cultural point of view it is not only the actual answer that is interesting, but the fact that this technical term has become so symbolic and important in the organizational context for almost all of the players. In this term lies a struggle for strategic influence. From the players perspective it is clear that they blame the other party for being too influential in order to achieve better positions for themselves.

The neutral parties' thinking goes as follows: they acknowledge that the firm is based on strong technical foundations (at the same time they have to avoid technology driven product development). But meanwhile strong sales pressure is also characteristic of the organization (besides revenue, returns are also important; and without an appropriate technical knowledge sales

can have no influence either). So they distinguish product managers as the most influential players, this is where the term 'product-driven' comes from. (There is also an opinion, which says that the whole fuss around the term is all about managerial power struggles: 'There are terrible power fights for deciding what the company is "driven" by. P1)

It is interesting to note how much emotion can amount in a single term just because of its symbolic contents and closeness to organizational power relations. The creation of organizational reality and the fight for influencing this process can be well detected in this little battle of terminology. Some approaches to organizational culture place this phenomenon in the forefront of their analysis – as I have presented this in a previous chapter of this paper (Berger-Luckmann 1998, Geertz 1994). This approach says that organizational power allows for a stronger influence over reality creation, which in a self-strengthening process increases organizational power. The debate about a sales- or technology driven organization represents a wrestle for organizational influence.

VIII.8. Conflicts Between Subcultures

Before analysing conflicts it should be stated that conflicts in themselves are not negative. Indeed they are the essence of cross-functional teams as they increase the amount of available information and stimulate creativity. Thus it is not conflicts themselves that are interesting, but rather their intensity, their types and the way they evolve.

VIII.8.1. Typical Conflicts Between the Players

First I present the conflict matrix, which contains the different conflicts between the players. I tried to include all of the conflicts that were mentioned in the interviews.

11.table: Typical Conflicts Between the Parties

Who / with whom?	RETURN CULTURE	MARKET CULTURE	PROFESSION CULTURE	SMALL LABOURER CULTURE
RETURN CULTURE	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> • They are not professional enough • They represent the interests of the outside parties, they want too low prices and give too favourable conditions • They think short term 	<ul style="list-style-type: none"> • Too much professionalism they don't speak the other's language • They don't think in business terms, they aren't cost sensitive • They miss deadlines 	<ul style="list-style-type: none"> • They slow even impede task execution • They are not flexible enough • You have to bargain with them for resources
MARKET CULTURE	<ul style="list-style-type: none"> • Short term perspective • Too business orientated • They cannot be influenced, 'they are always right' • They are independent of sales, although marketing should belong here • They don't have market knowledge 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> • They don't keep deadlines although they take on everything • Products that come out are not of good quality, customers complain • They are not enough business focused, they're not price or cost sensitive 	<ul style="list-style-type: none"> • (they are out of sight)
PROFESSION CULTURE	<ul style="list-style-type: none"> • They are not prepared enough professionally • They don't know technology and its changes, they should be the boss, but they can't fulfil this role • They make decisions without asking us • They give numbers and costs without having a clue about technology 	<ul style="list-style-type: none"> • They make impossible or terrible pledges from a technical point of view • They accept every customer and their every need • They don't know anything about the profession, it's 'sales talk'. • They take credit for everything • They stick there noses into development, although this wouldn't be their job 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> • (they are out of sight)
SMALL LABOURER CULTURE	<ul style="list-style-type: none"> • They don't acknowledge the contribution of smaller players • They come up with unsound ideas • They don't take into account our perspectives, the product is only half finished • They don't follow the products after their completion (quality, returns) 	<ul style="list-style-type: none"> • Short-term orientation • They make contracts with non-sufficient returns, they are not business oriented enough • They don't have time to care with others • They don't keep their promises and plans 	<ul style="list-style-type: none"> • They miss deadlines • They are not close enough to customers 	<ul style="list-style-type: none">

The dominant conflicts with respect to the development process are as follows:

- The conflict between Market Culture and Return Culture, where the former wants low prices and high market share, while the latter would put greater emphasis on the returns of a product.
- The conflict between Return Culture and Professional Culture, where the definition of product characteristics (including associated costs) and the deadlines are the main source of disagreement.

It does not always appear directly, but there is also a conflict between Market Culture and Professional Culture about the characteristics of the product: how simple should the product be and to what extent should it be able to fulfil different customer demands.

Another thing that appears from the table is the central role of Product Managers in conflicts. It seems that everybody has some kind of problem with them, but these problems are very different. It is all understandable if we look at their central coordinating role, they are the ones who combine the different steps of the product development process and they also represent different interests against the various players. On the contrary, conflicts with technicians or sales people are rather similar from whichever point of view we approach them.

VIII.8.2. Characterizing Conflicts

It is worth to differentiate between the conflicts according to their types because they appear with different intensity and their consequences are also different. It is possible to categorise conflicts along several perspectives. In my opinion the following two had special relevance.

Task Fulfilment vs. Contextual Conflicts

The extremes of this dimension can be characterized in the following way: At one extreme the conflict appears during task execution, thus it is linked directly to some sort of work or a decision aspect of it. On the other extreme the conflict is related to the context of the work (e.g. the relationship of the parties, their status, their influence, or acknowledgement of their work) and not to task execution. (At an earlier stage of interpretation I use the distinction professional – emotional, but this did not seem to be apt as all conflicts have some emotional filling, even purely task execution problems. Independent of this, I believe that emotional filling has a greater role in the course, results and consequences of contextual conflicts.)

Examples of professional, task execution conflicts:

'There have always been conflicts with implementation, there is no documentation and appropriate preparation.' (P7)

'A typical source of conflict: we would soften the conditions of contracts, the technicians on the other hand would harden them.' (P13)

'We always suffer in the cooperation with the network, whenever there is a shut-down.' (P9)

'The source of debate between Sales and the product manager is that they put additional services into the package.' (P12)

Examples of contextual conflicts:

'Sale takes all the credit. It is the others who make them possible to go out the door, yet they get no acknowledgement.' (P4)

'At high-flying companies our department has great influence, ... but here the acquired customer is the god.' (P8)

'The Dutch come to me, they think they're the boss, just because they come from KPN.' (P9)

'My internal partners hide behind the back of their managers.' (P19)

'The Y department should work under our command, they should be serving us. Instead they are going after their own mind independent of us.' (P20)

The second type of conflicts – contextual conflicts – are more dangerous. They are more intensive, experienced more deeply, and it is very difficult to approach them objectively with taking into account the arguments of the other party, and thus to find an integrative solution to them.

Personal or Role Related Conflicts

This dimension is related to the motives of the other party, thus there is attribution and causal association in the background (Bakacsi, 1998). While the previous differentiation focuses on substance, this one looks at the origin and the source of conflicts.

One extreme is when the conflict is attributed to the personal characteristics of the other party. On the other extreme the conflict appears anyhow, as it is linked to the role or position of the other person.

In the first case conflicts are derived from the personal characteristics of the partner, their frame of mind, or personal history (previous workplace, special professional background) are blamed for the difficulties. Examples include:

'X hates numbers, ... he relies on his instincts which are either true or not' (P8)

'Product managers are too young in our company, this is why they have other interpretation of the products than we do.' (P5)

'They don't get answers from product managers, and this is a question of personal quality.'
(P6)

'They cannot show the costs associated to the product, they hate dealing with such issues.'
(P8)

In the other case conflicting interests are derived from the partner's organizational position, his role, incentive scheme or general professional background. In the case of PanTel bonus systems have an especially dominant role. The following sentence is valid for almost every group: 'They couldn't do anything else, their bonus system makes them act this way.' Examples of such conflicts are:

'Because of a wrong incentive system, they take on terrible orders without asking us beforehand.' (P2)

'The finance people: they are Mr. NO, they pull down budgets.' (P2)

'We find the pearl for them, and they just loose it because of their myopia. There is too much emphasis on the business being profitable.' (P13)

'It seems that product managers have a premium depending on total revenue, they don't care about costs.' (P8)

Personal conflicts are more intensive as the parties do not consider these necessary and therefore experience them more deeply. There is a greater chance of these negative effects to be prolonged. As we have seen, personal relations play a paramount role in PanTel's culture and coordination practices, thus if conflicts have a personal character they presumably cause severe difficulties as they tend to block exactly the dominant cooperation routines of the company.

A Comparison of the Two Typologies

By analysing the two types together we get a new kind of typology. The general evaluation of this typology is going to be presented in the final chapter of this study, here I only present the analysis related to PanTel.

In the plain created by these two dimensions we can draw the following conflict-matrix. I have put typical conflicts into the four fields:

12.table: Conflicts arranged in a matrix

	TASK FULFILMENT RELATED	CONTEXT RELATED
ROLE RELATED	<ul style="list-style-type: none"> • 'Finance: they're Mr. NO' • 'They are not interested in costs' • 'Deadlines are not important, we have to wait for them' • 'Contracts: how much can we allow.' • 'The type of the construction, additional services.' • 'They are not interested in detailed quality complaints, important is the overall view.' 	<ul style="list-style-type: none"> • 'They take credit for everything' • 'In well off companies, our department has a big weight.' • 'They keep secret the information they got from me, they think its theirs' • 'The Y department should be working under our command, they should be serving us.' • 'That's sales talk' • 'Their excellent professional sight does not spoil their vision.'
PERSON RELATED	<ul style="list-style-type: none"> • 'X cannot remember a number, although he would only have to remember three.' • 'He is incapable of answering our questions' • 'The product managers are young, that's why they have another interpretation of the product.' 	<ul style="list-style-type: none"> • 'Position defending has popped up, there are cc e-mails all over' • 'There are clicks and fingers pointed at each other.' • 'In relation with a manager who defends his department against everybody else'

Thus the matrix shows the type of conflicts that can appear during the product development process. As it can be seen, in the projects I analyzed all four have surfaced.

Subcultural differences can be grasped primarily in conflicts related to roles. These reflect the most the stereotypes and sketched perceptions about the others. These conflicts can however

appear not only in the product development process (task conflicts), but practically in any aspect of cooperation with the other party (contextual conflicts).

Subcultural differences can also be felt in personal type of conflicts. Subcultural schemes work as filters or magnifiers in the perception of other people, or during the interpretation of their behaviour.

Different type of conflicts have negative effects of different intensity. Based on the interviews the players already expect task oriented conflicts, they look upon these as built-in elements of the development process. Contextual conflicts on the other hand are believed to be occasional, and traced back to two sources:

- First they consider these as the by-products of current political and status system of the company.
- Second they are a consequence of the unpreparedness or unique motivation of the other players.

With respect to the other aspect, conflicts with concrete individuals have a stronger negative impact, as these are also occasional, and people find the perspectives of the other person less acceptable.

VIII.8.3. The Character of the Tasks as an Influencing Factor on Conflicts

It speaks for itself that the characteristics of the development process severely influence the way of cooperation and the type and size of conflicts coming with them. These characteristics of the projects have been shortly presented in their respective chapters. When comparing them with the conflicts associated with these projects it appears that five of the characteristics are really influential:

- The novelty of the product or the applied technology.
- The complexity of the product: how many and what sort of services will it contain, what kind of technologies will be built in it.
- The complexity of the process. (The number of participating individuals and organizational units.)
- The tightness of deadlines.
- The weight and importance of the task for the organization.

The first three – the novelty of technology, the complexity of the product and the process – increase the level and intensity of conflicts as they increase uncertainty surrounding development. It is no wonder that PanConnect was judged the least successful project among the three, and also the one that brought the most internal conflicts. This development stood in a conflict increasing direction in all three dimensions. (The second and the third dimension – the complexity of the product and the technology – are obviously connected to each other. If a product for instance includes both data and voice transmission the number of participants immediately doubles as there are specialised people and groups for both areas.) Especially the latter factor – the number of participants – is what increases the number of conflicts according to my interviewees at least. ('Everything is bad there, everybody would have to integrate.' P19; but there have been similar opinion about that project from others as well including P13, P12, P6.)

The tightness of deadlines unquestionably has an impact on conflicts, but it is not clear in which direction. On the one hand tight deadlines increase tensions and stress, which increase the number of conflicts; on the other hand however they also open up participants for compromise as they have to battle a 'common enemy.' (This is especially true if tight deadlines are the consequence of the race with competition – as it was the case in the '+0' project.) This points in the direction that it is not the tightness of the deadlines themselves that count, but rather their interpretation. Who sets the deadlines: is it an autocratic managerial decision, is it set by another organizational unit, or is it the consequence of competition? Thus its impact is negative in the former and positive in the latter.

The weight of a task clearly decreases the number of conflicts, and leads to easier solutions. This again is an activating force, which increases motivation and stimulates the willingness to cooperate. As many have described, the Post Tender was an example of this ('That month was spent under the spell of the Post.' P7); and the challenge made cooperation efficient in spite of the complexity of the task and the tight deadlines. The weight of a project liberates an otherwise scarce resource: time, resulting in a decreasing number of conflicts. (People are ready to work even at night in the case of such a tender.)

Supposedly tenders are characterized by less conflicts, which is a consequence of the fact the tender invitation limits uncertainty as everybody is clear with the final output, and how he or she will contribute to it. The race with competition is obvious, and the amount of direct revenue makes it easier to measure the weight of the project. In the case of a 'plain' development project all these factors appear much more uncertain, which raises the potential of conflicts.

I believe that besides the differences of subcultures and the characteristics of the tasks personal factors also play a role in the development of conflicts. This topic was however not included in the questionnaire, thus I cannot draw conclusions related to it.

VIII.9. Tools of Conflict Resolution and Knowledge Integration

The closing chapter of the PanTel case study presents the resolution techniques of conflicts within product development projects. It is clear from the above description that the organizational units which possess critical pieces of knowledge with respect to the product development process form separate subcultures within PanTel, and these subcultural groups conflict with each other on several points. Hereunder I analyze how the separate pieces of knowledge are integrated.

During our conversations my partners – explicitly or implicitly and in great agreement– have marked two groups into which resolution techniques can be categorised: formal tools (based on rules and prior process descriptions etc.) and informal tools (based on personal relations and on convincing the other party). I keep this structure in the course of the following analysis.

VIII.9.1. Formal Tools of Integration

Formal coordination tools are still in the formation phase at the company, of course. Only a few interviewees have referred to them, typically managers. The smaller role of formal coordination is true not only for the product development process, but the organization itself as well. As one manager has pointed out: 'We have introduced these formal systems [ISO, job descriptions, performance measurement, internal audits]. However this coat does not fit us, it is still too big.' (P10) To put it in another way: the systems exist, but they operate nowhere near to their full potential – it is not these systems that run everyday coordination.

This is especially true in the case of those problems, which require coordination between separate organizational units: there are no really fine-tuned tools for these. Formal coordination tools between different organizational units have not yet developed. This seems to be valid for the product development process too.

It is the product manager who is responsible for coordination from A to Z – as some have remarked. (In the case of tenders it is the 'representative' of the sales department who takes on the manager's role.) He or she gathers the team and calls upon the participants. There are formal

coordination tools for the integration of players with different specialisation within the frame of this team. The following tools were mentioned in the interviews:

- *Process Descriptions*: Two of my interviewees (P6; P14) have suggested that there were process descriptions in connection with product development. As it turned out they were thinking about two different types of descriptions: one was prepared by an external consultant, while the other was prepared by the interviewee himself.
- *Software*: the project-planning software, which assist product managers and was mentioned by one of my interviewees (P14), can also be taken as a coordination tool.
- An example of *reports and common checks* is that e.g. 'there is weekly reporting in the finance department' (P8). This tool will be analyzed later on.
- *Project evaluations*: (P7) According to one participant this takes place on a continuous basis, however other interviewees have not mentioned this tool. It is although possible that they refer to the same thing, but under the next title.
- *Management Meetings*: (P8, P9, P17) '... it is channelled into management meetings. Based on it X is called upon for the fact that results are different from what he has forecasted.' (P8) Several have mentioned managerial meetings as a forum where unresolved questions are introduced and disputes resolved.
- Finally, job and authority descriptions can be taken as the basis of conflict management, for these determine who has the final word in certain questions. This tool however, has almost only been mentioned in negative existence; which means that the company lacks it at the moment and the development of which would be desperately needed. ('It is not declared at all who should make what decisions, decision levels are floating.' P1) This is why it is so surprising that according to one manager job descriptions are ready; and indeed much more sound and detailed than the industry average. (P10)

The first two tools mentioned support planning and monitoring in the first place while having a smaller role in conflict resolution. The ones that follow – on the other hand – are suitable for resolving problems and differences if participants accept them and rely on them.

VIII.9.2. Personal Tools of Integration

As opposed to the previous forms of coordination the interviews are packed with references to informal and personal types of coordination and conflict resolution techniques. This fits well into the phenomenon described during the characterization of PanTel's culture: personal communication has an almost exclusive role. Everybody brings examples about trying to persuade the other party in the case of problems, or about putting third parties into predetermined situations by making prior and informal adjustments with others.

- 'There are no clear processes, it's improvisation.' P19
- 'It is now [after the replacement of this manager] that the tripartite informal coordination has really begun [between middle managers].' P6
- 'Even the top managers walk up to the person instead of talking with his superior or sending a letter.' P3
- 'Now perhaps they can find the tone with Z [another manager].' P6
- 'They sit down with people to discuss issues.' P8
- [About another manager involved in the development process]: 'The relationship is good and tight, we don't play tactics.' P17
- Of course neither does this form of coordination work in all cases: 'I've been talking for years to get this thing through, but they are unwilling to make any formal decisions concerning it.' P8
- During my interviews it was also this form of conflict management that appeared most often. There were cases (P3, P17) when the interview had to be halted or could begin only later because my partner was 'attacked' and placed under personal pressure by one of his colleagues.

I also place remarks concerning attitudes into this category. This is because the success of a project, the effective and swift resolution of problems is traced back on this factor by many. Indeed most of my interviewees mention this as the critical factor. In this case the perception of a player steps out of its stereotype role and becomes more personal. As a result of this the most important precondition of managing conflicts gets fulfilled: the 'me – them' thinking changes into 'us'. Here are some examples:

- 'Things go along the principle that we are doing our best' P12
- 'Sometimes we are enthusiastic about doing something together.' P15

- 'The secret of success: everybody had a positive attitude towards the question.' P16
- 'A lot depended on the people, they were enthusiastic, and they were good people.' P17

Informal coordination plays a significant role not only in keeping internal relations smooth, but the same is true for external relations as well – of course it is not always successful:

- 'It was a smooth project, personal relations [with Pannon] were good.' P4
- [About relations to KPN]: 'It didn't work there that I just pick up the phone and arrange the issue, they had standard processes.' P19

Personal coordination techniques of this type have the following foundations: accessibility and prior personal relations. These on the other hand have to be developed and maintained. (Maybe this is why the sales people tend to be isolated, and it is more difficult to create strong personal relations with them: they spend a lot of time outside the company and are always occupied.) The informal, personal communication forms described in the chapter dealing with the organizational culture of PanTel also clear the ground for this type of coordination and integration.

Accessibility is expressed by the 'open doors' and the large common areas and workplaces described in connection with PanTel's culture. With respect to the creation and maintenance of relationships here are some opportunities:

- 'An important thing is having beer together.' P5
- The relationship-creating role of company parties – besides stress resolution – is acknowledged by many.
- Between interviews and prior to them I had the opportunity to observe another form of informal relationship creation: common cigarette breaks on the corridors or in front of the entrance.
- Supposedly the common past also plays a role in making relationship creation and maintenance easier – as it was referred to in the case of Matáv people. ('They know about each other that they came from the same place, so creating relations is easier, but this does not count that much.' P18)

VIII.9.3. The Interaction of Coordination Forms, Strengths and Weaknesses Regarding Knowledge Integration

As it is clear from the above said that the majority of players place the emphasis on informal coordination (personal coordination and attitudes) in avoiding and resolving conflicts.

Formal coordination does not work in the current situation, at least players do not rely on them. In fact, it seems that exactly in the case of successful projects there are no formal coordination tools at all; roles are not clear for the participants, at least they are not defined explicitly.

One of the extreme examples of this is the view shared by many, according to which successful projects run by themselves: participants almost know nothing about their formal structure:

- 'Although there were excellent [process] descriptions, they did not work.' P6
- 'I would have been the manager, but it went by itself.' P16

A reappearing element of the interviews was that many would like to see more regulations. It is a question of course to what extent does this desire come from rational analysis (the need for more formalisation as the company is getting larger), or the increasing stress caused by constant coordination, or the difficult manageability of uncertainty, or the rejection of handling conflicts openly.

It is interesting when the two types of coordination forms collide, and the parties take a formal tool for an informal one. This is an example of PanTel's culture in motion: players reinterpret a situation that is defined in a different way by the formal structure. There are also examples for this in job descriptions, authority definitions, managerial meetings and reports:

- Jobs and tasks are reinterpreted in everyday cooperation. They do not develop and function according to impersonal, functional and rational principles; but they rather get adjusted and reinterpreted along personal capabilities and knowledge. '(There are no prior defined jobs) tasks are rather defined around individuals.' P8
- Typically there is coordination prior to managerial meetings, which leaves most issues presented in such a way that there are no alternatives or the choice of management decisions gets very limited. According to many, real decisions are not made in these meetings. ('We check through priorities and we play tactics before reporting to managers.' P17, 'Decisions can be passed through the top, ... they accept the proposals.' P10)
- The conciliation between product managers and the finance department: 'People have got accustomed to bargain about plans in Matáv. They play the same here: they present a business

plan that will have to be cut.' (P8) The two parties play different games in this situation: While finance would try to apply a formal tool, product managers fill it with 'informal content'.

There are some advantages of the combination and redefinition of the two types of coordination tools: the solution is more flexible and speedier. However there are some drawbacks too. The players have a different reading of the situation (one follows the formal regulation, while the other has an informal interpretation), and this two-level communication leaves at least one party in stress with an inappropriate amount of information. Disadvantages will be discussed at the end of the subchapter in greater detail.

These cases are excellent examples of how cultural integration works under uncertain situations and reinterprets formal tools and positions.

The work of product managers is another good example of the collision between formal and informal coordination. The product manager himself fulfils a kind of coordinating role in the development process, but it is not indifferent by what means he achieves this. It appears that in PanTel he has to rely on his personal skills and respect; and not on process descriptions or some kind of software. His respect and ability to influence others do not come from his formal authority – this is unknown to many or think it is undefined – but rather it depends on his personal influence, persuasiveness and information excess. (As this case also shows, it is not accidental that the word informal comes from the term information from an etymological point of view.) I have also referred to the fact that they are the best known and most often characterized in person by the others, they are the ones who have the strongest 'individual face' within their respective organizational units. Here are some quotations to underpin the above said:

- 'There should be stronger product management, they should push their will through!' P6
- 'It is not clear what a product manager is expected to be, they don't see their responsibilities.' P7
- [It was typical.] 'The replacement of product managers in the course of the project, they didn't have clear competencies and responsibility.' P12

Heavy reliance on personal coordination of course has its disadvantages and dangers. These do not necessarily appear, but you have to expect them, and relying on the interviews this does actually happen:

- Many complain about the overload and stress coming from unclear authority, large amount of coordination and personal indifferences.

- As it became apparent earlier when we discussed the different types of conflicts personal connections, relations and emotions. If because of some personal or contextual difference personal connections do not work, there is no such mechanism that could replace the missing conflict-resolution-routine.
- Coordination based on personal relations primarily requires personal gifts and skills, so professional expertise and knowledge about the product are not enough to be effective. This question is especially central in the selection of product managers, as under current circumstances these skills are of paramount importance to them.
- After a given size and complexity – were it a development project or the whole organization – the sole reliance on personal tools makes coordination clumsy. Also in the case of PanTel the smaller '+0' project is judged much more successful than the development of PanConnect – a project with many participants and one that lasted long.
- The agreement made might be ambiguous as the perception of the players is different. 'After discussing and issue: What is it exactly that we have agreed in?' P12
- There is the danger that the agreement is a function of the actual power relations and not professional considerations. It is the position and influence of the two parties that is key in the end: 'The actual state of power relations can be seen by the west people have.' P1
- As informal and personal arrangements have such an important role in resolving conflicts there is the danger that cliques and interest groups are formed plus the screwing of the other person begins. According to some this has already started. ('The Dutch are not open for the screwing between Hungarians. The pointing fingers should be cut off – said one of them publicly.' P15 'There are groups and cliques, policy is missing.' P13)
- As it is clear from a previous quotation this form of informal coordination might not be as effective in external relations as it is in internal ones – especially in the case of the mother company.

It is important to add to all this that these kinds of conflict management methods are valid primarily for task conflicts. Contextual conflicts do not surface that often, they remain under the carpet, or transform into political games. (See the reference to 'pointing fingers' in the conflict matrix.)

IX. Answers to the Research Questions and Further Open Points

After having reviewed the empirical results in connection with the topics presented in the thesis proposal the general conclusions follow now that can be drawn from the analysis coupled with some questions that remain open. I will give answers for the research questions, then I will conclude with a comprehensive interpretation frame. When presenting my own results I will aim to compare them to previous literature on the subject.

I set the following questions prior to the empirical research:

- Which typical subcultures appear related to the development process?
- What are the typical cultural clashes in the relationship of subcultures?
- Which characteristics of the development process affect the impact of cultural integration?
- What is the impact of the corporate culture on the development process?
- How are conflicts handled?

IX.1. Which Typical Subcultures Appear Related to the Development Process?

In the research I got answers from two perspectives concerning this question:

- On the one hand the definition cultural dimensions influencing interpretation schemes and subcultures.
- On the other hand the identification of those subcultures and characteristics that play a role in the development process.

IX.1.1. Identification of Cultural Dimensions that Determine Interpretation Schemes

One research question was aimed at identifying and characterizing subcultures that had different interpretation frames in connection with the development process and therefore there was a fair chance of cultural conflicts between them.

To answer the question first I tried to identify cultural dimensions along which the interpretation schemes of different subcultures were distinguishable. The following dimensions had a distinctive effect in the case study:

- Internal or external focus
- Risk taking or risk minimisation
- Short-term or long-term focus
- Expert or task orientation
- Professional or business orientation

It is worth to add a few remarks about these cultural dimensions themselves. The term 'dimension' is a quite general and neutral word, so it is a justifiable question to ask how it relates to such terms as values and beliefs – which play important roles in cultural research tradition.

I think that just as it is with the notion of culture, the dimensions describing it are also complex, which cannot be traced back to one single characteristic. The cultural dimensions described in the research have the following levels, or elements:

- a cognitive level, working as different belief-systems,
- a values level, influencing priorities and goals,
- a perceptual level, influencing attention and having a filtering effect in perception and communication.

The functioning of the three different levels can be described as follows.

These dimensions have a great impact on the parties' cognitive schemes – that is how they think about their role and the development process itself. For *professional culture* the end result of product development is the operating product, and the road leading to it is based on professional expertise, which leads the individual through a well-structured logical process. For *business culture*, on the other hand, it is not the physical product that is the output, but business potential and market share gain, and the road leading to it is a constant optimisation process between different interests and perspectives.

These dimensions are also value-packed. This is because in different decision situations they lead to different priorities for subcultures concerning the final goals or the means of reaching these goals. Deadlines vs. the perfect product; possible revenue today vs. returns of tomorrow; sticking to professional standards vs. opportunism adjusted to local possibilities: these are all decision

situations where different subcultures represent different values (according to their positions along the dimensions) and therefore support different alternatives.

The dimensions also work as perception filters, as they severely influence what information catches the attention of the different parties and how they put together the total picture from the parts. In this process people tend to have different biases. Market cultures e.g. are sensitive to external information, which they tend to overreact. The technical profession-culture focuses more on technological questions and enlarges dangers coming from this perspective.

The different levels of cultural dimensions are linked to each other as a net. This is why I see no point in selecting one of these levels; and it is exactly the cooperation mechanisms of these levels and the impact of cultural schemes on reality construction that I am interested in. This approach can be linked to the view of Berger and Luckman (1988, 107) who define cognitive, normative and value-packed parts of roles in the process of social reality construction. These are built on each other and influence perceptions and reality creation.

Some of the dimensions described above have long stood in the focus of cultural research, while others were not so much the centres of attention. The first three dimensions are classical elements of general culture typologies. In organizational theory literature these perspectives can be traced back to the research of Lawrence and Lorsch (1969) which described organizational subunits along certainty-uncertainty orientation and stable or changing environments. These dimensions (or at least some of them) appeared on the basis of their work in the following models: that of Hofstede (1980), Trompenaars (1995), the Globe approach (House and company 1998) and Competing Values (Quinn 1988). The other two dimensions had less attention dedicated to them. The dimension of professional or business view can be related to Schein's subcultures (1996), however he identifies the business view as that of the top management. In the current case study however this view is valid not only on their level.

Song and Perry (1997) analyze time orientation and the attitude towards risk among the dimensions of the product development process by comparing the orientation of marketing and research experts using the questionnaire method. By using this method they have found longer time orientation and greater acceptance of risk in the case of researchers. The first result is the same to what I have found in the PanTel study, but the latter is exactly the opposite of my findings. Behind the difference might be the fact that in the case of PanTel it is not basic research, but concrete developments that we are talking about when referring to the work of technical experts.

Dougherty (1992) analyzed the time orientation of different players also in connection with product development, but has found statistically significant difference only in the case of the 'planning subculture'. (There was no such subculture identified in this case study.) It is interesting that Dougherty's study compared task orientation with person orientation, which was not interpretable in the PanTel case study. The reason behind this phenomenon could be that PanTel's organizational culture is basically person oriented, so differences between subcultures did not appear in this dimension – or at least they were not identifiable.

Dubinskas (1992) has also proved the difference in time orientation between researchers and managers with a business perspective, saying that the former had a much longer time horizon when planning their actions. My perceptions do not match these findings, which again might be due to the different nature of development – in the case of PanTel we are talking about non-basic research.

After reviewing the literature it appears that not the identification of cultural dimensions is new in the findings, but rather the identification of their role in the product development process. Some dimensions were discussed earlier too, but they were never analyzed together. It has also been presented how these dimensions influence the interpretation schemes of various players, 'laying the bed' for developing conflicts. The discussed cultural dimensions can be generalised to other development situations I believe, which is supported by the fact that there were no unique or special characteristics of the context. (Taking into account of course that we are not talking about basic research in this case.) The characteristics of individual subcultures along the dimensions may naturally vary according to contextual differences.

IX.1.2. Identification and Characterization of Subcultures

In the next step I identified the following subcultures using the dimensions:

- The subculture of technicians ('Profession Culture')
- The subculture of the customer oriented parties ('Market Culture')
- The subculture of the business oriented parties ('Return Culture')
- Complementary players ('Small Labourers' Culture')

I have shown what specific factors characterize subcultures in PanTel. Because of the young age of the organization many players still fall into the subculture of complementary players, however

they are expected to shift their position over time. The following table characterizes the different subcultures:

12.table: Subcultures in the development process: Summary

	Return Culture	Market Culture	Profession Culture	Small Labourers
Members	Product Managers (Top Managers [to some extent]; potentially: Finance)	Sales (potentially: Customer Care)	Technicians (to some extent: the Lawyer)	Invoicing, MIRA, he Lawyer, Customer Care, Finance
Self portrait	The conducting midfielders	The magic forwards delivering goals	Libero, defender serving the others	Secret talents on the bench
Perception of others	Skilful gamblers	Over occupied little star alike	Overloaded geniuses somewhere in the building	Ambitious ballasts
Internal – external focus	Intermediate internal	Strong external (customers)	Intermediate external (suppliers)	Miscellaneous (potentially internal)
Attitude towards risk	Intermediate	Risk taker	Risk avoider	Risk avoider
Time orientation	Intermediate	Shorter	Longer	Intermediate-longer
Professional – task orientation	Task orientation	Task orientation	Professional orientation	Task orientation (some professional)
Professional – business orientation	Business	More business than professional	Professional	Professional

Previous researches have described different subcultures in the product development process – as presented earlier (Dougherty, 1992; Zien-Bucker, 1997; Workman 1992). The subcultures in PanTel cannot be identified with neither of these previous results perfectly. The resemblance is strongest to the findings of Dougherty (1992) who has distinguished ‘market’ and ‘technical’ subcultures – the latter being profession culture in our context. However she has identified the subcultures of producers and that of planners. These cannot be identified in my case study. With Zien and Buckler’s (1997) results there is some overlapping in connection with ‘return culture’, which they apostrophe as ‘marketing’. In their analysis however it is the financial view and rule-orientation that is underlined. The subculture typology identified in the case study is a novel result beyond the presented overlappings.

By taking into account the specific characteristics of the case study generalisation is possible with respect to the following factors. The existence of the four subcultures can be supposed in every development process (that is non-basic research) as they are based on roles, which are typical of

cross-functional teams. It was the 'Small Labourer' culture that had such unique contextual factors, which make it hard to generalise the description of this culture. The young age of the organization, the complementary functions being still in the formation phase, and the strategic focus on putting products on the market (even if they are only semi-finished) puts those players into this category, who under different circumstances would fall into some other subculture. (e.g. lawyer, customer care).

IX.2. What Are the Typical Cultural Clashes in the Relationship of Subcultures?

The operation of cross-functional teams is not perfect. I have presented in the thesis proposal that the cooperation of people of different professional backgrounds and different subcultures is not only a professional question restricted to information exchange. With using the example of Dubinskas (1992) this situation is almost the same, as we would be standing with a tennis racket waiting for our partner to throw a millstone at us from the other side of the court. So it is the same court but the rules are different for the individual players. The possibility of cultural conflicts is encoded in this system.

As said earlier, conflicts are also a precondition of the successful operation of the cross-functional teams, as these have to mold different perspectives and expertise (knowledge) to come up with a successful product. This is the principle of 'requisite variety' – a precondition of an effective innovation process according to Van de Ven (1986).

Based on this, it is not surprising that between the identified subcultures of the analyzed organization there are reappearing and occasional conflicts according to all of the interviewees. (Indeed, as I have pointed out, practically there is no sign of the acknowledgement and praise of the other player's work and contribution.) In the characterization of the conflicts the following typical perspectives can be applied:

- Task vs. contextual conflicts
- Role vs. personal conflicts

Concerning the novelty of the results we can say that previously literature had focused on personal level and task execution type of conflicts. This is because they interpreted conflicts between subcultures as a result of different professional perspectives and interpretation schemes about the

products and the development process itself. (Dougherty 1992, Song-Parry 1997, Dougherty-Hardy 1994, Adler 1995).

In this research I have managed to include contextual and general role-related conflicts into the interpretation frame – so the scope and depth of the analyzed conflicts had been extended.

Two previous studies draw the attention to emotional type of conflicts beyond professional conflicts. Pelled-Eisenhardt-Xin's study (1999) however traces back emotional conflicts on the different time frame of professional experiences, and they found that emotional conflicts were stronger within functional areas than between these areas. Based on the current results of the study this differentiation does not seem to be adequate: according to my experience every kind of conflict – even emotional and task conflicts – have emotional dimensions; and I also found conflicts between areas stronger than conflicts within them. A further difference is that in their research frame emotional conflicts can be identified as interpersonal clashes. My results show that professional and personal conflicts are at the extremes, as they can be interpreted in different dimensions.

My results stand closer to the conclusions of Dubinskas' (1992) ethnographic research, who traces back conflicts on the fact that people in different subcultures think about their work, their self and their identity in different ways. Concerning conflicts, he emphasizes their emotional character. In his research he only aims at presenting the interpretation schemes, but he does not characterize conflicts.

So the following conflict-matrix prepared by comparing the different conflict types can be seen as an individual research result (having reviewed the literature):

14.table: A generalised conflict-matrix

	Task	Contextual
Role	Profession conflict	Prestige conflict
Person	Decision or communication conflict	Political or personal conflict

These types of conflicts make up the space in which conflicts between the different players can be interpreted. Among them conflicts concerning roles are cultural conflicts; however the case study shows that cultural stereotypes have a great impact on the perception of the players, so it is justifiable to speak about the cultural effect in this dimension too.

If we analyze different type of conflicts from the perspective of their negative effects, it can be supposed that contextual type and personal conflicts have a greater impact. This is because conflicts appearing in other dimensions are considered necessary and therefore independent of the other party, while contextual and personal conflicts are perceived as occasional, totally dependent on the other party and they are also hard to influence. This means that the cultural conflicts previously analyzed by the literature are the less serious threat to the success of the development process compared to the type of conflicts, which I have presented.

In the creation of conflicts the following factors play a significant role: the stereotyped perceptions about the others, the overvaluation of one's knowledge and contribution, plus the significant under-evaluation of the same factors concerning the others.

The results of the research also show that conflicts naturally appear in different ways between different subcultures.

The strongest conflicts are between Market and Profession Culture. This can already be forecasted by looking at the characteristics of these two subcultures: they differ in every possible aspect. Besides task conflicts, contextual conflicts also appear, as there is a strong – almost symbolic – fight between these two in connection with industry developments. Who should have the upper hand: should a company operate according to sales or technologic principles? In the organization under analysis these two were in balance, which however is not necessarily so.

I think that the company's intermediate position in the industry's value chain plays an important role in this balance. I believe that in companies which occupy an earlier phase in the value chain technology and Profession Culture play the paramount role. This is the case with Nokia, CISCO, KFKI, which place much greater emphasis on basic research, and where technology is less a 'black box' for the majority of organizational players. On the other end of the value chain – these are the customers of PanTel: mobile service providers – Profession Culture does not get an important role, in fact it is Market Culture that dominates the development process.

But conflicts also appear between other subcultures. Profession Culture and Market Culture often do conflict with each other. Because of their different interpretation schemes technicians accuse the market subculture of professional incompetence, and takes their demand for information as a confirmation of this perception. Meanwhile the other party senses a 'carried away' attitude and insufficient cost-sensitiveness. Contextual type of conflicts also appears between them as the representatives of the Return Culture are seen as players with greater prestige and influence.

Between Market and Return Culture conflicts develop around the attitude towards risk, the time frame of elaboration, and the greater external orientation of Market Culture. Contextual conflicts here again stem from the greater perceived influence of Return Culture.

Small Labourers' Culture stands in contextual conflict with all the other subcultures as it complains about its peripheral role and aims at achieving greater influence. Because of organizational characteristics concerning the other dimensions, task conflicts cannot be described appropriately. This is because several groups with different characteristics have fallen into this category, which otherwise would belong somewhere else.

The majority of conflicts described here – those appearing in the task dimension – seem to be independent of the organizational context and generally valid. Contextual conflicts of course appear in organization-specific ways, it is only the fact of their existence that can be general, not their specific characteristics.

IX.3. Which characteristics of the development process affect the impact of cultural integration?

The development of conflicts and the way they are managed are influenced by other contextual factors as well. The next research question focused on detecting which of these factors were significant in the development processes. The three analyzed projects had different characteristics, so I had the opportunity to analyze the effect of these on the development processes and the cultural conflicts that appeared during the processes. The following factors could be identified:

- The novelty of the product or the applied technology
- The complexity of the product (how many and what type of services does it contain, how many different technologies are built-in it)
- The complexity of the process (the number of participating individuals and organizational units)
- The tightness of deadlines
- The weigh and importance of the task for the organization

These contextual factors influence the motivation, perception and interpretation schemes of the players, through which they also have an impact on the frequency and intensity of developing

conflicts plus the way these conflicts can be solved. These factors are all well-known to the literature of innovation. Among them it was particularly the novelty of technology that received special attention; example is the differentiation between architectural and incremental innovation according to the level of novelty and complexity (Henderson-Clark 1990, Wolfe 1994, Tushman-Andersen-O'Reilly 1997).

In 'cross-functional team' literature the influence and independence of the group's leader is a major influencing factor. (Clark-Wheelwright 1992) The case study however did not allow the analysis of this factor.

The biggest merit of the current study can be that it analyzed the impact of the characteristics of the process on the interpretation frames. This is how the paradox effect of tight deadlines can be identified. On one hand the tightness of deadlines increases perceived stress, making the appearance of conflicts more likely. A typical example is when people are waiting for Profession Culture. On the other hand tight deadlines also increase the challenge of tasks and through it the motivation of participants, which in turn leads to the easing of conflicts and their swifter resolution.

Therefore I do not think that there exists a model in which different contextual factors would be linked to the conflicts of the development process and its success by a function. This is because the relationship is established through the perception and interpretation schemes of the participants, which are influenced by individual and cultural characteristics. It would be difficult to find a general law for these interpretations, these operate according to the unique characteristics of the given context.

Besides the above factors, personal characteristics of participants and their previous experiences are also influential – but these were not in the focus of the current study.

IX.4. What is the impact of the corporate culture on the development process?

One of my hypotheses is that the development process is influenced by cultural factors not only through subcultures, but the cultural characteristics of the organization itself. I found the following results about this:

- The relatively young organizational culture, which is still in the development phase, leaves greater room for the influence of subcultures and personal differences.

- By analysing co-operation and communication it appears that the values of culture and the personal characteristics of the players push everyday operations into a more informal, personal dimension.
- The declared values of organizational members (customer orientation, speed, flexibility, quality) are supportive of the innovative capabilities of the organization.
- Besides the supportive and integrative effects conflicts also appear because of the characteristics of culture: group orientation – personal performance, quality – speed.

There are only a few empirical results about the influence of organizational culture on the product development process. According to a recent literature-review (Verona 1999) there are no empirical results about the internal integrating effect of culture. According to the theoretical line presented in the thesis organizational culture does have an influence on the success of development through the critical step of knowledge integration.

The majority of the literature aims at characterizing innovative culture, further exploring the question stated by Burns and Stalker (1966), that is how the different culture of innovation can be integrated into the logic of operations. As previously presented Van de Ven (1986) draws the attention to values as a major influencing factor of the organization's context.

Research on the topic (Amabile 1988, O'Reily-Tushman 1997, Zien-Buckler 1997) have identified such innovation supportive values, which are among the declared values of the current organization: speed, teamwork, open information flow. The adjustment of innovation activities to organizational operations did not cause any difficulties in the analyzed organization as in this case the two type of cultures do not stand far from each other. Of course the value conflicts detected within organizational culture also appear in the development process. The declared values of organizational members, which are in conflict with each other surface in the form of subcultural conflicts.

The other impact of organizational culture can be traced in the way conflicts are handled. It is informality and reliance on personal relations that enjoy priority here. The cultural impact appears in the reinterpretation of formal integrative mechanism (jobs, meetings and reports). In the case of PanTel, organizational culture determines the co-operation of participants in the development process through informal operation, and by this the method of their knowledge integration – as it will be presented in the next subchapter.

IX.5. How are conflicts handled?

Players apply formal and informal mechanisms to handle conflicts in the organization. In the analyzed case study formal tools – such as meetings, report and process descriptions – got only little attention, most of the players did not even mention them. Typically managers and people fulfilling managerial roles are the ones who mention these tools. They are officially responsible for operating these tools, so they have to believe in them already from their positions.

The rest of the players, even those who mention formal tools, place much greater emphasis on informal ones. These informal tools fit well into PanTel's organizational culture, and run the co-operation of the different parties on the basis of values and norms. Personal adjustments and the pressuring of other parties are on one hand attitude and enthusiasm, while on the other hand they are also the most important forms of conflict resolution.

The organizational culture that supports informality is demonstrated by the fact that formal tools are also re-interpreted as informal by the various players:

- Reports transforms into “plan bargaining”
- The ‘pre-play’ of managerial meetings by prior co-ordination
- Product managerial influence depends on personal convincing capabilities plus information surplus, and not on formal rights.

The product managers' role is especially interesting from the perspective of knowledge management. During the cultural description of this role it appeared that this is less professional knowledge, rather it is characterized by strong task orientation and great emphasis is placed on collecting information and flowing it through. So it is primarily this role in the organization which integrates the separate databases. Knowledge related to roles do not fall into the category of functional (professional type) of knowledge, but rather into integrative knowledge (one that organises and operates the system). Within these categories in the case of PanTel greater emphasis is placed on informal, cultural type of knowledge instead of formal integration. This informal co-ordination based on norms is decisive in the case of other players as well, this is what integrates the different type of expert knowledge in the course of product development.

This is why the integrative role of organizational culture has such a big influence on a development process that causes great time pressure and comes with major uncertainties in the analyzed organization.

Informal conflict resolution also has costs for the organization, which come more and more to the forefront with the growth of the organization and with the development process becoming more and more complex, these problems include: increased stress, ambiguous agreements, personal conflicts. In addition not all of the players possess the skills necessary to operate such informal conflict resolution techniques.

Based on this it is not surprising that people value those projects the least successful – both from the perspective of the product and the perspective of co-operation, which had the highest level of complexity in the team and in the product, plus also came with the highest level of novelty. In development teams with less complexity, novelty and fewer participants informal co-ordination was more successful.

Informal conflict resolution techniques are not really suitable for managing contextual conflicts either. At least in the case of the analyzed organization such conflicts remain latent or end up in political games.

Literature's previous results focused on the impact of formal tools (Adler 1995; Wolfe 1994). This is why greater emphasis was placed on rational planning and communication methods (Brown-Eisenhardt 1995), on the managers' role (Day 1994) and on the composition of the development team (Brown-Eisenhardt 1995, Ancona-Caldwell 1997).

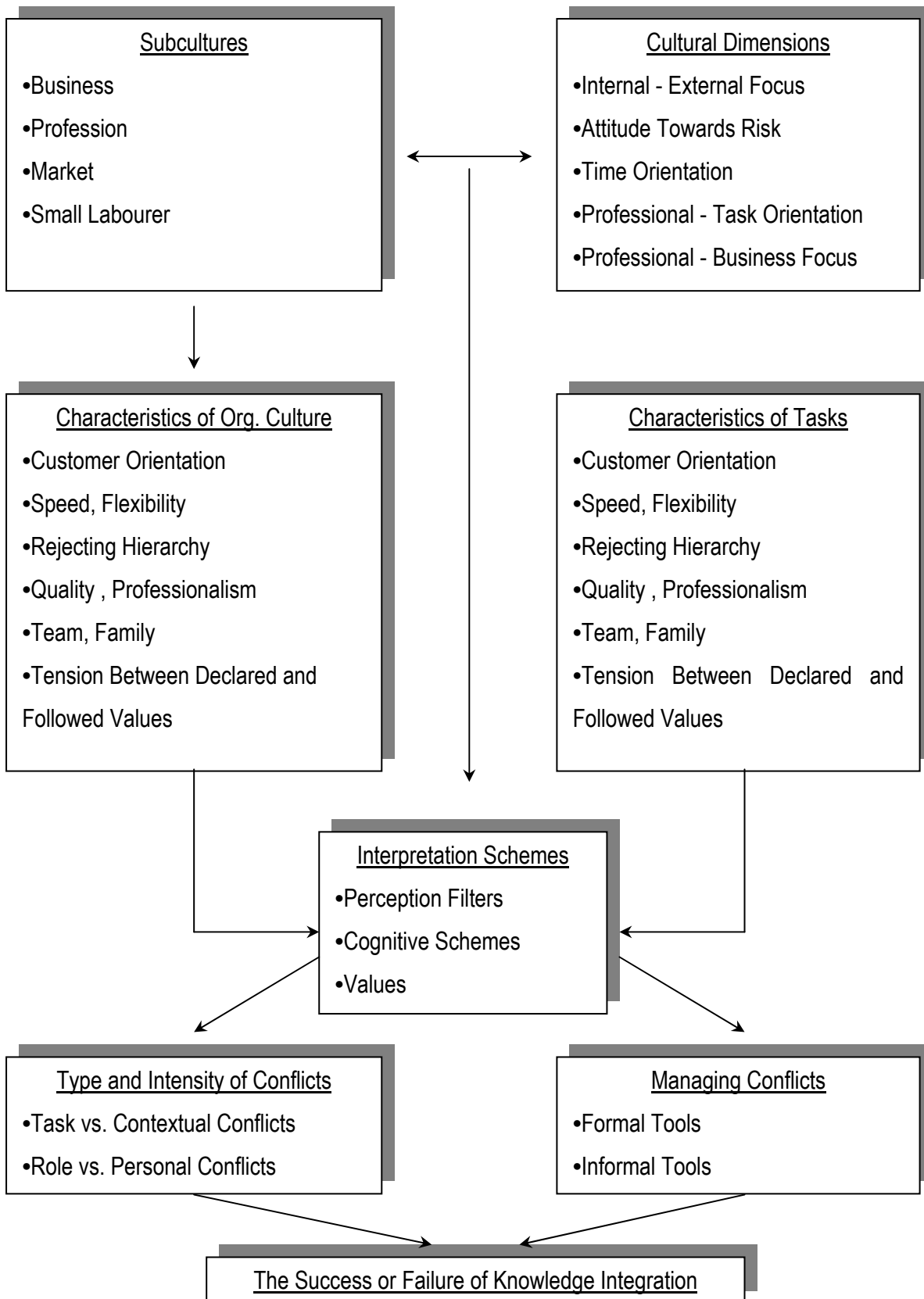
The findings of the case study on the other hand underpin the theoretical conclusions of O'Reilly and Tushman (1997), who presume that in development processes informal co-ordination based on norms plays an important role.

The results are difficult to generalise because of the relatively young age of the organization and its small size: these factors push the organization in the direction of informal operation – independent of the innovation process. Today, it is not only product development where cultural co-ordination plays a paramount role in PanTel. However it was also supported by the opinion of interviewees that work within functions is influenced more and more by formal and explicit knowledge integration mechanisms, as opposed to the field of co-operation between different functions where informal elements dominate – and product development is one such process.

IX.6. The Interpretation Frame of Conflicts Between Different Subcultures

After answering the questions on the given level the following interpretation frame summarises the relationship between subcultures and their relation to organizational culture.

The figure shows the connections between the factors discussed in the research. The arrows show the direction of impacts. Supposedly other factors also influence the development and resolution of conflicts (e.g. structural factors, financial background, personal characteristics of players), these however were not in the scope of the current research, therefore they are not included on the figure.



IX.7. Open Questions in Relation with the Interpretation Scheme

Every research leaves several questions unanswered and raises new ones – this research is no exception. I conclude the study by taking account of these:

- Concerning the cultural dimensions that differentiate subcultures it is still not clear what the weight and interaction between these dimensions exactly is. Based on what has been described it is highly likely that they are not independent (e.g. concerning time orientation and attitude towards risk), of course it is also possible that some deeper, more decisive factors are in the background.
- A further question could be: What type of conflicts and how intensive conflicts are caused by the various dimensions? Based on the experiences from the case study the further two subcultures stand from each other along a given dimension in terms of their interpretation schemes the greater the conflict between them becomes. A related question: Differences in which dimensions are critical in the development of conflicts? In the case study differences along professional and task orientation, and differences along the professional – business dimension are the most intensive and cause the deepest conflicts.
- By taking into account the characteristics of the organization a further hypothesis could be formulated: a company's position in the industry's value chain influences the relationship between subcultures. In the first steps of the value chain organizations are more technology intensive, while in the finishing steps more and more emphasis is placed on the sales and marketing functions.
- The interaction of different kind of conflicts, and their impact on the success of the development process. Supposedly contextual and personal types of conflicts are more intensive and have a stronger negative effect than task and role conflicts do.
- Based on my observations at the company, and to some extent on the interviews, the physical distance between the players also influences the development and resolution of conflicts. Behind this is the fact that this factor severely influences the possibility of establishing personal relations, which has a major impact on co-operation because of the dominant informal culture of the company.

IX.8. Closure

My work in this study contributes to the theoretical understanding of the topic in the following ways:

By overviewing and summarising previous literature:

- The summary and interpretation of the theoretical and methodological problems of organizational culture-research.
- The presentation of the connecting points between the theory of organizational culture and managerial practice, plus the discussion of their practical relevance.
- Linking organizational culture to competitiveness in the frame of resource and knowledge based organizational theory.
- Presenting the role of organizational culture in knowledge integration.
- Grasping the question of knowledge integration in the practice of product development.

Empirical research on the basis on the methodology of 'grounded theory'

- The identification and characterization of subcultures involved in product development.
- The grasping and description of subcultures that differentiate subcultures from each other.
- The description and comparison of conflicts appearing in the product development process, the development of a novel conflict typology.
- Presenting which characteristics of the development process influence the development and management of conflicts the most.
- Presenting how organizational culture influences the development and management of conflicts, and as a result of this knowledge integration in product development – a strategically important activity for the company.

X. REFERENCES

The full name of journals in abbreviated form:

AME: Academy of Management Executive

AMJ: Academy of Management Journal

AMR: Academy of Management Review

ASQ: Administrative Science Quarterly

JOMS: Journal of Management Studies

SMJ: Strategic Management Journal

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