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2004-06-07

Team motivation

- A model for understanding the motivational factors of a team -

Abstract

The concept of team motivation is highly affecting the performance of the teams in organizations today. A team that is motivated is creative and has a high level of performance, which makes an investigation to understand the concept of motivation in a team relevant and interesting. This research concerns what factors affect team motivation and also how motivation is different between individuals and teams. To provide a basis for the thesis a deductive approach was used. Theories of teams and motivation were studied and out of these theories a model was created which contained five different types of motivational factors for a team. The empirical material was gathered through interviews with team members and team leaders at the research area. The material was then interpreted according to the created model and the conclusion that was drawn was that team motivation is affected from many different directions and that the different factors complement each other in creating team motivation.

Keywords: team, motivation, motivational factors, commitment

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Master Thesis, 20 p

Acknowledgements

We want to thank our supervisor Ph.D. Thanos Magoulas for all the help and sharing of knowledge he has provided us with during the work of this master thesis. We also would like to thank supporting supervisor Joakim Svårdström for his devotion and support. As the research was conducted at Volvo IT, we would like to thank our contacts Susanne Berglund and Roland Björk for their contribution with time and information and for sharing their experiences with us. Of course, the respondents of the interviews deserve a thank you for their time and effort as well. Finally, we would like to thank the people around us who have given us inspiration and encouragement.

Emma Persson & Susanne Åhrman

Gothenburg, June 7, 2004

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1 Introduction

Since information technology (IT) has emerged it has changed from focusing on computer systems only as a means for making simple calculations to the use of systems for strategic purposes (Dickson & DeSanctis, 2001). Today, IT is not only a part of an organization; it is part of developing and evolving the organization and its strategies. According to the new focus of IT, it is important to emphasize that IT is not only hardware; it is also the knowledge, the “know-how”, of the development of computer systems and not necessarily the computer itself¹. A system is, according to Langefors (1993), a collection of entities that has relations between them. According to this a team can be seen as an information system since it is a collection of people with internal relations that are working together. Organizations today focus on perfecting the project team instead of perfecting the systems design in order to be successful (Dickson & DeSanctis, 2001). Also a change in management has been made towards the attitude of the IT department when managing IT was “do it our way”; the users should be content with the system the IT department provided them with. The new approach requires an attitude shift towards “do it their way”. In other words, find out what the customer needs and try to fulfill that need.

The new approach to leadership emphasizes that everyone that is working on a project must be able to conduct leadership when needed. This requires a different kind of team member than before, since team members today need to be able to manage themselves, not just do what the manager tells them to do. Another qualification of a team member of today is to possess relationship management skills, as well as the previous information management skills. One of the perhaps most important aspects of teamwork is that of communication. Originally communication was concerned with managing expectations of users, ensuring that users don't misunderstand or expect too much from the system. The purpose of communication today is that team members desire authentic, updated information about the project status. Team members must seek and provide the utmost clarity of information about the organizational activities (Dickson & DeSanctis, 2001). The motivational aspect is highly involved in the process of obtaining information. According to earlier research motivation is the basis in human infology² and systems infology. An individual has to be motivated to be able to absorb the information in an interpretation process (Langefors, 1993). When an individual is more motivated in an interpretation process the individual will receive more knowledge, which in the end will result in a better ability to evolve themselves.

¹ T. Magoulas, personal communication, May 17, 2004.

² Infology, science of presentation and monitoring of visual information. The subject is interdisciplinary and contains elements from many distinct subject areas; computer science, esthetic, graphic design and informatics. Infology comprises studies of different ways of representing and transferring information to gain an optimal communication. (Nationalencyklopedin, 1989).

1.1 Background

We began working on this thesis by contacting a division manager at Volvo Information Technology (IT) in Tuve, Gothenburg. Volvo IT is an affiliate of the Volvo Group and has 4000 employees in Sweden of which 3000 are working in Gothenburg. Volvo IT provides industrial companies worldwide with systems and solutions in the IT application area. Besides infrastructure, applications and operations the company also supplies customers with consulting services, training and support. Its main customers are the Volvo Group and the Volvo Car Corporation.

Department 9116 in Tuve is a division of Volvo IT and supplies Volvo Truck Corporation and selected customers with IT solutions. The 9116 organization is team based and each team owns a portfolio related to their service categories. The department is divided into seven teams of four to six team members, which are supervised by a division manager. Five of the teams work with the administration of computer systems; this includes *maintenance*, *support*, *enhancement* and *application operations*. The division manager presented to us an earlier paper made for the department (Claesson & Pettersson, 2002). The paper contained the first component in a model of human learning, and they wanted us to develop the following component in the model. This part deals with the action of an individual. The action is important when working together in a team. It is important because of the need for new ideas and creativity in order to achieve a better cooperation in the teams. We have chosen to conduct our investigation on those five teams working with administration of computer systems. Each team contains a team leader and a number of team members who handle a specific part of the department's system portfolio.

The division manager has noticed that there is sometimes a need to stimulate the creativity and cooperation in the different teams. Although the department has a high level of efficiency they want to avoid that the daily work develops into a routine manner, that the creativity decreases and that the team members lose their motivation to evolve themselves. They want to encourage further cooperation between the different team members and make their mutual knowledge, added together, increase in an exponential manner and become larger than the sum of the parts put together. They have also noticed that relational problems sometimes occur within the teams, which prevents the team's development. All together this makes them question how they can overcome these problems and stimulate the creativity that doesn't come naturally and how they can keep the motivation in the teams over the long haul.

1.2 Problem area

During the years research has been done about how to describe what characteristics that are related to team motivation (Grazier, 2004). The characteristics that were considered as strongest in their possibility to sustain team motivation were; team members that are aligned with the team's purpose, that feel a challenge in their task, have a high sense of camaraderie, feel responsibility for the outcome, and personal experience growth as a team and in their lives. There are also different theories of what factors that motivate employees in work, as well as what needs that must be satisfied in order for them to be able to work efficiently (Mabon, 1992; Herzberg, 1993; Kaufmann, 1998; Boddy, Boonstra & Kennedy, 2002). Since these motivational factors only concern the individual it is therefore also interesting to investigate how these factors are related to teamwork, and how they can stimulate motivation in a group of individuals. Motivation is an important condition for teamwork and the way that the motivational factors influence differ between individuals and team members (Grazier, 2004).

1.3 Aim of the thesis and problem definition

The aim of this thesis is to obtain an understanding of the concept of motivation and through an investigation get to know what factors that can stimulate and affect the motivation in a team. This is done to see how creativity can be generated and maintained among team members. It is also interesting to see which distinctions that exist between individual motivation and the motivation of individuals within a team. This has lead us to the following research questions:

What factors affect team motivation?

How does motivation differ between individuals and individuals within a team?

The study includes both theoretical and empirical perspectives according to these aspects. To be able to answer our research questions we will create a model derived from our theoretical studies. We will use this model to examine how its contents can be applied to a current reality of teamwork.

1.4 Delimitation

This thesis is delimited to only give an inventory of the critical factors that can affect the motivation of a team. Recommendations for how these critical factors are to be used is out of scope for this Master's thesis.

1.5 Thesis disposition

This Master's Thesis has the following disposition:

Chapter 2, *Methodology*, describes different methodologies and contains our approach, which gives an overview of how our study was performed.

Chapter 3, *Theoretical views*, covers the theories that address the problem of this thesis. It starts with the section of team organization and definition of the team concept. The section is followed by the motivation theories and theories of information and knowledge.

Chapter 4, *Presentation of the model*, covers a presentation and explanation of our own created model of team motivation, followed by the motivational factors that constitute the relations in the model. Further the questions are derived from the model and presented in sections according to the different motivational factors.

Chapter 5, *Empirical views*, includes the result of the empirical findings and the comments that were made during the interviews.

Chapter 6, *Interpretation and evaluation*, covers the analysis of the result based on the empirical findings of the previous chapter.

Chapter 7, *Conclusions*, is where the conclusions are drawn and the problem definition is answered.

Chapter 8, *References*, presents the literature that was studied in order to establish a basis for the theoretical study during the work of this thesis.

2 Methodology

This chapter begins with a description of different philosophies and approaches that influence research. The following section contains a presentation of our approach.

2.1 Research philosophies

There are two opposite definitions of research philosophies. These different philosophies influence the way that the research is being conducted during an investigation. They are referred to as *positivism* and *phenomenology* (Easterby-Smith et al., 1991). The positivistic paradigm sees the world as external and that its properties should be measured through objective methods. It requires an independent observer for the science to become value-free. When following this approach the researcher focuses on facts, formulates hypotheses and tests them on the environment. It is common within natural science and certain social studies (Ranerup, 2003).

The phenomenological paradigm sees the world as socially constructed and subjective (Easterby-Smith et al., 1991). The observer is part of what is observed and because of that the researcher's own values affect the research, the science is driven by the human. The researcher also focuses on meaning and tries to understand what is happening. It is also important to look at the totality of each situation to reach an understanding about it.

2.1.1 Research approaches

According to theory of science and research there are two different approaches to seek knowledge. These approaches are induction and deduction (Easterby-Smith et al., 1991). The deductive approach is established from general principles and theories. Conclusions about individual phenomenon are drawn from these principles and theories. Consequently, assumptions are formed from a theory, which are statements about reality that can be tested. Then through logical conclusions a result is achieved. A positivistic perspective of research and forming of knowledge often apply a deductive approach. The researcher creates hypothesis about causality from theory. Then the hypothesis are confirmed or falsified. The researcher follows the way of evidence supported by theories. The deductive approach is usually applied in quantitative methods.

The inductive approach starts out from individual cases and concludes to a principle or a general law. Consequently from the empirical findings the theory is created. A phenomenological perspective on research frequently applies an inductive approach. In this perspective a more practical research is performed without previous theories and hypothesis. The researcher takes a way of exploring. The significance of different phenomena is wanted and the researcher attempts to describe and interpret these phenomena from the collected material that is analyzed and encoded. From the encoded material the researcher can create a pattern. Afterwards different hypothesis are formed and the choice of theory is made. Qualitative methods of collecting data are usually applied when work is performed from this angle of approach (Ranerup, 2003).

2.1.2 A quantitative or qualitative approach

A researcher can choose from two different approaches when conducting a research. The choice is regarding in what manner the collection of data is to be performed and also how that data should be analyzed. Which one of the two depends on the kind of result wanted. A *qualitative approach* to research can be described as a collection of interpretive techniques, which seek to describe, decode, translate and try to find the meaning of occurring situations in the world in which the research takes place (Easterby-Smith et al., 1991). A qualitative research can describe new qualities of the reality that was not known before. When using qualitative methods researchers try to gather rich information from a small part of the world investigated. This leads to a research with more depth, which can present a more unique and distinctive result.

The *quantitative approach* is more concerned with gathering data that can be turned into numbers, which in turn can be used in, for example, statistics (Easterby-Smith et al., 1991). When using a quantitative approach the different outcomes that the investigation can lead to are often decided in advance. This approach is the more simple of the two since it needs much less resources to present a result. This is because practitioners of the quantitative approach focus on gathering small amounts of information from a large amount of investigation units, which means more information but information that is easier to interpret and bring to some kind of result. This method leads to that more general and representative conclusions can be drawn from a research since a higher amount of used information can increase the reliability.

When choosing a qualitative research method there are several techniques available to collect the material needed. The most fundamental of all qualitative methods is the interview (Easterby-Smith et al., 1991). There are different kinds of interviews, for example structured questionnaire through interview, semi-structured interview with developed, open questions or interview with a few open questions. The choice of which technique to use is dependent on the selected research question. It is also important to consider the different benefits and disadvantages that each technique has and connect that to the research question and the desired result. Using interview as a collective method can be rewarding but is also very demanding in terms of amount of work. There can lie great difficulty in deciding how many interviews to do or which selection that is best suited for the investigation, among other things. This type of method is chosen when the researcher is not after numbers and statistics, but the individuals own words and interpretations. If the goal is to be able to draw general conclusions from the material collected, a quantitative approach is to be preferred.

Another form of a qualitative collection method is that of observation (Easterby-Smith et al., 1991). Observation is to study what people do instead of what they say they do. The researcher can during an observation take on different roles in order to reach different kinds of result. The different roles are complete participant, participant as observer, observer as participant and complete observer, reaching from the point where the researcher is completely honest and upfront with what they are doing to the point where the researcher maybe is not even known to the people investigated. Observation is a mean to reach a detailed understanding of values, motives and ways of working in the studied area, independently of what role the researcher takes.

When conducting a quantitative data collection a researcher can choose from almost the same methods as when taking a qualitative approach, i.e. interviews, questionnaires and observations (Easterby-Smith et al., 1991). The difference lies in that the researcher is after more general tendencies from a larger research community, and therefore is not interested in people's individual interpretations. Interviews are mostly used for market researches and opinion polls when taking this approach. They are highly structured and not much room is given for answering outside the question form that is often used. This is a more controlling form of interview since the interviewer has a few alternative answers that he or she can lead the person interviewed into. Observation can be used also as a quantitative method if it is standardized and made more systematic. This is done by classifying the nature of an activity in each observation. This leads to that the researcher is able to measure the frequencies of each category and be able to calculate a percentage of all observed activities. Questionnaires are used if the purpose is to investigate a defined group of people's view of a well-defined phenomenon. The data collected can be worked at statistically. This is an effective way to avoid that the material is colored by the interviewers subjective opinions, which can be a problem in qualitative research. On the other hand it can also have a negative side to it since questionnaires only give room for a limited view of peoples opinions since only a few answer alternatives are given and no further elaborated answers can be added.

2.1.3 Validity and reliability

According to Easterby-Smith et al. (1997), conceptions such as validity and reliability were originally used in quantitative science. In this approach there are a number of different methods to assess both. But these methods can be difficult to apply within qualitative research, since the hermeneutic philosophy does not have a perspective of the world as absolute and objective. The two conceptions are used to discuss the trustworthiness of the research that is implemented and of the result that is obtained. It is of importance to emphasize these elements when an investigation has been performed since it shows an awareness of possible deficiencies of a study. However, Easterby-Smith et al. (1997) imply that the concepts can be applied in qualitative research, provided that the researcher is committed to providing a faithful description of others' understandings and perceptions. To determine validity in a qualitative study they suggest the question: "*Has the researcher gained full access to the knowledge and meanings of informants?*" The corresponding question for reliability is: "*Will similar observations be made by different researchers on different occasions?*"

The conception of validity involves that the researcher only measures that of current interest aimed at the study (Easterby-Smith et al., 1991). It involves using the correct instrument at the accurate occasion. In other words, to assure that it is the relevant information that is measured.

Reliability involves how reliable the values from the empirical findings are and how statistically significant the methods of measurement are in the investigation. High reliability does not guarantee a high validity. A researcher can admittedly have reliable methods of measurement but this does not necessarily have to elicit an interesting result. However, high reliability requires high validity since a valuable result of an investigation requires well measuring (Ranerup, 2003). In quantitative studies reliability can be estimated in numbers. This cannot be done in the same way in qualitative studies. For example, a research that has a low number of participants in a quantitative study has a low reliability. A study with the same number of participants but that is conducted with a qualitative approach will have a higher reliability. When performing qualitative studies a researcher has to concentrate on other factors such as explicit descriptions of the collection of data, sample, measuring the quality of the researcher and so on (Ranerup, 2003).

When creating a model from chosen theories the model is then tested against a chosen reality. If the empirical result from the investigation is not consistent with the model it does not mean that the model is incorrect. The researcher has to consider that the research has been conducted in the wrong environment and that further investigations have to be done. For the model to gain validity the investigation has to be conducted on a different environment. Instead, if the empirical material from the investigation is consistent with the reality there should be a recommendation for further, even more detailed investigations. (Hedberg & Jönsson, 1978).

2.2 Our approach

When conducting our research we have followed the phenomenological paradigm since we made interpretations from our theoretical and empirical material and tried to get an understanding of what is happening. A deductive approach was used since we thought it best to base our investigation on existing theories to draw our conclusions from. Our study started by assembling theories from selected literature and articles to serve as a basis for our thesis. The literature was partly recommended to us by our supervisor and partly found by searching the Internet and library for material regarding the relevant issues. Based on our selected theories we then created a model where different motivational factors in the relations in the model were derived, and linked to our theories. From these motivational factors we based each question for the empirical study. Since the questions were derived from the model we were assured that our questions were based on the theories, which is of importance for the possibility in connecting the theoretical and the empirical parts of our thesis. The questions were then applied to a questionnaire that was used in the interviews performed in the department at Volvo IT that serve as our empirical material.

The interviews were conducted at the department and the time of an interview was approximately 30 minutes. This first part of the interviews only contained the previously mentioned questionnaire and can therefore be called structured interviews. When this part of the interviews was done, the respondent was given a chance to further elaborate their opinions about the issue at hand. This second part gave a more open approach to the interviews and since it was depending on the willingness of elaboration of the respondents, the time taken varied from 5 to 30 minutes. A motivation of conducting the interviews at the department, in an environment known to the respondents, was that the respondents would be comfortable. The environment was not neutral but it was secure to them. A tape-recorder was not used during the interviews, instead the comments and responds to the open part of the interviews were written down by hand. To a certain extent our research had a quantitative approach, since our interviews was structured somewhat as a questionnaire. Still, during the interviews we gave room for further elaborated answers and we also had an open question in the end of the questionnaire. We did not give out the interviews as questionnaires but since we were present we were able to explain the questions further if the respondents found something unclear about it. We think that this gave the study more of a qualitative approach, which was done intentionally. We wanted to be able to reach further than merely a general result and see the importance of gaining the individuals own interpretations and hearing their own words on their reality.

Since we have chosen to conduct our investigation in the five teams that are working with administration of computer systems at the department, the respondents involved in the interviews are all members of these five distinct teams in the department. Ten respondents were chosen from the teams according to their position and the time of working experience that they have at the department. This since team members with a long experience are more likely to have further opinions on the issue. Four of the respondents are team leaders and the other six are team members. This somewhat uneven distribution of respondents is explained by the fact that there was no team leader in one of the five available teams during the time of the interviews. The choice of having both team leaders and team members interviewed is to get different perspectives from the distinct positions involved in the teams. Before the interviews each of the respondents was informed that they were anonymous in the investigation to make them feel secure and comfortable in their situation.

When all ten interviews were finished we gathered the material from the respondents to an assemblage of the questions to be analyzed. The empirical material was analyzed in a phenomenological manner since it was interpreted from the different motivational factors that are linked to the theories. As we also had complementary comments from the respondents these were analyzed together with the questions. The conclusions were then drawn from there. During the work of this thesis the guidelines of Backman (1998) has been followed.

Since we have conducted only ten interviews our study seen from a quantitative approach has a low reliability. But because of that our investigation is done partially through a qualitative approach, the reliability can be considered quite high even though there are a low number of participants. The detailed description of the method used to collect data and how the investigation has been performed further increases the reliability of the study. An even higher reliability could be gained by conducting an investigation that includes a larger amount of participants; our study can then be used as a suggestion of how it can be performed if it would be performed elsewhere, but with a more quantitative approach. Moreover, our study has a strong validity. The theoretical validity explains the different motivational factors that are included in the model. Further each question has been derived from the motivational factors, which ensure the validity. The result of the investigation cannot be seen as the truth, it is only an interpretation of the reality. The recommendations also have to be further developed to ensure that the model is correct.

3 Theoretical views

This chapter presents the theoretical views that address the problem area of this thesis. The theories are also used as a basis for our model in the next chapter. The different selected theories are presented in three distinct sections according to their respective area concerning the aspect of team motivation. The chapter has the following disposition of the theories:

- Team organizational theories
- Motivation theories
- Information and knowledge

3.1 A team organization

Groups or teams perform a great deal of the work in organizations today. When these working units cooperate well the individuals' performance is enhanced to unexpected levels. Even though working life to a larger extent is built on teamwork, there is often a lack in knowledge of what makes teamwork sometimes perform well and sometimes not. Most leaders of higher divisions encourage teamwork, and this they do with all right (Bolman & Deal, 1997). According to Katzenbach & Smith (1993), within teams, there is nothing more important than each team member's commitment to a common purpose and set of linked performance goals for which the group holds itself jointly accountable. Teamwork represents a set of values that encourage behaviours such as listening and constructively responding to ideas expressed by other people. The values also encourage in giving others the benefit of the doubt, providing support to those who need it, recognizing the interests and appreciating achievements of others. Katzenbach & Smith (1993) claim that values of this kind increase both the individuals' and the team's level of performance which then increase the quality of work in the organization. Teams are the key to enhance quality of performance in all kinds of organizations.

3.1.1 Definition team

Katzenbach & Smith (1993) has developed a definition of team as follows:

"A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable"(Katzenbach & Smith 1993, p. 45)

If a group cannot have mutual accountability as a team it can never develop into a team. When considering the subtle, but essential difference between the two expressions “the manager holds me accountable” and “we hold ourselves accountable”, it shows the importance of this factor. Mutual accountability in a team involves the promises team members give themselves and the promises they give each other. It is promises that emphasize two critical aspects: commitment and confidence. A team that has a mutual purpose and approach will always be accountable both as individuals and as a group. In groups where reciprocal accountability is missing, a general purpose and approach has not been formed. If these were formed they would be able to merge the individuals that are accountable into a team. Not all groups are teams and the difference between groups and teams is shown below in Table 1 (Katzenbach & Smith, 1993).

Table 1 *Differences between a group and a team (Katzenbach & Smith, 1993)*

Working Group	Team
Strong, clearly focused leader	Shared leadership roles
Individual accountability	Individual and mutual accountability
The group's purpose is the same as the broader organizational mission	Specific team purpose that the team itself delivers
Individual work-products	Collective work-products
Runs efficient meetings	Encourages open-ended discussion and active problem-solving meetings
Measures its effectiveness indirectly by its influence on others	Measures performance directly by assessing collective work-products
Discusses, decides, and delegates	Discusses, decides, and does real work together

Performance results, collective work products and personal growth are things that emerge from teamwork. The team basics, commitment, skills and accountability, which are required in a team, are highlighted in the model in Figure 1. The centre and the sides of the triangle signify the different elements of discipline that contribute to the results of teamwork.

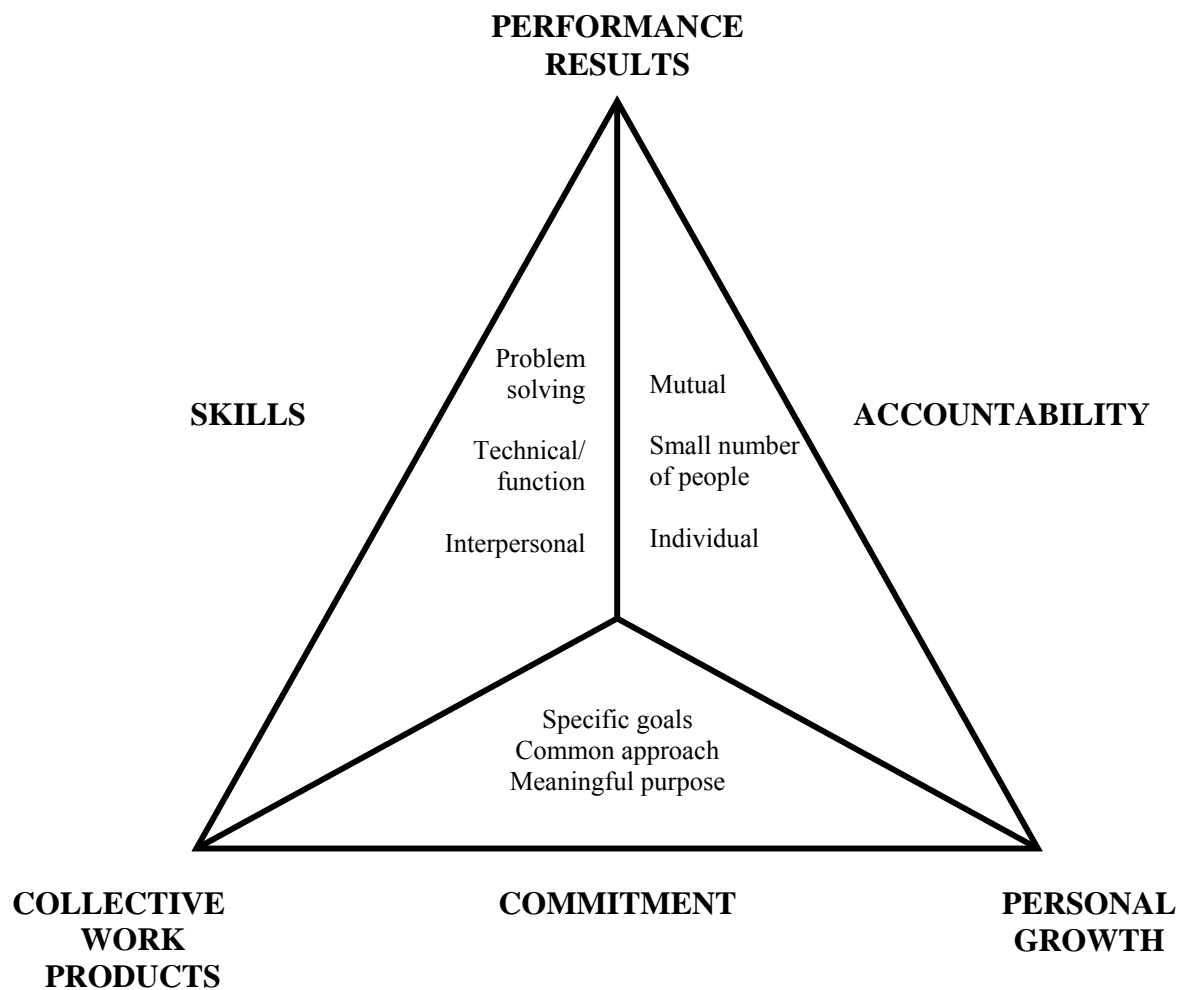


Figure 1 *Focusing on team basics (Katzenbach & Smith, 1993, p. 8)*

A team consists of few members, between two to twenty-five, which has a natural and a practical explanation. In practice, there are theoretically possibilities for a group of more than 30 members to become a team. But generally this size of a group is divided into smaller units. A large amount of people has difficulties to communicate in a constructive manner and to handle conflicts in the group that eventually will occur. Practical difficulties are also a problem when planning time and place for meetings. A small group has a better potential through its qualifications in developing into a high-performance team. However, the amount of members is not the only factor that matters if the team will be successful or not and the size varies because of different aspects. There are five aspects of teams that are absolute necessities: meaningful purpose, specific performance goals, common approach, complementary skills and mutual accountability (Katzenbach & Smith, 1993).

3.1.2 Different aspects of a team

The primary and most time consuming issue for the team is to form a mutual meaningful purpose and to set up performance goals that is to be attained. This will facilitate the development of the team's identity and commitment. "Solution space", or frames of reference for the work processes has to be provided by management. There has to be concrete and clear goals that can be divided into smaller steps, which are easier to handle. To be able to attain a part of the goal increases the commitment in the team. But the short-term goals always have to relate to the primary purpose otherwise the team members will be confused and return to the old mediocre ways of performance (Katzenbach & Smith, 1993).

A team needs a general approach or a set of rules for how to cooperate. The team is responsible for developing an approach since the set of rules does not yet exist. Team members must agree on who will do particular jobs, how schedules will be set and adhered to. This constitutes to the core of the approach. Members of a team must agree on what skills need to be developed, how continuing membership is to be earned, and how the group will make and modify decisions. This also includes when and how to adjust the approach for work to be completed. Generally, each team has its own set of rules, which can be documented or they can also exist informally of what has been decided as acceptable and not acceptable (Katzenbach & Smith, 1993).

To enable teamwork the team has to develop a suitable combination of different skills. These skills can be divided into three different categories (Katzenbach & Smith, 1993):

Technical and functional skills

Members of a team that has the same experiences, knowledge and skills is not an effective combination for teamwork. A combination of individuals with different specialities brings a wider set of knowledge to the team.

Knowledge of problem solving and decision-making

A team must be able to identify their problems and possibilities, evaluate the different alternatives that exist and make a decision based on facts. In the beginning phase there is a need of one or more people that has competence in the area even though all team members will develop these skills regarding the issue.

Interpersonal skills

The conditions for effective communication and constructive conflicts are depending on the individuals' interpersonal qualities. These skills involve the ability to take risks, to criticize in a helpful manner, to be objective, to be an active listener, to support and accept interests and performance of others.

The category of Technical and functional skills is the most important category of the three. But there are frequently errors in overemphasizing these different types of skills, when selecting potential team members. A suitable combination of different groups of skills is that of most importance, and different levels of knowledge in these groups. In a team each individual develops his or her own skills through the teamwork focus.

3.1.3 High-performance team

The social architecture of a group is related to excellent performance of management. Generally, a team's level of performance is connected to how well it can achieve a connection between the task and the structure of the team (Bolman & Deal, 1997). Katzenbach & Smith (1993) emphasize the importance of the structure in teamwork to attain good quality performance. They describe different characteristics typical for a high-performance team. A distinguished characteristic for high-performance teams is the degree of commitment; in particular how deeply the members are committed to one another. Strengthened by further commitment these kinds of teams usually also show an enhanced degree of the additional essential characteristics of team. The additional characteristics are described as deeper sense of purpose, more ambitious performance goals, more complete approaches, fuller mutual accountability, and interchangeable as well as complementary skills.

Teamwork is not the easiest or the quickest way to attain the goal. But a team perform a lot more than the sum of all the group members' performance together. For example, a team of four people where each team member puts in a work effort of ten units should produce a total of 80 units instead of 40. Real teams are intensely committed to their goal, purpose and approach. Team members of a high-performance team do also have a very strong commitment to one another. And these teams understand that by focusing on collective work-products, personal growth and performance results they can acquire the wisdom of teams. During a team's lifetime it will reach different phases of teamwork however all groups does not have the opportunity or the capacity to become a high performance team (Katzenbach & Smith, 1993).

3.1.4 Team structure

The relationship between task and structure is the same for small groups and larger organizations. Like organizations, teams need to adjust to the current task. It is obvious that a heart operation differs a lot from painting a house in terms of performance. Simple tasks go hand in hand with simple structures, explicit roles, simple dependent relationships and planned or instructed coordination. In general, projects of a more complicated character require a more complex structure with flexible roles, reciprocal dependence and coordination through lateral relations and reciprocal feedback. In the research of small groups some fundamental structural configurations has been identified for teams (Bolman & Deal, 1997).

The first model is the *hierarchic structure* with a manager at the top and four participants (see Figure 2). The person at the top gives the orders and provides the members with information. The members give information to the manager and communicate more with him or her than with each other. Even though an arrangement of this kind is effective and rapid it is more suited for simple and uncomplicated tasks. Situations that are more complicated cause problems unless the manager has got an unusual ability to handle these situations (Bolman & Deal, 1997).

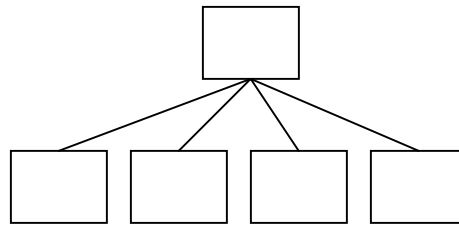


Figure 2 *Hierarchic structure (Bolman & Deal, 1997, p. 109)*

The second model, by researchers of small groups called the “*star*” or “*network*” structure, is the model that best represents teamwork (see Figure 3). As this structure gives rise to many different kinds of relations between the team members, it gives each team member the ability to communicate with all the others. Information is flowing in a free and open space. The arrangement can be slow and ineffective but serves well when tasks are abstract, poorly defined and complicated. The team members need knowledge in how to communicate well. They also need an ability to handle multitude, ambiguity, external and internal conflicts in the team (Bolman & Deal, 1997). This model of team structure also involves a shared leadership where each team member has the ability to act as a leader when required. Specific leadership roles are carried out by different members at different times and everyone in the group takes responsibility for the process and the outcomes (Katzenbach & Smith, 1993).

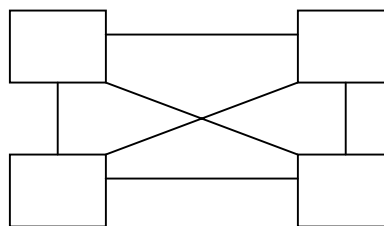


Figure 3 *Star or network structure (Bolman & Deal, 1997, p. 112)*

3.1.5 Collaboration

Dickson & DeSanctis (2001) describe collaborative effort in teamwork in their model of value creation. Collaboration is one of the components in the value creation. It deals with the degree for how people in the organization can combine their emotional efforts to achieve common goals. There are three types of collaborative effort in teamwork; *collective effort*, *coordinated effort* and *concerted effort*. Collective effort is the simplest form of teamwork where each person works independently and the productivity of the group is basically the sum of the individuals' efforts. This form of work only creates few opportunities for mutual effort or increased efficiency since adding more people to a task does not contribute to any additional effort per person/hour. The next type is coordinated effort where each member works independently with a piece of the task. People must coordinate handoffs of deliverables with caution since work of individuals is dependent on efforts of other members. In this model value creation can be higher than for collective effort because there are opportunities for mutual effort and effectiveness. Concerted effort is the highest form of collaboration. For team members in this model it is essential that they do accurate efforts at the right time toward the goal. In making their efforts the team members directly have an effect on the work of other members. All team members have to perform their tasks perfectly together otherwise advantage is lost.

3.1.6 The team leader

According to Katzenbach & Smith (1993) team leader behaviour assesses the extent to which the team leader articulates a vision and removes barriers that enables the team to perform. The team leader is the most important person in the team, and is responsible for purpose, goal and approach to remain relevant and meaningful. The person in charge tries to build both individual and team based commitment, and individual and team extensive responsibility. A team leader shall combine different levels of skills and encourage the team members to personal development and growth. He or she builds team performance through the creating of possibilities in work for the team and the team members. This requires a leader with an unselfish attitude in work. Uninteresting tasks are not delegated to others in the team and a team leader is always prepared to stand by the team. A team leader also takes care of relations with other parts of the organization. The whole team trust his or her ability to make decisions and to take risks for the teams' best. There are things that real team leaders never do even though their tasks can vary a great deal. They never try to blame the team if the team has made an unsatisfying result. Also a team leader never blames an individual or lets an individual fail.

A relatively powerful management bringing the team in the right direction is necessary in the start up phase of teamwork. During the continued development of the team and the team members the need of a powerful management decreases. A high-performance team that controls itself consists of individuals that have the ability to put on different roles. These individuals also have the ability to take the role of a leader when required. This means that the leadership is shared across the entire team, which is illustrated in the model of network structure of a team (see Figure 3). Different members carry out specific leadership roles at different times. A shared leadership is one of the main characteristics for a high-performance team (Katzenbach & Smith, 1993).

3.1.7 The leader's new roles

Senge (1990), a researcher in learning organizations, state that all humans are born learners and as such are able to create our own understandings of things; to use or *generative learning* abilities. The social and organizational structure in which we are brought up and learn to socialize within reduces these abilities. This leads to that we learn from copying the work of others, instead of creating ourselves; we move toward *adaptive learning*. When corporations, although unintentionally, force their employee's to emphasize their adaptive learning skills, they create the very conditions that predestine them to a mediocre performance. Generative learning requires seeing the systems that control events. If we cannot see the systematic underlying cause of the problem, we cannot do better than adaptive learning.

In a learning organization the role of the leader changes from someone who points out the direction and makes all the decisions, to a leader that is *designer, teacher* and *steward* (Senge, 1990). The leader as designer should design the governing ideas of purpose, vision and core values by which people live. It is also important to design policies, strategies and structures to guide the company when making decisions. All of this helps to create effective learning processes, which is one of the most fundamental issues when building learning organizations.

The leader in Senge's (1990) role as a teacher works to help everyone in an organization to gain a more insightful view of the current reality. Visualizing people's mental models of important issues to be able to see the influences that colour people's ways of understanding problems and opportunities, to identify courses of action and make decisions, does this. Another task that the leader as teacher has to do is to help people restructure their views of reality and see beyond their superficial conditions. When this is done they will be able to see the underlying causes of their problems and in that way see new possibilities to shape their future. To focus on the underlying causes to problems is taking a systematic approach and is the most effective way for leaders to influence people to view reality. This is where generative learning takes place.

The steward leader, one who is a “servant” first, often makes a good leader since the will to serve brings an aspire to lead and is not brought on by a desire of power or to acquire material possessions (Senge, 1990). These types of leaders serve both the people in the organization as well as the purpose of the organization itself. They help to change the business of the organization because of a conviction that their efforts will produce a more effective organization that can reach higher levels of success and also personal satisfaction.

The different roles of leadership require several new skills. One of them is that the leader has to be able to create a shared vision of the organization. The more people that share a vision, the more real that vision gets. To promote personal vision from the employees as well as communicating the leader’s own vision is important. There are, according to Senge (1990), two sources of energy that can motivate organizations. The first, which is fear, is the source of negative visions and can produce great changes during a short period of time. The second source, ambition, is where positive visions come from and it creates a continuing source of learning and growth.

Another skill that the leader will have to master is that of being able to surface and test mental models. This means being able to explain the reasoning and data that leads to a point of view; to encourage others to question that point of view; to encourage others to give their own points of view; to actively try to understand other points of view; to be able to search for alternative data when reaching a deadlock. They also have to be able to recognize and dissolve defensive routines, to help people to the understanding that exposing their thoughts is neither dangerous nor embarrassing. This is an important factor since leaders want people to surface their personal mental models, and this cannot be done if people are afraid (Senge, 1990).

Senge (1990) argues that in order to become successful, leaders must think in a systematic manner. When doing this they focus less on daily event and more on underlying trends and forces of change. It is when this fails, and systems become badly designed, that most organizational problems occur, not because of individual incompetence. Avoiding symptomatic solutions to problems is one way to keep the system thinking, since these don’t address the underlying causes. Even if an institution has high systematic thinking, leaders can still become authoritarian if they can’t explain their institutions properly to others. This is because they don’t have the ability to conceptualize their strategic insights so that they can become common knowledge and be open for challenge and further improvement.

To gain the skills mentioned above Senge (1990) present several tools that can be used. They are *system archetypes*, *charting strategic dilemmas*, the “*left-hand column*” exercise and *learning laboratories*. They are used to understand underlying causes to problems, to create creativity when dealing with difficulties, to surface people’s mental models and to provide leaders with practice in management. Most managers try to adapt simplistic solutions to problems. By doing this they undermine the potential for learning that exists when unusual problems occur. Companies that learn to handle these situations and learn from them will have a great advantage, Senge (1990) argues. By handling mental models leaders create “self-concluding” decisions, decisions that people can reach on their own without controlling guidance from management.

3.1.8 Participative design

Hedberg (1980) has written in an article regarding that researchers should stop searching for further knowledge about techniques to develop systems that fit the human being. This knowledge already exist and instead of trying to come up with even more ways of doing this, he means that trying to find ways for organizations to actually follow the already existing knowledge is what researchers should focus on.

Hedberg (1980) argues that system design, as defined today, will be an obsolete profession in the future. With this he means that though there might be system designers around, they will not handle the work of designing systems for companies. They may at most be in charge of creating meta-systems, i.e. systems that explain how to create other systems. This because of that designers cannot cope with the difficult task of the socio-technical³ complexity that occur when handling large organizations. Hedberg shows examples that support this argument and also reasons why it is so.

The writer presents different phases that the role of the designer has gone, or will go, through. Starting off in phase one the designers were pioneers that exploited the new possibilities that information technology brought. Organizations were designed by surprise and social implications began to appear. When entering phase two designers began to reconsider their accomplishments and started to study the organization they designed for. They attempted to tailor information systems to existing social organizations to minimize the social implications that often occurred. Project teams and user participation started to be used. In phase three designers once again changed into so called change agents. This role dealt with the complexity of the full design task and systems designing was thought of as a way to set organizations in motion. Change processes, organization development and learning organizations are words that describe this phase. Hedberg (1980) believed that designers were in between phase one and phase two when writing the article. Today it would seem that they are in phase three. As mentioned above, there could be a fourth phase where designers are gone. Hedberg describes organizations in this phase as self-designing and evolutionary, in other words learning organizations.

The studies presented by Hedberg (1980) clearly show that social-technical design within organizations is important. User participation and teamwork are positive aspects that help organizations and their systems designers to develop more accurate systems better suited for the people in the organization. The point made by Hedberg is that being concerned with what the users think is not enough. With the best intentions and ambition designers still cannot change organizations because of their own role in the process. There are three reasons that system designers cannot handle socio-technical problems. The first is that the designer education programs don't focus on this area; only a small percentage of the curriculum is devoted to it. The second force that shapes systems designers and their systems is the professional journals. The direction they take influences what designers see as important and therefore direct their focus towards. The third reason is that the values and reward systems need to be improved. If designers won't get support and rewards when focusing on socio-technical problems they are most likely not to focus on them.

³To be concerned with people as well as technology in the organization.

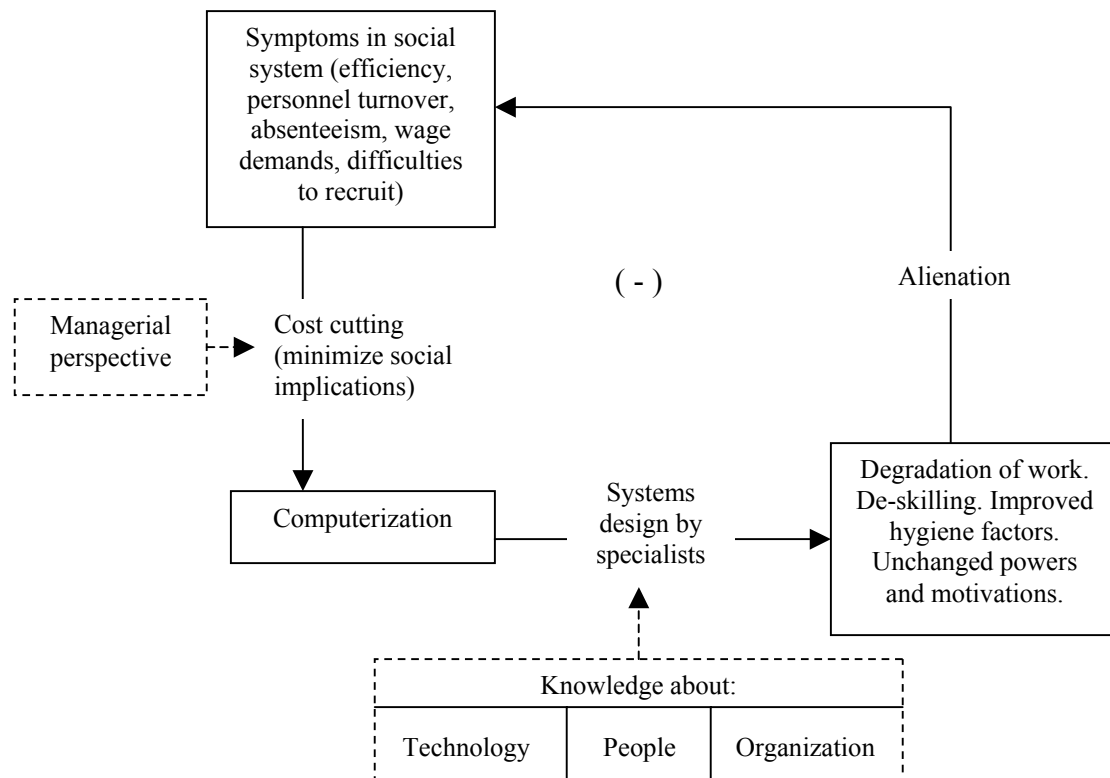


Figure 5 *System implementation process, second stage (Hedberg, 1980, p. 31)*

When starting to focus on the people in the organization Figure 5 shows that although there is an increase in hygiene factors and an effort is made to minimize social implications, the same problems still occur. This is surely a step in the right direction, but it is not enough. The people in the organization feel alienated and perform badly, which in turn forces managers to even more cost cuttings, which only increases the problems and it starts all over again (Hedberg, 1980).

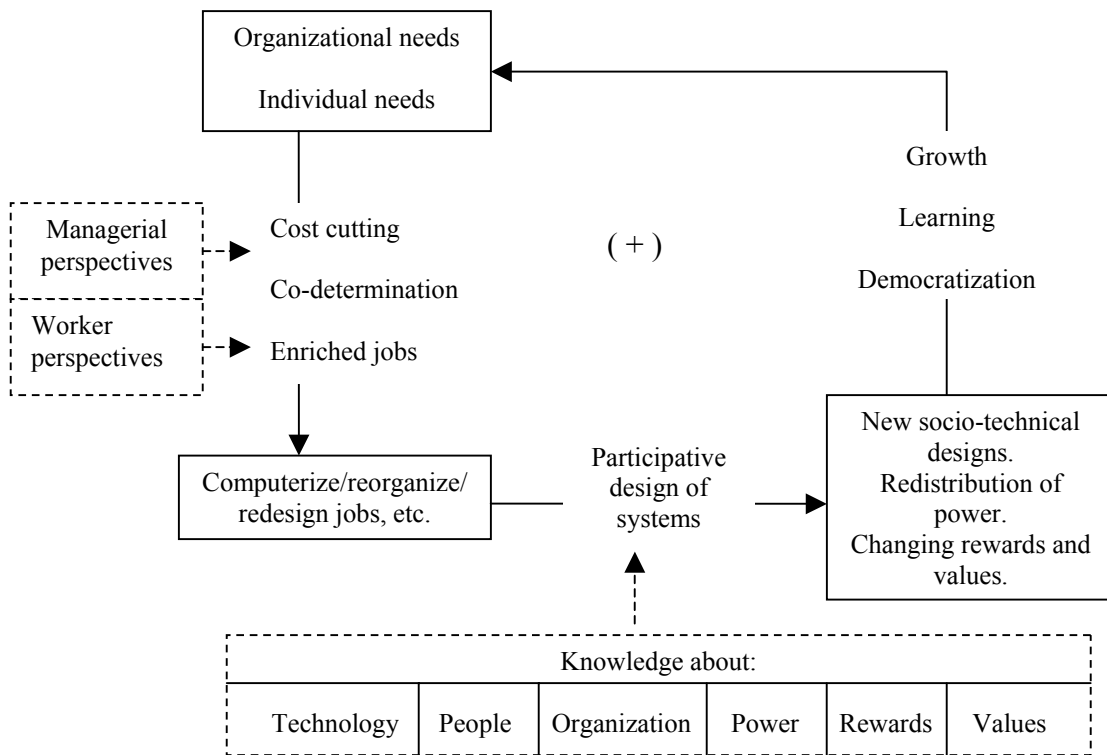


Figure 6 *System implementation process, third stage (Hedberg, 1980, p. 32)*

To be able to change to a positive outcome when designing and implementing a system designers have to step back and let managers and workers give their perspectives on what to do, to break the evil circle, as shown in Figure 6. Also, they must consider the important factors of people's values and give appropriate rewards so that people feel motivated. A shift in power and the values that control the organization is necessary to be able to actually follow through with the plans of change that the workers have been a part of developing. This also implies a shift for the task of the designer, from being all-knowing and making all the decisions to becoming more of a guide for the people in the organization. Only with all this in mind can a system design process become successful and a learning organization can emerge (Hedberg, 1980).

3.2 Motivation theories

3.2.1 Hierarchy of needs

Maslow (1954) formulated one of the most influential theories about needs, which is widely spread among researchers today. His theory is based on the conception that people are controlled by many different needs, some more fundamental than others. He proposed a hierarchy of needs where the most fundamental needs, the physiological needs, are the first level in the hierarchy. The next level contains safety needs, followed by needs of belongingness and love. He continues with needs of esteem and finally at the top level, needs of self-actualization (see Figure 7).

People are motivated by the desire to achieve or maintain the various conditions of each level. Maslow (1954) believed that people will strive for higher-order needs such as self-esteem or recognition, generally after lower-order needs such as hunger and safety, have been satisfied. In the levels of the five needs this means that all energy is first set to satisfy the fundamental needs in the lower parts in the hierarchy. Before those needs are satisfied the higher-order needs are not of any importance, they are non-existent. A person does not feel the second need until the demands of the first have been satisfied, and not the third until the second has been satisfied, and so on. On the contrary, when a level of needs has already been satisfied, it will be less motivating to satisfy it again in the future (Mabon, 1992).

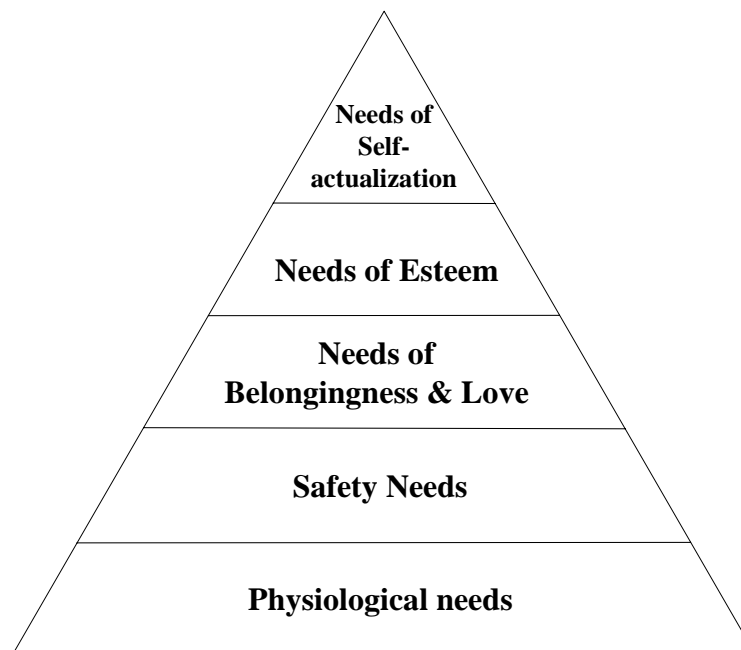


Figure 7 *Hierarchy of needs (Maslow, 1954)*

The five levels of needs are listed and explained below, with an organizational aspect connected to each level (Jacobsen & Thorsvik, 1998).

- *Physiological needs* - the first level in the hierarchy contains the human fundamental needs as food, water, oxygen, physical health and physical security. In a concept of organization it can involve employment, salary and work conditions.
- *Safety needs* – the needs of comfort, security and not being in fear. In a concept of organization it can involve security in work and reduction of the risk to be unemployed.
- *Needs for Belongingness and Love* – the needs of positive and loving relations to other people. In a concept of organization this can mean that people want to spend time with other people, be part of a social group of colleagues and friends.
- *Needs for Esteem* – the needs of competence, approval and recognition. In concept of organization it can involve self-confidence, recognition, self-esteem and the respect from other people.
- *Needs for Self-actualization* – the needs of knowledge, understanding and novelty - An individual has reached the top level in the hierarchy when he or she is using his or hers full potential. At this level he or she is totally motivated in their job and their needs are satisfied.

The hierarchy of needs is used a lot in research today. Although Maslow himself emphasizes that the hierarchy is a simplification (Mabon, 1992) since it is very generally designed (Kaufmann, 1998). Maslow considered that the hierarchy in the levels of needs represented a typical pattern that works for most people. Our ways to satisfy a need at work are more complicated than is indicated by the hierarchy of needs (Mabon, 1992). Further Kaufmann (1998) is questioning when a need is satisfied, and to what extent an individual is to be satisfied to be able to take a further step in the hierarchy. Do some people need a greater satisfaction than others? According to Kaufmann Maslow's theory does not answer any of these questions. Empirical attempts have been made to prove the concepts of Maslow's theory but the results are ambiguous. Many theorists are sceptic to Maslow's theory because of this poorly empirical support. In spite of this, his perspective has been accepted in many circles and attained a great influence among managers (Bolman & Deal, 1997).

3.2.2 The ERG theory

Based on the criticism of deficiency and shortcomings of Maslow's theory Alderfer has developed and modified the theory of the hierarchy of needs. In short, Alderfer's ERG theory identifies three categories of human needs that appear to influence a worker's behaviour: *Existence*, *Relatedness* and *Growth*. Unlike Maslow's five levels of needs Alderfer's theory only contains three levels in the hierarchy, which are shown in Figure 8. The first level, needs of existence, includes things such as hunger, thirst and sex. The needs of relatedness include some involvement with family, friends, co-workers and employers. Growth concerns those desires to be creative, productive and to complete meaningful tasks. The crucial difference between the two theories is that in Maslow's hierarchy of needs it is only possible to move upwards while in the hierarchy of Alderfer it is possible to move between the different levels in two directions, both upwards and downwards. The theory of Alderfer is more flexible and agrees more to contemporary research and human motivation (Kaufmann, 1998).

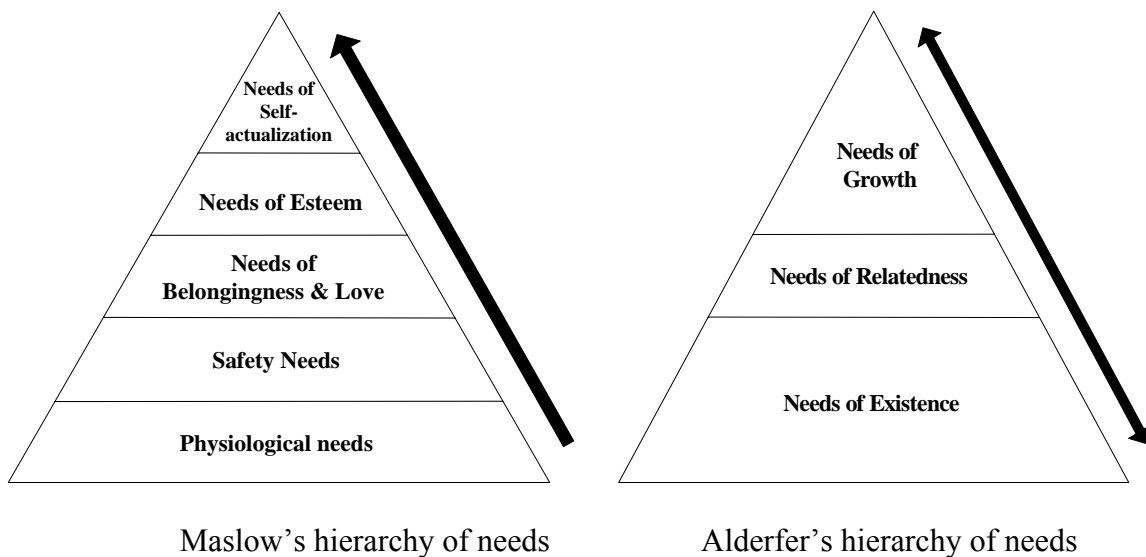


Figure 8 A comparison between Maslow's hierarchy of needs and Alderfer's hierarchy of needs.

3.2.3 The two-factor theory

Herzberg (1993) explores human nature and people's possibilities to attain satisfaction in the work that they perform. He believes that interesting work is often the cue to a higher level of motivation. The authors do emphasize that it is only the individual that can decide if work is sufficiently interesting, thus leading to an increased motivation.

Herzberg means that people have two different types of needs that are fundamentally independent. These needs affect people's behaviour in different ways. The first type of needs can be described as a dissatisfier. When a person is dissatisfied at work the dissatisfaction concerns the environment where work is performed. Since the dissatisfier factors essentially describe the environment and serve primarily to prevent job dissatisfaction, while having little effect on positive job attitudes, they have been named *hygiene* factors. Examples of *hygiene* factors can be a company's policy and administration, working conditions, interpersonal relations, salary, supervision and safety.

The second type of needs presented can be called satisfiers. When people feel satisfied with their performance it has to do with the performance itself. These factors are called *motivators* since they are effective when it comes to motivate people in making a better performance. Five factors, *motivators*, stand out as strong determiners of work satisfaction.

- achievement
- recognition
- work itself
- responsibility
- advancement

These *motivators* induce a feeling of success and a performance well done, growth in competence and appreciation. The dividing into hygiene factors and motivators, and understanding their distinctions, brings an insight to that an employee's satisfaction in work can only increase through enrichment of work itself. According to Herzberg an increase in salary or management does not result in an increased satisfaction since this is a hygiene factor, which only can reduce dissatisfaction.

Kaufmann (1998) suggests that the reason why Herzberg is distinguishing between motivators and hygiene factors is that these factors are not opposites but they are two different dimensions of comfort and discomfort. He further suggests that motivators create comfort as long as they are present, but it is important to understand that they don't create discomfort if they are not present. Also, as long as hygiene factors are not present they can create discomfort, but they don't create additional comfort if they are present.

Schou (1991) proposes that Herzberg's theory of motivation to a certain part is based on Maslow's theory of needs. He further proposes that high motivation cannot be achieved through external factors like leadership, explicit company-goals, interpersonal relations, working conditions and salary. Instead, Schou proposes that high motivation is created when an individual's fundamental needs, for example success, esteem, stimulating tasks, responsibility and development, are satisfied.

Like Maslow, the two-factor theory has also been criticized because of its poor empirical support (Schou, 1991). Herzberg has also been criticized, among other things, for studying qualified employees, which has influenced the outcome of the theory. Qualified employees, who take factors like high salary and status for granted, does not surprisingly react negative if one, or both, of these factors are taken away. These factors are part of their everyday life and wouldn't provide any additional satisfaction if increased. If he instead had used less qualified employees, with lower salary and status, the result might have turned out in a different way. Then an increased salary could have proven to be a motivator instead of a hygiene factor (Mabon, 1992).

3.2.4 Job enrichment model

Theories of motivation show a distinction between intrinsic and extrinsic rewards. Rewards that come from outside the job itself, and therefore are separate from the performance of the task, are called extrinsic rewards. These can be things like salary and possibilities of promotion. The opposite, intrinsic rewards, are those that the employee get from the performance of the task in its own and are recognized as an employees use of his or hers skills. It can also be the sense of achievement that comes from performing a task or when a task itself is satisfying to do (Boddy et al., 2002).

Taylor's theories of Scientific Management describe how to find the 'one best way' to perform a piece of manual work. To find the 'one best way' means that the experts identified the most efficient set of tasks that were concluded from analysis of the way employees normally performed their job. This resulted in smaller tasks that people could learn more quickly. Although this was a very efficient way of work, these sorts of jobs were often found boring and the employees often became dissatisfied or careless. Later on when these kinds of limitations in management became clear, researchers wanted to find ways to make jobs more interesting and challenging. They believed that the employees would show higher productiveness when motivated by management. To get to a higher level of motivation, management has to offer both intrinsic as well as extrinsic rewards (Boddy et al., 2002).

Hackman and Oldham (1980) developed these ideas into *the job enrichment model*. It is an extension of earlier work by motivation theorists and proposes changes in job characteristics that managers can do to motivate their staff. By doing this, the employees would satisfy their higher-level needs, which in turn would lead to greater motivation and performance.

The model presents five key job characteristics that contribute to enhancing a jobs motivational potential (Boddy et al., 2002). All of them affect the motivation of the employees through the intrinsic factors. The key characteristics are *skill variety*, *task identity*, *task significance*, *autonomy* and *feedback*.

- *Skill variety* describes the degree to which a job requires the use of a number of different skills and experience.
- *Task identity* defines the extent to which a job requires completion of a whole and identifiable operation.
- *Task significance* refers to the importance of the job, how much the job matters to others, or how much impact a job has on the organization or its environment.
- *Autonomy* is the degree to which the employee is free to decide how to do their work and determine the procedures to be used.
- *Feedback* is the extent to which an employee receives information about the effectiveness of the performance; this gives the ability to observe the results of their work.

Observe that all of the five characteristics must be present at the same time for a job to be intrinsically motivating. Managers also have to consider appropriate extrinsic rewards; this can sometimes be difficult since this is often decided at a higher level in an organisation. This is why the intrinsic rewards are of such importance. They are a tool for management at any level to motivate their employees. The model implies that there are five implementing concepts that can be used by managers to increase the motivational potential of jobs (Boddy et al., 2002). These concepts, how they relate to the five job characteristics and the outcomes of it is shown in Figure 9 below.

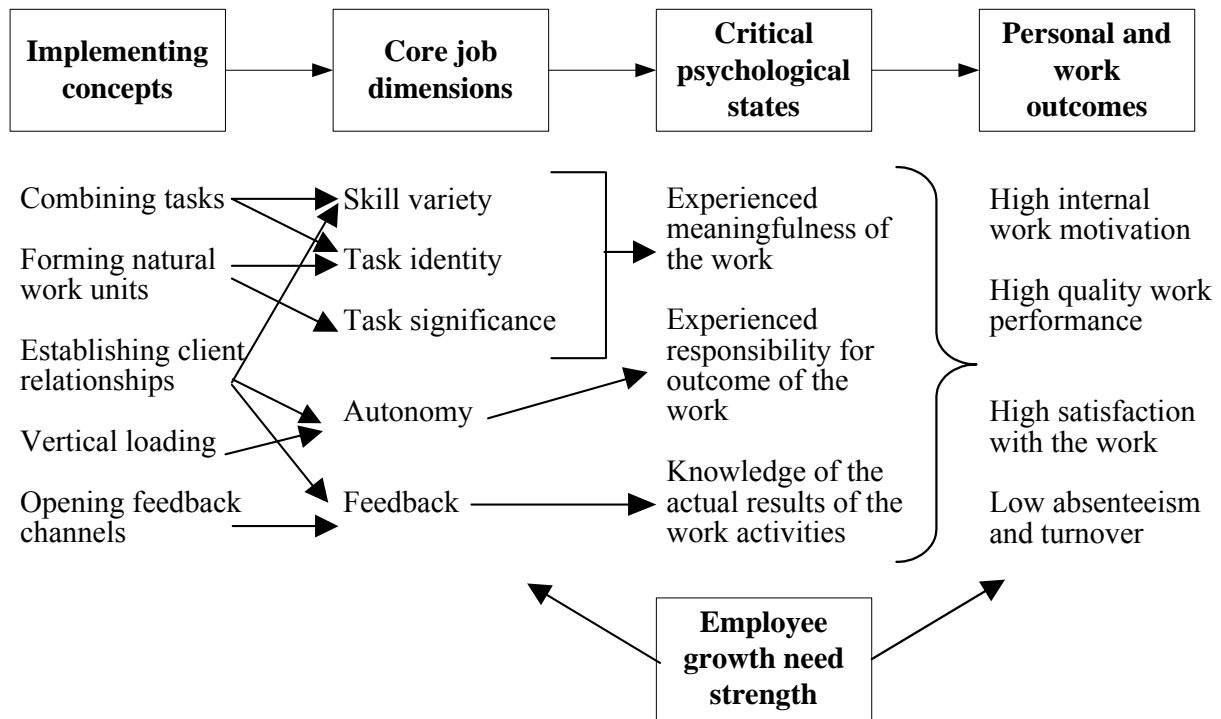


Figure 9 *The job characteristics model (Boddy et al., 2002. Adapted from Hackman and Oldham, 1980, p. 148)*

3.2.5 Theory X and theory Y

McGregor emphasizes the importance of enrichment in work. He believed that a leader's behaviour and the co-workers' view of the leader, among other things, are depending on the leader's assumptions about the co-workers' will of performing their work. From this McGregor has formulated the well known Theory X and Theory Y (Mabon, 1992).

McGregor's theory divides the behaviour of people in working life into two different groups. Adherents of theory X believes that workers, among other things, are passive, lazy, have no ambitions, prefers to take orders, be ruled and are resistant to change. Further it is considered that a concept of motivation can only be used to control people in Maslow's physiological and security levels of needs. To fulfil company-goals a company has to use coercive measures and a worker has to be supervised. Adherents of this theory are found mainly in scientific management with Taylor as the main character (Mabon, 1992).

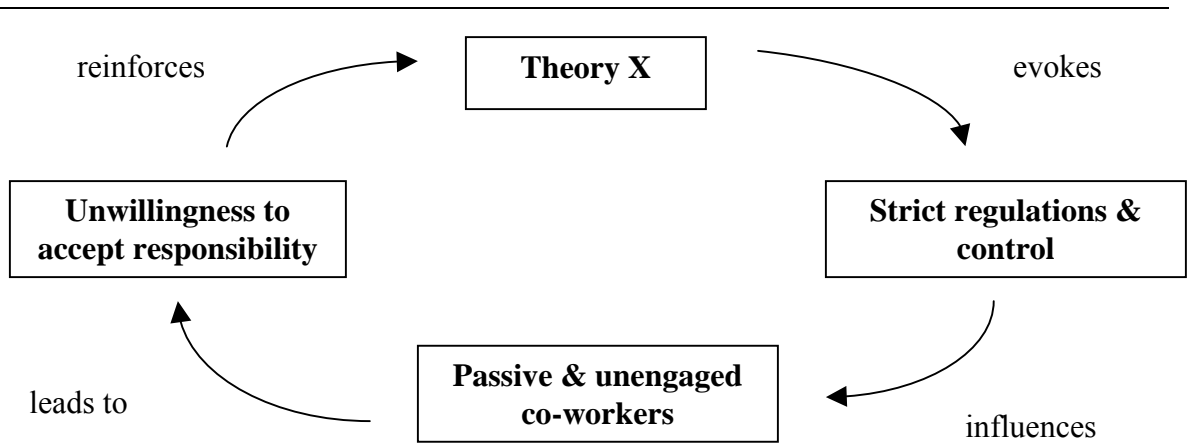


Figure 10 *Theory X, according to McGregor (Blomé, 2000, p. 8)*

Adherents of theory Y consider work to be as natural as playing, as long as the conditions are favourable. According to this theory, a condition to fulfil the goals of an organization is that people may rule themselves. Motivation can be created at all levels in Maslow's hierarchy of needs, not only in the physiological and security levels. As long as people are motivated in the correct way, they can rule themselves and thus be creative in work (Mabon, 1992). Co-workers work well if they are stimulated, seeking independence and taking responsibility. If an organization adapts theory Y their co-workers will have a better ability for problem solving, taking initiative and creating new ideas (Bolman & Deal, 1997).

Managers of today often affiliate to theory Y. To gradual reduce the external control the managers help their co-workers to mature, thus increasing their possibilities in satisfying higher-level needs in Maslow's hierarchy of needs. If there is no possibility to satisfy these needs in the daily routine of the co-workers, the needs are likely to be satisfied outside of work. As a result this can lead to a high level of absence among the co-workers (Mabon, 1992).

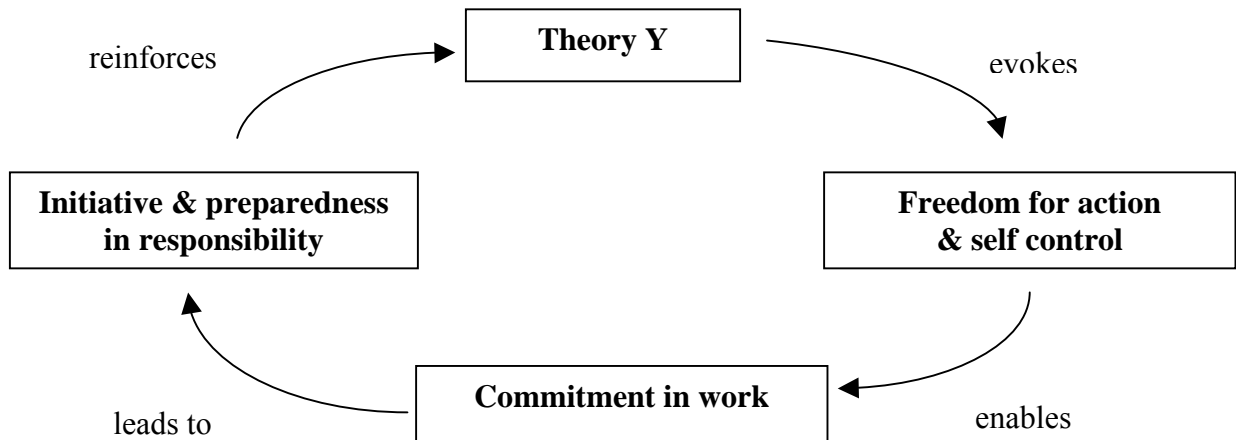


Figure 11 *Theory Y, according to McGregor (Blomé, 2000, p. 8)*

3.3 Information and knowledge

3.3.1 Communication

Individuals within an organization interpret data to receive information in order to solve a problem. The information reduces the *uncertainty* and *equivocality* about an issue and therefore helps the individual to make a decision (Daft & Lengel, 1986). Uncertainty can be defined as the difference between the amount of information required to perform a task and the information that already exists. When there is high uncertainty many questions is required and more information is needed to learn the answers to those questions. Equivocality means that there is a high degree of multitude and conflicting interpretations of a situation. This leads to confusion and a lack of understanding. The organizational structure as well as information systems can be tailor-made to provide the correct and the exact amount of information in order to reduce these factors.

One way to reduce the equivocality in an organization is to provide mechanisms that improve the treatment of rich information (Daft & Lengel, 1986). Communication that can overcome different frames of reference or explain massive questions to change an understanding is considered rich communication. On the other hand, communication that requires a long period of time to understand or that cannot overcome different perspectives is less rich. Sometimes less rich communication is needed, for example in order to be able to reach a large amount of people⁴. Communication cannot be rich and be able to reach many people at the same time (see Figure 12). When choosing a mean to communicate an individual has to consider what type of information that is to be communicated and to how many people in order to find the best way of communication.

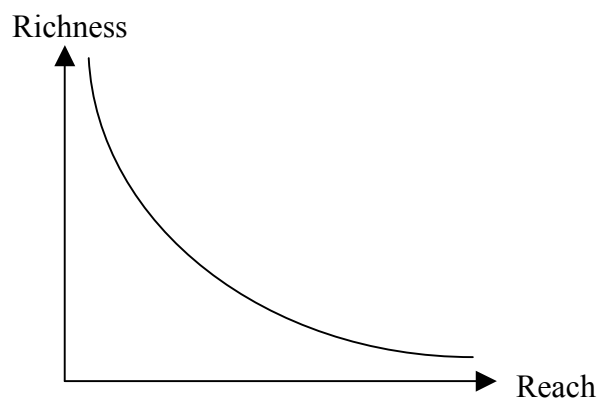


Figure 12 *The correlation between richness and reach*⁵

⁴ T. Magoulas, personal communication, February 24, 2004

⁵ T. Magoulas, personal communication, February 24, 2004

Different media of communication varies in their capacity to produce rich information (Daft & Lengel, 1986). The reason that media have a different level of richness is the capacity of immediate, the number of signals and channels being used, personification, and language variation. *Face-to-face* is the richest media of communication since it provides direct feedback, which makes it able to control the interpretation. Body language, tone of voice, and the use of natural language also help the face-to-face communication to become richer. Other medias of communication are telephone, personal documents, impersonal documents, and numeric documents. These are classified from rich to less rich in the order written. Less rich media is impersonal and relies on rule, forms, procedures and databases. Rich communication can also be said to provide *qualitative information* and less rich communication *quantitative information*.

Distributed cognition is the process through which individuals that act independently within a decision domain make interpretations of their situation and exchange these with other individuals that they have some sort of cooperation with or is dependent on in their work (Boland, Tenkasi & Te'eni, 1994). When this process works properly and is adapted by all individuals in the domain it allows everybody to act on the basis of their understanding of their own and others situation. A domain's result becomes coordinated when distributed cognition works well since managers have others in mind in their individual actions.

Often, managers use simplified explanations when sharing their information with others. Instead, managers must try to surface and examine rich displays of their thinking. This is done to complicate familiar thinking and in that way make room for new interpretations. This is sometimes necessary in order to change existing interpretations that can no longer be applied to the current reality. Faster decisions that are of higher quality is made in teams that have more information and considers more alternatives than in teams that have less information and alternatives (Boland, Tenkasi & Te'eni, 1994).

The decision domains mentioned above is similar to the concept of *communities of knowing* (Boland & Tenkasi, 1995). This is described as a network of groups of people in an organization with different areas of knowing and specialties. An individual can be part of several communities. Communication is required in order to produce knowledge within and between the many communities in an organization. The communities evolve and change through communication so that the individuals within the community can take in other approaches.

Sharing our experiences and analyzing them rationally acquire the creation of our own perspectives and the ability to take in others perspectives. *Perspective making* is the process in which a community of knowing develops and enhances its own knowledge domain and skills; this is done by improving the communication within the community. By strengthening the perspective in a community the complexity increases and work is better performed. *Perspective taking* is communication that enhances the ability to take in and make use of knowledge from outsider organizations and also from other communities of knowing. This deals with the individual's ability to make his or her own capacity visible for self-reflection (Boland & Tenkasi, 1995).

This visible representation of the individual's knowledge is called a *boundary object*. Being able to take other perspectives into account, side by side with one's own boundary objects, is the main process of perspective taking. Boundary objects help with this process since it is by constructing and discussing our boundary objects that we can find ways to compare and discuss our distinct perspectives. Perspective making and perspective taking is the base to creating changes within and between communities of knowing (Boland & Tenkasi, 1995).

3.3.2 The infological equation

Within the conditions of infology there are several characteristics that are interesting to investigate. Some of these characteristics are based on workers getting the correct information and education and understanding the received information. One way to explain how individuals absorb information is to use the infological equation. The equation says that "I" is the information obtained by the interpretation process "i" operating on data "D" with pre-knowledge "S" during the time allowed "t" (Langefors, 1993). The amount of time that will be put into an interpretation process of a certain message that is received, either through communication or observation, is depending on motivation (M).

$$I = i ((D, S, t) M)$$

In the infological equation described above the cognitive ability of an individual is described through an interpretation process. The interpretation is controlled by the individual's pre-knowledge and conception of the world. All of the information becomes individually dependent, i.e. the interpretations are different, since it is natural that individuals draw their own conclusions about the new knowledge depending on their roles and the tasks they perform (Langefors, 1993; Magoulas & Pessi, 1998). The equation can further be developed through dividing the 'S' into three different 'S', the individual's language (S_b), the individual's concept of the world (S_w) and the individual's values (S_v). The "S_b" in the equation should be as low as possible to keep the distance of language as low as possible. This to create harmony between different languages that also can be created by perspective making and perspective taking in the organization⁶. The time at disposal will also affect the individuals' absorption of information (Langefors, 1993). The motivational aspect is highly involved in the process as well. An individual has to be motivated to be able to absorb the information (Magoulas & Pessi, 1998). Since several factors have an affect on the individual's interpretation process of data the information is relative (Langefors, 1993).

$$S' = i ((D , < S_b , S_w , S_v > , t), M)$$

⁶ T. Magoulas, personal communication, March 17, 2004

Each organization can be viewed as a system consisting of different functions. A function is characterized by its cognitive ability of motivation and responsibility for certain actions to be performed, this for the organization to be able to fulfil its goal (Magoulas & Pessi, 1998). The infology of systems tries to define the organization in functional terms. One of the fundamental conceptions in the paradigm of systems infology is that each human decision can be viewed as information processing. The theory of systems infology is based on the conception of information as a contribution to the knowledge and experience of people. Information processing can lead to a decision, which then leads to action (data → information → decision → action). According to the paradigm of systems infology, unlike other theories, action and thinking are indivisible. Therefore each individual in an organization should have a great freedom of action. The harmony of infology and the approaches representing it refers to an understanding of the effects that occur in a balance between individual freedom and social responsibility for development and success of the overall picture (Magoulas & Pessi, 1998).

Motivation is the basis in human infology and systems infology. Without motivated emotional and responsible individuals there are small chances for goal-oriented actions (Magoulas & Pessi, 1998). Among the different factors involved in the interpretation process motivation is of great importance since it affects the way an individual absorbs the information. It is more difficult to absorb new information if there is a low level of motivation and vice versa. In the end, the level of motivation has consequently an effect on the new knowledge that is to be obtained by the individual.

4 A model of team motivation

This chapter begins with an explanation to how the model was derived. The next section contains the presentation of our own model and its purpose. This is followed by an explanation of the different constituents of the model and the relationships, the motivational factors. Finally, the section ends with the derivation and motivation of the interview questions.

4.1 *Foundation of the model*

The theories presented in the previous chapter are concerned with many different aspects that affect team members and how they perform their work. The information flow and how people can reach the knowledge inside the organization are factors that affect the way the team members communicate and cooperate with each other. The cooperation is also highly dependent on the way the organization is structured. If a group of people is truly structured as a team the cooperation improves and the team performs better than if they would be structured in another way. Of course, the motivational aspect of teamwork is not to be neglected. When motivated, the team members will not only perform better, they will also be satisfied with what they do and feel content with the role they play within the team. So, we have established that these factors are important for improving teamwork. When looking at all parts at the same time, we also come to the conclusion that they are equally important and also linked together in a way so that we can't overlook one part to reach a higher level of teamwork, we have to see to the whole picture to get a better result.

When looking at the different theories and trying to summarize them into a mutual picture we have tried to emphasize the important factors that influence teamwork. To be able to do this we have used Magoulas' interpretation of Dahlbom's model of an information system⁷. This model presents different parts that have to be present in an information system and how these parts are linked together (see Figure 13). An information system is defined as a system that manages, i.e. collects, stores and distributes information (Nationalencyklopedin, 1989). According to Langefors (1993) a system is defined as a collection of entities with relations between them. Hence, an information system is not necessarily a computer system but can consist of people that are cooperating. Langefors further explains that an organization can be seen as an information system according to this definition. An organization may also be considered as containing an information system as a constituent. Since a team is a part of an organization, and also has a collection of entities, i.e. team members, that has relations and exchange information between them, the team itself can be seen as an information system.

⁷ T. Magoulas, personal communication, March 17, 2004

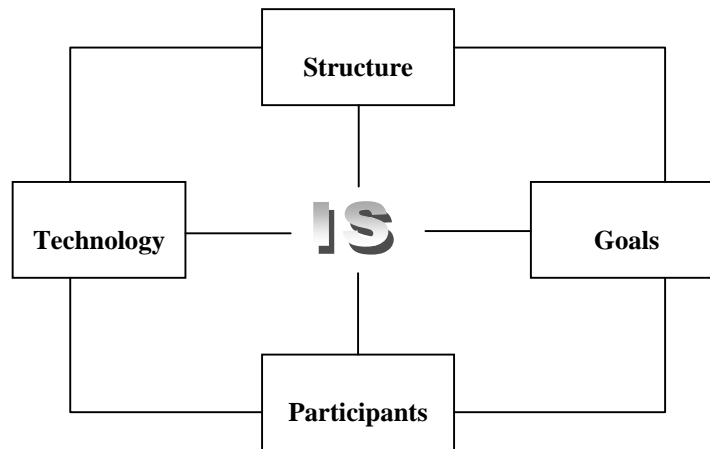


Figure 13 *A model of an information system*⁸

In the next section we present our own version of the model, adjusted to suit the field of teamwork. We will then move on to describing the different parts of the model and also further elaborate the relations between them. We refer to the previous chapter of theoretical views for the facts presented.

⁸ T. Magoulas, personal communication, March 17, 2004

4.2 Presentation of the model

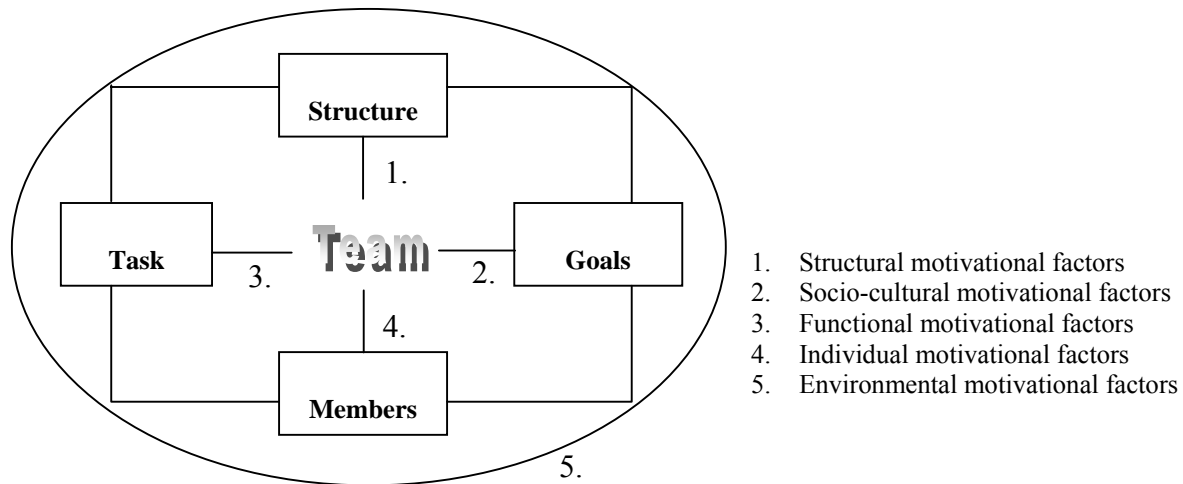


Figure 14 *A model of team motivation*

We have derived our own version of Magoulas' interpretation of Dahlbom's model and applied it to teamwork, since a team can be seen as an information system (see Figure 14). The team is here seen as an information system since it consists of a collection of entities with relations among them, the entities being the team members that exchange information. A study of the model shows all the different sides of motivation and how it affects all parts of an organization. Since the model consists of the parts that are essential to gain an holistic view of an organization it also makes sure that all parts that are essential to understanding motivation are present.

The four components, *structure*, *goals*, *task* and *members* are representations of the parts that form an organization and affect its work, these are further explained in the section 4.2.1 *Explanation of the model*. Motivational aspects affect all of these parts and therefore there is a need to look to the different kinds of motivational factors that lie in their interdependencies. Only when looking at all these together can a true and complete view of team motivation emerge. The team has to connect favourably to all parts in order to be able to gain full motivational possibilities. The four parts also have connections between them describing the relations that exist in an organization and the affect the different parts have on each other. Although these relations are of importance when studying organizations they are not looked at closer in this study.

The lines connecting the team in the centre of the model with the four parts in the rectangles in the outer edges of the model describe different areas of motivation that affect an organization with a team structure. We call these relations motivational factors and they are further elaborated and explained in the following section *4.2.2 Motivational factors*. This section also gives an explanation to how the different theories from the earlier chapter *3 Theoretical views* are linked to the motivational factors. The factors represent all kinds of motivational aspects that can be considered when working in teams and are therefore essential to our investigation and hence are the cornerstones of our model. When taking all of these factors into account and seeing them from a team's point of view, as we do in our model, we get a good foundation for the possibility of a set of motivational factors to emerge that can be used in order successfully gain a higher level of motivation in a team.

Altogether the parts and their relations contribute to an understanding of the importance of seeing the whole picture. This is further defined in the circle that surrounds the model representing the organization's environment. Being concerned with the environment demonstrates the need to take all parts into consideration in order to describe a team at all. A team cannot be described only by looking at for example its members; we have to have all parts in mind since a team is a complex phenomenon influenced from several directions. Also this part of the model has its own set of motivational factors.

4.2.1 Explanation of the model

To further explain the model we elaborate and define the different parts that make up the model.

4.2.1.1 Structure

Organizational structure shows the way the members of the organization relate to one another, who does what and what type of leadership that occur in the group, i.e. which roles the different members have in the organization. An organization's structure can show the members as well as people outside of the organization its goals and purpose. The structure can take different forms and it is not always concrete, which makes the way it is understood and how clear it is vary (Jacobsen & Thorsvik, 1998). When an organization's structure is understood by its members it helps to define the different roles that they play which makes their behaviour more predictable. A stabile behaviour of how people act within the organization is one of the main advantages gained when defining its structure. It is also a way to help the organization to reach its goals.

When defining an organizations structure two main dimensions are focused on; the first, *distribution of work and specialization* and the second, *management and coordination of work*. The distribution of work and specialization can either limit the employee's freedom in work or give the employees more freedom in deciding how to do their work. It deals with what is done, by who it is done and how it is done. Governing and coordination of work concerns who makes the decisions in the specific structure. This can also limit the performance of the task or give more freedom to the employees if the authority to decide how to do the task is delegated to the employee (Jacobsen & Thorsvik, 1998).

Regarding this research the structure is mainly concerned with which way the team is structured in. The definitions of organizational structure above can also be used for this one level of an organization. The team structure deals with which roles the different team members have and how the power is distributed in the team. The way that communication flows inside and in and out of the team is another type of definition of a team's structure. Motivational aspects that arise from the relation between the team and the definition of its structure are categorized under the section *Structural motivational factors*.

4.2.1.2 Goals

Goals contain both organizational as well as individual goals. Organizational goals are goals that are most often decided by management and used as a guide of what is desired to be achieved by the members of the organization. Individual goals are those that each member in the organization, or member of the team, lives by. A main issue when dealing with organizations is that of being able to fit these two kinds of goals together. This can be a problem since it is not always that organizational and individual goals are the same; what one team member wants may not be represented in the goal of the entire team or department.

Together with the goals of the organization we also find the values and norms of the organization. These are things that make up the culture of the organization and express the organization's mutual assumptions on how to act, understand, think and feel about a problem situation. Actions and choice of words are examples of things that show the culture of an organization (Jacobsen & Thorsvik, 1998). The organization's culture can be used to influence the individual's own values and norms. Although this is something that every person has with them from earlier experiences when entering the organization, the culture of the organization can be learned during the socialization process. If the members are socialized into the organization and have their own norms and values influenced by those of the organization they will thereafter act in the best interest of the organization (Jacobsen & Thorsvik, 1998). The motivational factors that are influenced by or influence the goals are presented in the section *Cultural motivational factors*.

4.2.1.3 Task

A task is an action that is performed by the team members to fulfil the organization's goals. It is the actual work that is done by which performance can be measured and that can result in success or failure for the organization. It can also be described as a process where something is produced. In teamwork a task can be performed individually or as a group, this gives an extra dimension to the performance of the task. A task can be performed with a number of different processes that in turn can be shaped in a number of different ways. How to measure the performance of the task can have different focuses, either things like efficiency and high productivity can be sought-after or a softer approach where uniqueness and innovation are strived after can be used. The way the task is performed is dependent on which of these focuses are taken.

The way that the task is performed is of great importance if a team is to be well adjusted to the organization. This area is also an important part when it comes the aspect of team and individual motivation. The performance of the task, and hence the result, is highly dependent on how motivated the team or the individual that perform the task is. The relation between the team and its motivation to perform the task is further elaborated in the section *Functional motivational factors*.

4.2.1.4 Members

The members of an organization form the base of the organization; on our level we would explain the members as the members of the team. The team members are what make the team a team; they are dependent on the structure of the team for what roles they have in the team. Members in the team structure can be either team members or team leaders. These are called internal members. There is also something called external members that can be people in other teams, a higher-level manager or the customers for which the team members perform their task. The external members are people or organizations that affect or are affected by the members within the team.

The members' competences and knowledge are vital for the team. Of course they are necessary in order to be able to perform the task at all, but it is also critical to know what level the knowledge in the team is at. This to be able to see when further training and development of new knowledge for the team members are needed. The members own values and interests also affect the team. This is an important factor when seeing to the motivation of the team. A team in itself cannot be motivated, it is the members in it that are or are not motivated.

It is important that the members' wishes and demands on the teamwork are met; this can be done by negotiating the demands among the members (Hedberg, 1980). To be motivated to perform well in a team is certainly a key factor when it comes to the whole team's motivation. The different aspects that affect the members' motivation are introduced in the section *Individual motivational factors*.

4.2.1.5 Environment

The environment that the team exists within is a factor that highly affects the way the team works. A team cannot be completely self-sufficient; they will always have relations with the surroundings of which they are a part. In order for the team to be successful it is important that these relations are well established and rewarding. Every component of the model relates to their surroundings in its own way. The members of the model, i.e. the team members, cannot be said to be completely contained by the team. They are on the contrary strongly influenced by its surrounding environment and the outside interests and commitments that it brings can constrain the behaviour of the team members (Scott, 1998).

The tasks of the team are also influenced by the surroundings. Few teams create their own specific tasks; they are actually most often imported from the environment. The same goes for the structure of the team; both the formal and the informal structure may have their roots in the environment. When a team shares goals with the rest of their environment they can expect to gain advantages for example regarding the distribution of resources. The environmental organization is more likely to consider the team's goals important if it is related to their own goals (Scott, 1998). These different dependencies prove the fact that no team can be fully understood if isolated from the surrounding environment. Issues regarding motivation are presented in the section *Environmental motivational factors*.

4.2.2 Motivational factors

The relations between the different parts of the model and the concept of teamwork are represented as the motivational factors. In the following sections we explain the factors and how we derive our interview questions from them. Each question has its own grading and alternatives, which are presented following to the question. All questions also contain an additional alternative for the possibility of adding an own alternative. When creating the questions we started by trying to connect the different areas of theories to the suitable relation in the model. After doing this we continued by structuring the different theories connected to each relation into different areas. These areas served as a basis for each question and the alternatives to the question were then selected from the theories. As this approach makes the alternatives as well as the questions cover all aspects of the theories in each area of motivational factors, they become complementary and excluding. The first question is not concerning one of the relations in the model but can be said to relate to the whole model. At the end of the questionnaire we have chosen to add an open question in which the respondents more freely were able to express their opinion on the team motivation concept. The task was to list three critical factors that the respondent considered necessary for good team motivation. This is done to be able to compare the answers given on this question with the different areas that we have already asked about. In this way this question can be used to validate our model.

4.2.2.1 Existential conditions

According to the previous chapter of theoretical views there are several advantages that make a team concept desirable. Katzenbach & Smith (1993) emphasize the ability of teams to enhance quality of performance in organizations. As there is a difference between a group and a team where the team perform a lot more than the sum of all the group members' performance together, the team contributes to enhance the productivity. A team consists of a combination of individuals with different specialities, which brings a wider set of knowledge to the team. As teams also are strengthened by additional commitment they usually also show an enhanced degree of the additional essential characteristics of team. Quicker decisions of higher quality consider more alternatives and are made in teams that have more information (Boland et al., 1994). When looking at the different advantages that can contribute to a desire of using the team concept the following question arises:

Q1. To what degree can the factors below explain the origin of the team concept?

Factors that make the use of the team concept desirable. (1 = not at all – 5 = to a very high degree)

- *Enhanced productivity*
- *Flattered organization*
(looks good from the outside)
- *Flexibility and quicker decisions*
- *Workforce diversity*
- *Improved quality*
- *Increased customer satisfaction*

4.2.2.2 *Structural motivational factors*

Different structural forms can affect a team's motivation. Structural forms concern role and power structure. Two opposite forms are the hierarchic and the network structure. The network structure promotes team motivation since it gives each team member the ability to communicate with all the others (Bolman & Deal, 1997). Another motivational factor that comes with this structural form is shared leadership (Katzenbach & Smith, 1993) since each team member has the ability to take the role of a leader when required. Everyone in the team also takes responsibility for the process and outcomes (Katzenbach & Smith, 1993).

An enhanced responsibility is a factor that can increase the motivational potential according to McGregor's theory Y (Mabon, 1992; Bolman & Deal, 1997). This motivates the following question:

S1. To what degree do the different structural forms below affect a team's motivation and therefore the result? (1 = very negatively, 3 = not at all, 5 = very positively)

- *Hierarchic and authoritarian*
(clearly defined leader role where the leader makes all decisions alone)
- *Hierarchic and consultative*
(clearly defined leader role with complementing advisory leaders)
- *Hierarchic and participative*
(clearly defined leader role where the leader consults with the members, the leader has absolute trust)
- *Network*
(shared leadership within the team)
- *Team autonomy*
(self-controlled team without leader)

Another structural aspect that affects teamwork is the different factors that can promote team motivation. Katzenbach & Smith (1993) emphasize the importance of the structure in teamwork to attain good quality performance. The performance of a team is also related to motivational factors that affect the team. Autonomy or self-controlled work, feedback and skill variety are some of the key characteristics that contribute to enhancing a jobs motivational potential which lead to high motivation, high quality work performance, high satisfaction with the work and low absenteeism and turnover (Boddy et al., 2002). Also recognition is a motivator and a strong determiner of work satisfaction that can promote team motivation (Herzberg, 1993).

A shared leadership is one of the main characteristics for a high-performance team with shared decision-making and each team member has the ability to act as a leader when required. Communication is also an important factor involved in a shared leadership since each team member has the ability to communicate with all the others (Katzenbach & Smith, 1998). The contents of this piece motivates the following question:

*S2. To what degree do the different factors below promote team motivation?
(1 = very restraining – 5 = very promoting)*

- *Autonomy*
(self-controlled work)
- *Leadership to make team successful*
(coaching)
- *Feedback*
(from management)
- *Recognition*
(from management)
- *Shared leadership*
(shared decision making)
- *Strong leader*
(authoritarian leader)
- *Communication*
(between co-workers)
- *Skill variety*
(the team members possess varying skills that complement each other)

The way that communication flows inside and in and out of the team is another type of definition of a team's structure that has an impact on team motivation. Different media of communication varies in their capacity to produce rich information (Daft & Lengel, 1986) and have different effects on a team. *Face-to-face* is the richest media of communication since it provides direct feedback, which makes it able to control the interpretation.

S3. To what degree has the different forms of communication a direct effect on team motivation? (1 = not at all – 5 = to a very high degree)

- *E-mail*
- *Personal contact*
- *Personal documents*
(informal)
- *Impersonal or formal documents*
(‘correctly’ written)
- *Numeric documents*
(statistic documents, only numbers)
- *Telephone contact*

Qualities of a leader play a great deal when it comes to motivation in a team. A concept of motivation can only be used to control people in Maslow's physiological and security levels of needs. To gradual reduce the external control the managers help their co-workers to mature, thus increasing their possibilities in satisfying higher-level needs. However Taylor, among others, argues that workers have to be highly controlled by management if the company are to fulfil the company-goals (Mabon, 1992). The leader in Senge's (1990) role as a teacher works to help everyone in an organization to gain a more insightful view of the current reality by visualizing people's mental models of important issues. According to Senge, the leader as a steward is convinced that their efforts will produce a more effective organization that can reach higher levels of success and also personal satisfaction. Also to promote personal vision from the employees as well as communicating the leader's own vision is important issues that can motivate organizations.

It is of importance that the leader has the ability to create a shared vision (Senge, 1990), to combine different levels of skills and encourage the team members to personal development and growth (Katzenbach & Smith, 1993), which has a strong relation to motivation. According to (Bolman & Deal, 1997) co-workers work well if they are stimulated. The contents of this piece motivates the following question:

S4. What effect has the qualities of a leader below on team motivation?

(1 = a very negative effect – 5 = a very positive effect)

- *Controlling*
(down to details)
- *Stimulating*
- *Promotes personal visions*
(ability to get the employees to share their vision)
- *Creates a shared vision*
(among the team members)
- *Provides freedom for action*
- *Encouraging*
- *Good communication skills*

4.2.2.3 Socio-cultural motivational factors

The connection between team and goals are represented as socio-cultural motivational factors. The culture of the organization is defined by its norms, values and goals. According to Katzenbach & Smith (1993) it is one of the key issues if a team wants to call themselves a team that they are intensely committed to their goal, purpose and approach. It is the role of the team leader that has to make sure that these issues remain relevant and meaningful. The goals have to be concrete and clear and easy to divide into smaller steps. The dividing into smaller steps makes the goals easier to handle and heightens the possibility of attaining the goal. This sense of the goal being more achievable increases the commitment in the team (Katzenbach & Smith, 1993).

SCI. To what degree are the different goal concepts below relevant to create a higher level of motivation? (1 = not at all – 5 = to a very high degree)

- *Meaningful goals*
- *Clear goals*
(understandable)
- *Specific goals*
(detailed)
- *Achievable goals*
- *Accepted goals*
(by the employees)

There are several factors that influence the culture of the team. A satisfying culture gives the team members a sense of quality in working life and good relationships between themselves. One of the factors that influence the culture is mutual accountability. This concept is one of the absolute necessities for the team to develop into a team. It involves the promises that are made between the team members and also to themselves. Also, a team that has a mutual purpose and approach always will be accountable as a group as well as individuals (Katzenbach & Smith, 1993). Mutual effort and effectiveness can be reached by applying a coordinated effort in teamwork, which will lead to the creation of higher value in the team (Dickson & DeSanctis, 2001).

Each team member's commitment to a common purpose and goal are one of the most important things regarding the concept of teams, according to Katzenbach & Smith (1993). To be able to attain a part of the goal increases the commitment in the team. The degree of commitment in the team is distinguishing for a high-performance team; how deeply the team members feel a sense of commitment to each other is the main characteristic. It lies upon the role of the leader to build a good team commitment, and also individual commitment. In a well-functioning team the team members will trust and respect the leader's ability to do this (Katzenbach & Smith, 1993). Issues like trust and respect are both part of the hierarchy of needs (Maslow, 1954), especially respect is important since it lies high up in the hierarchy and helps to build self-esteem for an individual. With the background presented above we want to investigate the following:

SC2. To what degree have the factors below a direct effect on motivation?
(1 = not at all – 5 = to a very high degree)

- *Mutual trust*
(between members as well as between members and leader)
- *Shared work interests*
(between members as well as between members and leader)
- *Mutual respect*
(between members as well as between members and leader)
- *Commitment between members*
- *Commitment between members and leader*
- *Commitment between team and organization*

Diversities in a team can be both positive and negative regarding the motivational aspect. The combination of individuals with a variety of technical and functional skills brings a wider set of knowledge to the team and contributes to team effectiveness (Katzenbach & Smith, 1993). As team members also have different experiences their interpretations are different and therefore makes information different (Langefors, 1993). Ambiguity that exists in a team is regarded as a rich source of knowledge but this can sometimes disharmony the team members instead of keeping them together. Social diversities, for example different nationalities among the team members, increase the performance and morale in the team⁹. Also the individual's own values and norms, the cultural diversities, influence the teamwork (Hedberg, 1980) as they decrease both performance and morale. These diversities that exist among team members has a great influence on teamwork therefore the different theories motivates the following question:

SC3. What effect do the diversities below have on team motivation?
(1 = a very negative effect – 5 = a very positive effect)

- *Informational diversity*
(team members have different knowledge)
- *Social diversity*
(man/woman, nationality)
- *Cultural diversity*
(team members have different values)

⁹ T. Magoulas, personal communication, April 28, 2004

4.2.2.4 *Functional motivational factors*

The functional motivational factors are the ones that connect the team to the task. In other words it is concerned with what motivates a team to perform the task. Intrinsic rewards are a means to reach a higher level of motivation. They can be defined as something that the team members get from the performance of the task in its own. It can also be a sense of achievement from performing the task or when the task itself is satisfying to do (Herzberg, 1993; Boddy et al., 2002). Changes in the task characteristics can be used to motivate team members (Hackman & Oldham, 1980). This would lead to the team members satisfying their higher-level needs (Maslow, 1954), something that both motivates them and leads to a better performance. Forming a mutual meaningful purpose is considered the primary issue for the team (Katzenbach & Smith, 1993). Doing this helps the development of the team's identity. This brings us to the following question:

F1. To what degree do the factors below contribute to enhancing team identity and therefore team motivation? (1 = not at all – 5 = to a very high degree)

- *Skill variety*
(varied skills within the team)
- *Task variety*
(changes in the daily work task)
- *Task significance*
(a feeling of meaningfulness)
- *Task enrichment*
(more interesting work task)
- *Task rotation*
(rotation between completely different tasks)

4.2.2.5 *Individual motivational factors*

Since a team is a structure that consists of a number of team members, the individual motivational factors are of course a vital area to illuminate. It is the individual's motivation that must be affected in order to enhance the team's motivation. There are several factors that can be motivating to the team member; Maslow's hierarchy of needs contains a set of steps that an individual wants to achieve and always will strive after (Maslow, 1954). The lower steps of the hierarchy only concerns things that are needed for the individual to feel content in his or her place, these factors do not motivate in themselves but are still necessary to not work against motivation. There are other factors that have their place on the higher steps of the hierarchy, that are things that give a feeling of work satisfaction and hence actually promote motivation. These can be things like responsibility, recognition and possibility of advancement (Herzberg, 1993).

To give a team member opportunity to reach higher on the steps of the hierarchy of needs is a strong motivational factor that the organization can apply. One way to let the individuals higher on the steps is to change the way the task is performed or other factors that has to do with the task, for example feedback on the task performed or a more self controlled work (Hackman & Oldham, 1980; Boddy et al., 2002). A leader can affect the motivation of the individual by giving focus to the individual's own visions and goals (Senge, 1990). McGregor's Theory Y emphasizes the importance of letting an individual control his or her own work in order to feel motivated (Mabon, 1992). If too controlled the individual will be passive and unable to form any own decisions, which in turn creates a need for even further control.

This investigation concerns how individual's that are part of a team can be motivated, we want to find what factors motivate individuals because of them being part of a team and not only as the individuals that they are. With this in mind we reach the following question:

II. To what degree can the motivational factors below motivate an individual to want to be part of a team? (In opposite of working individually) (1 = not at all - 5 = very positively)

- *Work environment*
(physical)
- *Security*
- *Responsibility*
- *Solidarity*
- *Possibility of advancement*
- *Feedback*
- *Autonomy*
(self-controlled work)
- *Attention and respect for own visions*
- *Recognition*
(from management)
- *Self-actualization*
- *Individual goals*

We also find it interesting to see how these factors affect the individuals on their own, independent of if they are part of a team or not. The next question gives that angle to the motivation factors above and also a few more that are more individual oriented (in the presentation of the question below we have only listed the “new” alternatives). Regarding theory the alternatives come from the same sources as the alternatives in the previous question.

12. To what degree can the factors below increase the motivation for an individual?

(1 = not at all – 5 = to a very high degree)

- ...
- *Salary*
- *Skill variety*
(to gain further knowledge)
- *Task identity*
(detached work task)
- *Satisfying work task*
- *A result that focuses on productivity and efficiency*
- *A result that focuses on innovation and uniqueness*

For a team to feel motivated one of the key issues is for the team to possess the qualities that make the team fit the true definition of a team. A team structure helps the organization to enhance quality of performance and heighten the motivation in a group. Not all groups can be called teams; there are several factors that separate a group from a team. For example a team runs active problem-solving meetings with open-ended discussions while a group focus on the meeting being efficient (Katzenbach & Smith, 1993).

Another issue that is relevant to the motivation of the team is that of communication, or the exchange of information. When a team deals with more information and considers more alternatives they make faster decisions that are of higher quality than the ones that do not (Boland et al., 1994). The motivational aspect also affects the way that an individual interpret the received information (Langefors, 1993). Rich communication of information is important within and in and out from the team because of its ability to overcome different frames of reference in order to change the understanding of the individuals communicated with (Daft & Lengel, 1986). The conditions for effective communication and constructive conflicts are depending on the individuals’ interpersonal qualities (Katzenbach & Smith, 1993).

13. To what extent are the different pre-conditions below necessary for team motivation?

(1 = not at all – 5 = to a very high extent)

- *Efficient meetings*
(questions and decisions are handled quickly)
- *Active meetings*
(focuses on problem solving, stimulating discussions)
- *Efficient communication*
(clarification of conflicts)
- *Significant task*
(promotes the company’s success, clear connection between task and goal)

4.2.2.6 *Environmental motivational factors*

Different environments affect the team in different ways. A team that exists in a collaborative environment can achieve common goals by combining their emotional efforts (Dickson & DeSanctis, 2001). Communication is another important factor that can help the motivation within a team. Especially communication that is interactive, i.e. goes “both ways”, is wanted. An environment that uses feedback receives the advantages of this type of communication. Feedback is motivating since it gives the ability to observe the result of ones work (Boddy et al., 2002). The teams that exist in an environment that focus on communication have a higher ability to evolve and change which gives the individuals in it a possibility to take in other approaches and hence evolve themselves (Boland & Tenkasi, 1995). Another way for the individuals to evolve themselves is to focus on learning within an environment. An environment that is learning oriented will motivate the individual to seek new knowledge on his or her own (Senge, 1990), it can also be motivating for a team member to be free to decide how to perform a task (Boddy et al., 2002). We further want to investigate how different environments effect motivation and therefore ask the following question:

*E1. To what degree do the different environments below promote motivation?
(1 = not at all– 5 = to a very high degree)*

- *Collaborative*
(co-operation friendly environment)
- *Communicative*
(communication goes in one direction only)
- *Learning oriented*
(focus on learning from the task)
- *Symmetric*
(social symmetry, no discrimination existent)
- *Interactive*
(communication goes in both directions)
- *Open*
(low degree of rules, own decisions on how to perform task)
- *Coordinative*
(that different parts of the organization works coordinated)
- *Harmonious*
(non-hostile environment)
- *Competitive*
(drive to ‘win’ over other teams or departments)

Teams are highly affected by their environment. There are several organizational interdependencies that can have an affect on all parts of a team. Structure, goals, tasks and individuals are in different ways affected by, and also themselves affect, their environment (Scott, 1998). According to Herzberg (1993) it is the environment where the work is performed that affects the individual's satisfaction or dissatisfaction. The degree to which a task matters to the team's environment is a factor that can positively or negatively affect the motivation of the individual (Boddy et al., 2002). With this background we find it interesting to investigate how the different organizational interdependencies can affect team motivation, this is done in the following question:

E2. To what degree have the organizational interdependencies below a direct effect on team motivation? (1 = not at all – 5 = to a very high degree)

- *Cultural*
(perspectives, values and norms)
- *Functional*
(sequential, mutual adjustment)
- *Infological*
(communicative to obtain mutual understanding)
- *Structural*
(feedback from leader)
- *Strategic*
(customer oriented, meaningful task)
- *Economic*
(available resources)

5 Empirical views

In this section we will account for the results from our empirical study that will serve as a basis of our next chapter *6 Interpretation and evaluation*. The results from the interviews are presented according to the distinct motivational factors that have been explained in our model. Each question is presented in a separate table below. The last question of the interview is an open question and the results are presented in section *5.6 Complementary question*. The respondents of interviews P1-P4 are team leaders and the respondents of interviews P5-P10 are team members. We have structured the results in this way to be able to see the differences between the two groups. The purpose of the column presenting the average results is only as an indication for us and not a statistic result. The comments below each question are presented in order according to the respondents of interviews. One of the respondents (P1) had the opinion of not being part of a team. The respondent's answers can because of this be considered misguided since the answers are not given from a team perspective. In some questions this respondent's grades has a high affect on the average result.

5.1 Existential conditions

Q 1

To what degree can the factors below explain the origin of the team concept?

Factors that make the use of the team concept desirable.

(1 = not at all – 5 = to a very high degree)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Enhanced productivity	1	4	-	3	4	4	4	4	2	4	3,3
Flattered organization	1	4	4	4	4	3	4	5	4	2	3,5
Flexibility and quicker decisions	1	3	3	4	4	4	5	3	3	4	3,4
Workforce diversity	1	4	5	4	4	3	3	5	4	3	3,6
Improved quality	1	4	4	3	4	3	3	-	4	3	3,2
Increased customer satisfaction	1	4	4	4	4	3	4	5	3	1	3,3
Other: Personal independency	-	-	5	-	-	-	-	-	-	-	5,0

Comments to the question:

P1. The factors are not strong factors of the team concept¹⁰.

P3. It is hard to know if productivity really can be enhanced or not.

P3. Personal independency is of importance, for example if someone in the team quits or if someone gets sick.

P6. An enhanced productivity and flexibility is regarded as especially strong factors of the team concept.

P6. A team can perform a lot more together than the individuals in it can alone.

P7. The workforce diversity has been the same even before the team was created. What is the purpose with this part of the question?

¹⁰ Respondent P1's opinion of not being part of a team highly affects the result of this question. The respondent's grades will be excluded from our interpretation since it gives a misleading picture of the concept of motivation in teamwork.

5.2 Structural motivational factors

S 1											
To what degree do the different structural forms below affect a team's motivation and therefore the result?											
(1 = very negatively, 3 = not at all, 5 = very positively)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Hierarchic and authoritarian	1	1	2	2	1	2	1	2	2	1	1,5
Hierarchic and consultative	3	1	2	4	2	2	3	2	3	2	2,4
Hierarchic and participative	5	4	4	4	5	4	4	3	4	2	3,9
Network	3	4	4	4	4	3	3	4	5	3	3,7
Team autonomy	5	1	3	2	4	2	3	4	4	4	3,2
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. The hierarchic and authoritarian structure is negative since it does not give the workers freedom to handle their own task alone. Everybody wants to have freedom to handle his or her task.

P1. The hierarchic and participative structure is the existing structure of the department.

P1. In a network structure it would be better to change leader occasionally instead of having a shared leadership.

P3. A hierarchic and authoritarian leader is negative since the leader is the one who makes all decisions. The team members do not have any own responsibility at all, which does not bring any motivation.

P5. A hierarchic and authoritarian leader has never existed in this department.

S 2											
To what degree do the different factors below promote team motivation?											
(1 = very restraining – 5 = very promoting)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Autonomy	5	5	3	4	5	2	4	5	4	4	4,1
Leadership to make team successful	5	4	4	4	4	4	4	5	4	4	4,2
Feedback	5	3	4	5	4	4	4	5	4	4	4,2
Recognition	5	4	5	5	4	4	4	5	4	5	4,5
Shared leadership	1	4	4	4	5	2	3	5	4	3	3,5
Strong leader (<i>authoritarian</i>)	3	1	2	2	1	2	2	2	2	1	1,8
Communication	5	5	5	4	5	4	4	5	5	4	4,6
Skill variety	1	5	3	4	5	4	5	5	5	5	4,2
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. Shared leadership is not a good structure. The leadership should be changed periodically instead.

P1. In the teams that work with personal computers there is skill variety. Teams working with the mainframe are not suited for teamwork; it has to be handled individually. A team cannot have the knowledge of the mainframe¹¹.

P3. Skill variety can be motivating if the knowledge that can be shared is interesting. The person that is to share their knowledge has to be pedagogic and also be willing to share it. If a person is not good at explaining or usually does not want to share their knowledge it might be better not to ask that person at all.

¹¹ This comment from P1 clearly shows the respondent's different opinion about teamwork, which results in a low score in the mentioned alternative.

S 3											
To what degree has the different forms of communication a direct effect on team motivation?											
(1 = not at all – 5 = to a very high degree)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
E-mail	4	2	3	3	3	3	5	3	4	4	3,4
Personal contact	5	5	4	5	4	4	5	5	5	5	4,7
Personal documents	1	2	4	4	3	4	3	3	3	2	2,9
Impersonal or formal documents	5	2	3	3	3	3	2	3	3	2	2,9
Numeric documents	5	4	2	3	3	3	2	3	2	1	2,8
Telephone contact	5	4	4	3	3	4	4	4	3	4	3,8
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P3. E-mail containing information that concerns the whole team is more motivating if it is sent to everybody in the team, not only to the individual.

P9. There are a lot of numeric documents in the daily work.

S 4											
What effect has the qualities of a leader below on team motivation?											
(1 = a very negative effect – 5 = a very positive effect)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Controlling	3	2	2	2	1	2	2	2	2	1	1,9
Stimulating	5	5	4	4	5	4	5	5	3	4	4,4
Promotes personal visions	5	4	4	4	4	4	4	5	4	5	4,3
Creates a shared vision	5	4	3	4	4	4	4	4	4	5	4,1
Provides freedom for action	5	4	4	4	4	4	4	5	4	5	4,3
Encouraging	5	4	5	4	4	4	4	5	5	5	4,5
Good communication skills	5	4	4	4	4	4	4	5	5	5	4,4
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. The creation of visions is not supposed to be done at the team leader level. The division manager creates visions for the teams to follow. A team leader is to follow the vision.

P3. A certain amount of control can be motivating, but not if a team member is controlled on a too detailed level.

5.3 Socio-cultural motivational factors

SC 1											
To what degree are the different goal concepts below relevant to create a higher level of motivation?											
(1 = not at all – 5 = to a very high degree)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Meaningful goals	5	4	4	5	5	4	5	5	5	5	4,7
Clear goals	5	4	4	5	5	4	3	3	4	5	4,2
Specific goals	3	5	3	4	4	3	4	3	4	5	3,8
Achievable goals	5	5	5	3	4	3	3	5	3	5	4,1
Accepted goals	3	5	4	4	5	4	4	5	4	5	4,3
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. There are goals that cannot be achieved, but achievable goals are desired. When a goal is not achievable everybody should be told that the goal is not achievable.

SC 2											
To what degree have the factors below a direct effect on motivation?											
(1 = not at all – 5 = to a very high degree)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Mutual trust	5	4	5	4	5	4	5	5	5	5	4,7
Shared work interests	4	4	4	3	3	4	3	4	3	1	3,3
Mutual respect	5	5	5	4	5	4	4	5	4	5	4,6
Commitment between members	3	4	5	4	4	4	4	5	4	4	4,1
Commitment between members and leader	-	4	5	4	4	4	3	4	4	4	4,0
Commitment between team and organization	-	3	4	4	3	4	3	3	3	4	3,4
Other	-	-	-	-	-	-	-	-	-	-	-

SC 3**What effect do the diversities below have on team motivation?**

(1 = a very negative effect – 5 = a very positive effect)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Informational diversity	1	4	4	4	4	4	4	5	3	5	3,8
Social diversity	3	4	2	5	4	4	4	5	5	5	4,1
Cultural diversity	3	4	3	4	3	3	4	5	5	3	3,7
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P3. Informational diversities are good as long as a person has the ability to share it with others otherwise they are not motivating.

5.4 Functional motivational factors

F 1											
To what degree do the factors below contribute to enhancing team identity and therefore team motivation?											
(1 = not at all – 5 = to a very high degree)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Skill variety	1	5	4	4	5	4	4	5	5	5	4,2
Task variety	-	4	4	3	5	4	3	5	5	3	4,0
Task meaningfulness	5	5	4	5	5	4	4	4	4	5	4,5
Task enrichment	5	4	3	4	5	3	4	5	4	5	4,2
Task rotation	1	5	5	5	4	4	3	5	4	3	3,9
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. If a task cannot be solved, the team has to get help from outside¹².

P1. There is no need for skill variety. But it has to be a high level of skills.

P1. It is always task variety, but it is not strived for as the focus lies on problem solving. To have a meaningful task is to have total responsibility and to satisfy the customer.

P1. Task rotation in the team is not interesting but it would be interesting when outside of the team.

P10. If a task is considered to be motivating or not is depending on if the task is interesting and fun to do.

¹² Respondent P1's answers on this question, as seen in the grades and in the additional comments, are highly influenced by the respondent's opinion of not being part of a team at all. This makes the respondents answers invalid since they are made from another perspective than that of a team. We will not consider that respondents answers in the interpretation of this question.

5.5 Individual motivational factors

I 1											
To what degree can the motivational factors below motivate an individual to want to be part of a team? <i>In opposite of working individually.</i>											
(1 = not at all - 5 = very positively)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Work environment	1	4	3	4	5	3	3	5	4	3	3,5
Security	1	4	5	3	5	4	2	5	5	4	3,8
Responsibility	1	3	4	4	5	3	4	3	4	4	3,5
Solidarity	1	4	5	4	5	4	5	5	4	5	4,2
Possibility of advancement	1	4	3	3	3	3	5	3	3	4	3,2
Feedback	1	4	5	4	5	4	5	4	4	4	4,0
Autonomy	1	5	2	4	4	3	2	5	3	4	3,3
Attention and respect for own visions	1	3	3	4	5	4	4	4	4	4	3,6
Recognition	1	3	4	4	4	3	4	3	3	3	3,2
Self-actualization	1	3	5	3	4	4	4	3	3	4	3,4
Individual goals	1	4	4	3	4	3	4	3	3	3	3,2
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. The work environment is not different when working in a team or working individually.

P1. There is no feeling of security in the team as there is no teamwork¹³.

P3. To have security in the team is related to the possibility of getting support from the other team members. When there are consultants working in the team it is much harder to get a “team feeling” since the consultants are only working in the team for a short period.

P5. The work environment in a team can be different compared to the work environment for an individual, but there is no difference in its possibility to motivate.

¹³ Respondent P1’s opinion of not being part of a team highly affects the result of this question. The respondent’s grades will be excluded from our interpretation since it gives a misleading picture of the concept of motivation in teamwork.

I 2											
To what degree can the factors below increase the motivation for an individual?											
(1 = not at all – 5 = to a very high degree)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Salary	5	4	3	5	4	4	4	4	3	5	4,1
Work environment	3	4	2	4	4	4	4	5	5	4	3,9
Security	3	3	5	4	4	-	2	4	5	4	3,8
Responsibility	5	4	4	4	4	4	3	3	3	3	3,7
Skill variety	4	5	5	4	4	4	3	5	4	3	4,1
Task identity	5	4	4	4	4	4	4	4	3	4	4,0
Satisfying work task	5	5	5	5	5	4	5	5	4	5	4,8
A result that focuses on productivity and efficiency	5	5	2	4	4	4	3	4	3	2	3,6
A result that focuses on innovation and uniqueness	4	4	4	5	4	4	5	4	4	4	4,2
Solidarity	5	5	5	4	4	4	4	5	4	4	4,4
Possibility of advancement	5	4	3	3	4	4	3	4	2	4	3,6
Feedback	5	4	4	4	4	4	4	5	3	4	4,1
Autonomy	5	4	4	4	5	4	4	4	4	5	4,3
Individual goals	4	5	3	4	5	4	4	5	3	4	4,1
Attention and respect for own visions	4	4	4	5	5	4	4	5	5	4	4,4
Recognition	5	4	4	5	4	4	4	5	3	5	4,3
Self-actualization	5	4	4	4	4	4	4	5	4	4	4,2
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. Results must be focused on quality before they can be focused on innovation. It is the work that is to control the result and the workers visions.

P3. Salary is not a motivational factor in itself; the motivation is more dependent of the task being motivating. A low salary can obstruct motivation but only a slight increase in the salary would not motivate further.

P3. The work environment is not motivating itself but it can obstruct the motivation of individuals if it is really bad.

P3. Too much responsibility can be stressful.

P5. Time and money is required to get a higher skill variety in the team. The customer can finance this.

P5. To be involved already from the beginning of an application project is much more motivating than having to take over an old application from somebody else.

I 3											
To what extent are the different pre-conditions below necessary for team motivation?											
(1 = not at all – 5 = to a very high extent)											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Efficient meetings	5	5	2	3	4	4	2	3	4	3	3,5
Active meetings	5	5	4	4	4	4	2	5	5	5	4,3
Efficient communication	5	5	4	4	5	4	4	5	4	4	4,4
Significant task	5	5	3	4	4	4	4	4	3	3	3,9
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. The team gets a list with requirements from the customer. If the team accomplishes to deliver the requirement from the customer it gives satisfaction in work. There will be a “win/win” relation for both parts¹⁴.

P3. Efficient meetings that only focus on productivity and efficiency do not increase motivation. For example, a meeting that is very short and efficient can obstruct motivation instead. A meeting with stimulating discussions and a few interruptions and contributions to the discussion is more motivating.

P3. It is uncertain if a significant task is motivating. Rather, a task that is fun to do brings more motivation. To do a task for the success of the company is not motivating, this would appear to be on a different level.

¹⁴ Respondent P1 considered the alternatives on this question to be insignificant to their daily work. This comes from the respondent’s unwillingness to consider any aspects concerning the concept of teamwork. The respondent’s answers to this question will because of this not be included in our interpretation.

5.6 Environmental motivational factors

E 1											
To what degree do the different environments below promote motivation?											
<i>(1 = not at all– 5 = to a very high degree)</i>											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Collaborative	5	4	4	5	5	4	4	5	4	5	4,5
Communicative (<i>goes one way</i>)	1	2	2	2	3	2	2	1	1	1	1,7
Learning oriented	5	4	4	4	5	4	3	5	3	4	4,1
Symmetric	2	4	4	5	5	4	4	5	5	4	4,2
Interactive	5	5	4	5	5	4	4	5	4	5	4,6
Open	5	3	4	4	5	4	4	4	2	5	4,0
Coordinative	4	2	4	5	4	4	3	4	4	4	3,8
Harmonious	5	4	4	4	4	3	3	5	5	5	4,2
Competitive	4	2	2	3	3	3	3	3	1	1	2,5
Other	-	-	-	-	-	-	-	-	-	-	-

Comments to the question:

P1. There is no drive to win over other teams or departments. It is not a good thing to step on somebody's toes to get ahead.

E 2											
To what degree have the organizational interdependencies below a direct effect on team motivation?											
<i>(1 = not at all – 5 = to a very high degree)</i>											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	M
Cultural	3	4	3	4	3	-	4	5	4	4	3,8
Functional	-	4	4	4	3	-	3	5	4	4	3,9
Infological	-	5	4	4	3	-	4	5	5	4	4,3
Structural	5	4	4	4	3	-	4	4	4	4	4,0
Strategic	5	5	3	5	4	-	4	4	3	5	4,2
Economic	5	4	3	5	4	-	4	4	4	5	4,2
Other	-	-	-	-	-	-	-	-	-	-	-

5.7 Complementary question

List three critical factors that you consider necessary for good team motivation.

- P1. Willingness to be part of a team.
- P2. To have fun together in the team and to perform a daily work that is perceived meaningful and developmental.
- P3. Commitment to the team. A mutual understanding of the purpose of the tasks. To support each other and do this even when there is both a lack of time and knowledge.
- P4. To never loose the connection with the requirements of the customer.
- P5. Cooperation, skills variety and meaningful tasks.
- P6. Openness between the team members, mutual accountability and to share the knowledge possessed with the other members of the team.
- P7. Collaboration, openness and interaction.
- P8. Willingness to listen and learn from each other. To go along well with the others. To have a mutual goal that everybody agrees upon.
- P9. The work environment. In teamwork there is a need for a quite work place when working on individual tasks. When working together on a task it is good to have a table in the middle of the teams' work environment. But it can be very disturbing for those in the team working individually as the people working together in the middle will disturb them. It is not healthy to be stressed and irritated during the whole day at work. There are meeting rooms but they are not intended for the team members to use for ordinary work.
- P10. Resources of people, material and also time to be able to do a professional job. Stimulating tasks. A good relation with the customer.

5.8 Additional comments

During the interviews we took notes of the comments that were expressed. This is a gathering of the material collected, sorted according to each respondent.

P1

Unwillingness to work in a team. In a team that involves mainframe the learning period is long compared to a learning period for the PC. When working with mainframe it is different from working in a team with PC's. The team is divided and it is not like being a member of a team at all. When working in mainframe the work is individually.

P2

The feeling of safety in the team and to get support from the other members is positive aspects of teamwork. Someone in the team is always responsible for the daily support, which changes weekly. In this way everybody in the team have the ability to handle support when needed. But there are also situations when team members have to support each other.

There are sometimes situations in a team where tasks are dependent of one certain person. This person may not share his or hers knowledge with the other team members. "It is like a guarantee for having a job".

Documentation of the systems is important since there are many different computer systems with different environments. It must be documented since it is not possible to have all information in your head. The team members use the documentation, as it is very helpful for them. It is important to be aware of the purpose of using the documentation since this makes work meaningful.

Teamwork is not a structure in the organization that suits all people. People are hired in terms of if they are suitable for teamwork or individual work. The manager thinks it is also good that team members can be able to change from one team to another. But this is not always working satisfactory.

P3

It is very important to arrange activities to be spent outside work together with the team members.

It is important to get more resources and time to develop oneself, for example through education, which contributes to self-actualization for the whole team.

"We do not change tasks in the team as much anymore, instead each person is working on his or hers own task." From the beginning it was planned that the team members would rotate between different tasks, which is the purpose of teamwork.

P4

“It is not the division manager that is the manager. It is the customer that is the manager”. The connection with the customer is very important.

When people are working individually there is a risk to end up in the hands of the customer completely. The advantage of teamwork is that the team is stronger than an individual and in that way there is no risk of that. The team tries to have a shared contact with the customer.

The old person-to-person relation towards the customer still occurs and works well. This relation is hard to change and must be handled with care.

Occasionally the team leader can handle the contact with the customer alone but attempts are made to prevent this.

It is fun to be a team leader but it is easy to become like the division manager and be too much involved.

P5

There is not that much difference between how a team is motivated and how an individual is motivated.

Work that is dependent on one specific person always occurs even in teamwork.

A lot of the knowledge is stored in peoples' minds. When searching for existing documentation it is often hard to know where to search for it. It is easier to ask people. The existing documentation could be documented in a better way.

P8

The personal chemistry is of great importance in teamwork as the team members are supposed to work together. It is not always easy to work together. It is also important to take into consideration that people are different, a person is not "a square that can be taken out and fit in any place", something that can be brought from one team into another, and will suit perfectly in the new team.

A positive aspect when learning new things is the existing documentation. An example is an instruction sheet where one can learn new things step by step, which are used a lot. It feels safe to have an instruction sheet to turn to when a new member has joined the team. The instruction sheet is also helpful when a new member is searching for information on the daily work. Nowadays there is more documentation than before. The documentation facilitates daily work since there is somewhere to go and search for information and it works well.

Because of the geographical distance between the team and the division manager there is an increased feeling of that the management has confidence in the team to work on their own.

P9

A negative aspect in the department is the lack of communication between the teams. This is also due to the geographical distance between some of the teams. Today communication is on the team leader level and has to be moved down to the team level. The knowledge is still in people's heads. At the department there is more a focus on chargeability and figures than on communication.

People do not share their knowledge. A skills team is still under construction, therefore the knowledge has not spread in the teams yet. There should be meetings where team members can be informed and learn how to make the communication better between the teams. A notice board that contains information and history of what the teams have performed or discussed earlier, with tips and ideas, would also be helpful. Today there is existing documentation but there is a need of a forum where information can reach the teams.

6 Interpretation and evaluation

This chapter contains the interpretation of the empirical material collected from our interviews. The result will be analyzed and discussed according to the different forms of motivational factors: structural, socio-cultural, functional, individual, environmental and also the existential conditions for a team as a whole. Further, the chapter contains some complementary thoughts on the result and also a discussion on factors that can have affected the result.

6.1 Existential conditions

In addition to the questions of the interviews that are related to the different parts of the model, the interviews also contained a question that concerned the team concept as a whole. This was used to complement the following views and try to validate the model by gaining additional insight to the concept of team motivation.

6.1.1 The origin of the team concept

There are several factors that can explain the origin of the team concept. These are factors that make the team concept desirable, i.e. what makes an organization choose to apply a team structure. The main thing that the respondents considered motivating the team concept is the workforce diversity, something that is consistent with existing theories. Katzenbach & Smith (1993) state that examples of skills that a team must possess in order to gain the advantages of teamwork are technical and functional skills. This means that there should be a wide set of knowledge within the team, that different members should possess different qualities.

Personal independency was suggested as an additional alternative to the question by one of the respondents. The respondent meant that one of the main advantages with a team structure is that a person can be easily replaced if he or she quits or gets sick. In other structures there will be a big gap in knowledge as well as in ability to perform a task when something like this occur. Another respondent commented that this could be considered to obstruct motivation since personal independency can make an individual feel more insecure in his or her position. Instead, if the company is dependent on the individual it is like a guarantee for having a job. The respondent meant that this could lead to that individuals are reluctant to share their knowledge.

Theories state that providing support within the team is an important aspect of teamwork (Katzenbach & Smith 1993). The same authors also state that complementary skills within the team are a basis for a high-performance team. When members of a team possess different knowledge they require effective communication in order to be able to support each other. A team can be a community of knowing that needs communication to evolve and change (Boland & Tenkasi, 1995). This is done for the individuals to be able to take in other approaches, sharing their experiences and analyzing their experiences rationally, i.e. strengthening their perspectives. By doing this the complexity in the community increases which leads to a higher performance of work. These theories show that sharing experiences and knowledge within the team are positive qualities that give an extra advantage to the concept of teamwork. Since team members will still have their own knowledge and skills they can feel secure in their position and still have the benefit of the support in knowledge from their colleagues.

Another respondent commented that a team is able to perform a lot more together than the individuals within the team can on their own. This alternative was not chosen as an explanation of the desirability of the team concept, but as the comment arose during one of the interviews the relevance of the issue became apparent. The consistency with existing theories is obvious. Katzenbach & Smith (1993) claim that a team performs a lot more than the sum of all the team members' performance together. The same issue can also be noticed in Langefors' (1993) theories of infology. If several individuals that possess different frames of references and knowledge work together they will be able to reach more conclusions due to their larger amount of previous knowledge than that of an individual alone. A further description of the relation between the performance of the team and the individuals is shown in Figure 15.

$$\text{Performance (A * B)} > \text{Performance (A) + Performance (B)}$$

(A), (B) = independent individuals
(A * B) = individuals working together in a team

Figure 15 *The relation between team performance and individual performance*

The figure above shows the relation with a focus on the process. The same equation can be used to describe the outcome of the team's performance, i.e. with a focus on the product (see Figure 16).

$$\text{Outcome (A * B)} > \text{Outcome (A) + Outcome (B)}$$

(A), (B) = independent individuals
(A * B) = individuals working together in a team

Figure 16 *The relation between team outcome and individual outcome*

6.2 Structural motivational factors

6.2.1 Structural forms

According to the respondents, the hierarchic and participative structure is the most motivational structure, and is also commented among the team members as being the existing structure of the department today. In our interpretation we take these comments of the respondents as that they are satisfied with their structure in the department. Not surprising, the negative result of the hierarchic and authoritarian structure shows that the respondents do not feel this structure motivational at all, as it has a very negative affect on motivation. The hierarchic and authoritarian structure is commented as negative since it does not give the workers freedom to handle their own task on their own. The team members also consider this as a negative structure since the leader is the one who makes all decisions. This confirms our model that argues that a hierarchic and authoritarian leadership does not give any motivation as the employees are controlled and are not given any freedom (Mabon, 1992). One team leader felt that if the team members are not given any possibility of responsibility at all, they will not be motivated. The comment is representative since the theory argues that if individuals are not given any responsibility they will not be motivated (Bolman & Deal, 1997).

The network structure has just a small difference in motivational potential than the hierarchic and participative structure both among the team leaders and the team members. Although the respondents want to have a shared leadership, they also imply that there has to be some sort of leader. One team leader commented that a team structure where there is a clear leadership role and where that leadership was to be changed occasionally between the team members would be preferred.

Over all there is no big difference in opinion between the team leaders and the team members. The general impression of the different structural forms is that they do not have a very high positive affect on the team's motivation. However, it is obvious that the hierarchic structure of the team has a negative affect on motivation.

6.2.2 Communication

Communication is the factor that is regarded as the highest factor to promote team motivation among the respondents, with an even result between team leaders and team members. There is an interesting connection between this result and the earlier result of the respondents considering the participative and the network structure to be the two most motivational structures, since they are structures that involve more communication (Bolman & Deal, 1997), which promotes team motivation.

According to the results it is very obvious that the respondents find personal contact to be the form of communication that has the highest direct effect on team motivation. The result is very even between the team leaders and the team members. This validates our theories of communication since personal contact is the richest media of communication as it provides direct feedback, which makes it able to control the interpretation (Daft & Lengel, 1986). It is also interesting to observe how much higher the motivational potential of personal contact is compared to the other forms of communication. E-mail and telephone contact are regarded as having a strong direct effect on motivation, although not as strong as personal contact. The opinions are a bit different between the respondents. One respondent commented that e-mail containing information that concerns the whole team is more motivating if it is sent to everybody in the team, not only to the individual.

However, this is not consistent with existing theories that state that if e-mail is sent to everybody it can have a negative affect on motivation since information that is aimed to reach many people often is less rich in information (Daft & Lengel, 1986). Personal, formal and numeric documents are considered as having a quite low direct effect on team motivation and the answers of the respondents are quite even. An exception is numeric documents that are regarded as having less effect on motivation among the team members. Over all the results of the respondents are representative as they are consistent with the theories of communication.

6.2.3 Leadership

Employees are not motivated if they are working under external control instead of having freedom of action and self-control (Mabon, 1992). The theory corresponds well to the answers of the respondents that a leader controlling the team members has very negative effect on team motivation. One of the respondents commented that a certain amount of control can be motivating, but it is not motivating if a team member is controlled on a too detailed level.

Also, to get recognition from the leader is regarded as a high factor in promoting motivation and has a very even result between the respondents. This result is very representative and confirms our theories well, as recognition is a motivator and a strong determiner of work satisfaction (Herzberg, 1993). Autonomy, coaching, feedback and skill variety are also regarded as having a strong motivational potential in a team and has very even results both between team leaders and team members. As these are some of the key characteristics that contribute to enhancing a jobs motivational potential (Boddy et al., 2002) the result is very representative. According to these results the job enrichment model is validated. One comment from a team leader is that skill variety can only be motivating if the knowledge that can be shared is interesting. The person that is to share their knowledge has to be pedagogic and also be willing to share it. If a person is not good at explaining or usually does not want to share their knowledge it might be better not to ask that person at all. The sharing of knowledge is of importance since it promotes the creation of our own perspectives and the ability to take in others perspectives (Boland & Tenkasi, 1995).

Shared leadership is not regarded as restraining motivation among the respondents but is regarded as only promoting motivation a little. The result is about the same between team leaders and team members and is in fact not far from the result of network structure, which involves a shared leadership. According to earlier comments the respondents want to have a shared leadership that involves some sort of leader. The results are interesting since a shared leadership is one of the characteristics for a team where there is a shared decision making and each team member has the ability to take responsibility for the process and the outcome (Katzenbach & Smith, 1993). To have more responsibility as a team member will increase the motivation (Mabon, 1992; Herzberg, 1993). This is further confirmed by the respondent's opinion that a strong, authoritarian leader is regarded as restraining motivation.

To be encouraging as a leader has a strong relation to motivation (Katzenbach & Smith, 1993) and among the respondents this quality of a leader is considered the highest of qualities in having a very positive effect on motivation. It is also of importance that a team leader shall have good communication skills, which is considered as having a high effect on motivation among the respondents and corresponds well to the theories of leader roles (Senge, 1980). A leader that has the ability to stimulate the team members is also a very important quality according to the results. It also confirms the theories of motivation, as they will be more motivated in work if they are stimulated (Bolman & Deal, 1997).

A leader that has the ability to promote personal visions from the employees and to provide freedom of action is of importance for both team leaders and team members. The results between the two groups are even according to these qualities' ability to positively affect motivation and this corresponds well to theories of motivation (Senge, 1980; Mabon, 1992). According to theories of team organization it is important for the team leader to create a vision and remove barriers that enables the team to perform (Katzenbach & Smith, 1993). However, a comment from one of the respondents is in conflict with the theory when it says that the creation of visions is not supposed to be done at the team leader level and that the visions are for the team leader to follow. It is the division manager that creates visions for the teams to follow.

Except controlling and authoritarian, the different qualities of a leader are regarded as having a very positive effect on team motivation with a very even result between team leaders and team members. The results indicate that a leader has a high affect on team motivation in either a positive or a negative way.

6.3 Socio-cultural motivational factors

6.3.1 Goals

That the goals of the organization are meaningful is a high motivational factor. This is strongly indicated in the results of our interviews, as well from team leaders as from team members. The results also show that goals in general affect motivation a great deal. Clear, specific, achievable and accepted goals are also seen as highly motivating. This kind of commitment to the goals is one of the key characteristics of a high-performance team. The need for meaningful goals shows the great importance of the team leader keeping the goals relevant and meaningful (Katzenbach & Smith, 1993).

There is a slight tendency towards that the team leaders see achievable goals a bit more motivating than the rest of the team members. This could be because of that the team leaders might be more concerned than the team members to be able to reach the goals. One of the team leaders commented that if the goals that are set for the organization are not meant to be achieved, as the respondent felt that they sometimes are, everybody should be told this so that they would not be disappointed when they could not reach the goal. This is consistent with existing theories, which state that achievable goals can increase the commitment in the team (Katzenbach & Smith, 1993).

6.3.2 Culture

Mutual trust and respect within the culture of the team is considered highly motivating. These are concepts that are to be present in a well-functioning team (Katzenbach & Smith, 1993) and are also fundamental issues concerning an individual's needs (Maslow, 1954). This shows a representative result since there is a clear connection between the result and the existing theories on the subject. Shared work interests are not considered very motivating and this is also representative to the theories. Actually, this concept should not have a high affect on motivation since people in a team does not need to share their work interests in order to be successful. Theories argue that a team should instead consist of a variety of skills and interests that complement each other (Katzenbach & Smith, 1993). This is more motivating and makes a team perform much more than the different individuals could on their own. With this in mind it can in fact be a bit surprising that the result was not even lower.

The commitment between team members is regarded as more motivating than the commitment between team member and leader and especially more than the commitment between the team and the organization. This is not surprising at all since the organizational commitment is a very abstract thing and harder to relate to than the team commitment, which is much closer and therefore more concrete. Consider the relation that an individual has to his or her family. If this relation represents the commitment within a team the organizational commitment can be represented by the same individual's relation to the city that he or she lives in. Commitment in a team is a distinguishing characteristic of a high-performance team, especially how deeply the members are committed to each other (Katzenbach & Smith, 1993).

6.3.3 Diversities

Different diversities have different affect on team motivation. The results of our interviews show that a diverse team that has a variation between men and women and also consists of people with different nationalities, i.e. social diversity, is highly motivating. Although, there is a slight difference between the two groups of respondents. The team members seem to have a higher opinion of the social diversity's ability to motivate than the team leaders have. Since existing theories argue that social diversities increase performance and morale in the team¹⁵, this is consistent with the result of the respondents.

Different knowledge and earlier experiences among the team members (informational diversity) give room for different interpretations of the information within the team (Langefors, 1993); the respondents regard this to have a positive affect on motivation. One of the team leaders commented that the informational diversity is motivating as long as the team members has the ability to share their own views with the other members of the team. To have a wide set of knowledge in the team, i.e. skill variety, will enhance performance and motivation (Katzenbach & Smith, 1993; Boddy et al., 2002).

Cultural diversity, i.e. differences in norms and values, is considered motivating by the respondents, although not as motivating as the other diversities. This result is a bit surprising since a too high diversity in this area can make the team members unable to work together and therefore decrease their motivation, which would also decrease the performance of the team¹⁶. The team can then be divided instead of the team members being committed to each other. It can also have the opposite effect and contribute to team commitment and motivation. In this way it is both constructive and destructive¹⁷. This paradox is not further elaborated in this thesis. Because of its contradictory nature the subject of cultural diversity in teams would benefit from further investigation.

¹⁵ T. Magoulas, personal communication, April 28, 2004

¹⁶ T. Magoulas, personal communication, April 28, 2004

¹⁷ T. Magoulas, personal communication, April 28, 2004

6.4 Functional motivational factors

Theories clearly show the affect that the performed task can have on motivation. A focus on intrinsic rewards by for example changing the characteristics of the task can help motivate the members of a team (Hackman & Oldham, 1980; Herzberg, 1993; Boddy et al., 2002). The results from the interviews give a strong indication of this being true; all alternatives regarding the task is considered highly motivating. We consider this a representative result since it matches existing theories very well.

Especially the task's significance is considered to have a high motivational potential. A significant task concerns how much the job matters to others and therefore a high level of task significance induce a feeling of the task being more meaningful (Boddy et al., 2002). Also variety in the knowledge that is used to perform a task heightens the work motivation by an enhanced experienced meaningfulness in work, according to the job enrichment model (Boddy et al., 2002).

A comment from one of the team members was that a task that is interesting and fun to do is considered motivating. This is consistent with the theories of Herzberg (1983) which state that an employee's satisfaction in work can only increase through enrichment of work itself. This can be done through motivators, which are satisfying individuals through the performance of the task itself. Skill variety is also considered to be motivating for a team. To have varied skills within the team brings a wider set of knowledge to the team (Katzenbach & Smith, 1993). This width of knowledge helps the team to gain all the benefits from teamwork, including team motivation.

The one aspect that is considered not quite as motivating as the rest is the issue of task rotation. Here we see a difference between the two groups of respondents. The team leaders regard task rotation to be motivating to a very high degree while the team members seem to think lower of the subject. An explanation of this can be that the team leaders have the distance to be able to see the benefits from the team members rotating between the different tasks. The general low result of the motivational potential of task rotation could be that the team members in the research environment has the kind of tasks that are not easily changed between, instead each team member focuses on his or her area. So instead of that the absence of task rotation being obstructing individual motivation it can instead be seen as promoting team motivation since it promotes and widens the workforce diversity in the team.

6.5 Individual motivational factors

6.5.1 The individual in the team

There are several factors to why an individual would want to be part of a team. Solidarity is considered as one of the highest factors to why teamwork is desired in order to increase motivation. Solidarity, or commitment, is a distinguishing characteristic of a high-performance team; it is one of the main priorities for the person in charge to build team commitment (Katzenbach & Smith, 1993). All of the motivational factors mentioned during this part of the interview were considered at least a bit motivating for teamwork. This gives us a representative result since the different factors directly taken from our motivational theories. However, the result has to be considered quite weak since there is a divided opinion among the respondents on the different factors' abilities to make an individual want to be part of a team. Some factors seemed to be representing the positive sides of teamwork more than the others, we will continue with showing their connection to the existing theories.

Feedback is one of the factors that stood out as an advantage of teamwork. Feedback makes it easier to observe the results of the work performed, which helps increase team motivation (Boddy et al., 2002). Feedback is dependent on the existing structure of the team; a team that is structured more as a network is able to have a higher level of communication. This increases the feedback and makes it able to flow in different directions within the team (Bolman & Deal, 1997). Feedback also makes communication richer within the team since it makes it possible for an individual to control the interpretation of what is communicated (Daft & Lengel, 1986).

Security is considered as one of the main reasons why an individual wants to be part of a team. According to Maslow (1954) security is included to be in the lowest steps of an individual's hierarchy of needs. It is included in the physiological and safety needs, which states that an individual needs to have physical security and also feel secure in the workplace. These two first steps of the hierarchy include factors that are not motivating in themselves but that has to be existent for the individual to be able to perform the task at all. This can be interpreted as that being in a team structure is considered to be a safe way to work. A comment from one of the respondents was that security in a team is also related to the possibility of getting support from the other team members. Providing support to those who need it is described as one of the values that teamwork brings, it is also a desired skill from the team members. This will increase the team's performance and the quality of work (Katzenbach & Smith, 1993).

For the leader to promote personal vision is important, according to Senge (1990). This is indicated by the results of our interviews as well; we see an indication that team members find this issue more of a reason to have teamwork than the team leaders do. This could be because of that the team members better can feel the need of their vision being visualize than the team leaders can, since they are the ones mostly affected. To be able to communicate his or hers own vision is also an important ability of a team leader (Senge, 1990). If the leader is able to bring his or her own vision and the team members visions together, a shared vision for the team is created. Being able to get the whole team to share the mutual vision of the team makes that vision more real (Senge, 1990).

That the respondents consider responsibility an advantage of teams makes teamwork stand out as motivating in itself. It is one of the motivators that Herzberg (1993) presents as factors that increase work satisfaction and hence motivation, this is supported by Schou (1991). Responsibility will also make individuals work better, according to McGregor's Theory Y, which will lead to the individuals having a better ability for problem solving, taking initiative and creating new ideas (Bolman & Deal, 1997). Responsibility can be gained by adapting a shared leadership in the team. When having to take the role of the leader, the different team members will have the possibility to take responsibility for the process and the outcomes of the team (Katzenbach & Smith, 1993). We see this possibility for a team when adapting a network structure that enables all members to have freedom of action and responsibility.

6.5.2 The motivation of an individual

When it comes to factors that can increase the motivation for an individual all of the motivational factors mentioned in the interviews are considered motivating. This gives us a strong result since all respondents have a high belief in the factors ability to motivate. The respondents consider a satisfying work task to be most motivating. This is also commented as being more motivating than for example salary by one of the respondents. Intrinsic rewards, or motivators, are stated as something that can motivate and individual from the performance of the task itself (Herzberg, 1993; Boddy et al., 2002). Here there is a strong representative connection between the result and the theories. Autonomy, feedback, skill variety and task identity are also considered highly motivating by the respondents, they are all factors in the job enrichment model which brings forward factors that when focused on will motivate the individual (Boddy et al., 2002).

An individual need to fulfill his or her higher-order needs in order to feel motivated (Maslow, 1954). This is further elaborated into specific motivators, which are factors that increase the motivation of an individual (Herzberg, 1993). The opposite are the hygiene factors that have to be present in order to not obstruct motivation but that are not in themselves able to increase motivation. Salary, work environment and security are examples of these lower-order needs. These factors are considered as quite motivating by the respondents, something that might at first seem a bit surprising. However, the factors can be seen as motivating because of their ability to obstruct motivation if they are not present. This could explain the high grades on these alternatives. One of the respondents, that actually put a bit lower grades on these factors, commented them surprisingly consistently to the existing theories on the subject. The respondent said that both salary and work environment are not motivating in themselves, but if they would be really bad they would obstruct motivation. Another example of how work environment can obstruct motivation is brought out from one of the other respondents. At Volvo IT the team members of each team sit together with a mutual table in the middle of the group where issues that more than one team members is involved in can be discussed. The respondent thought this structuring of the team's workplace to be very disturbing to the team members that were not involved in the mutual discussion. The respondent felt that this increased stress and irritation, which is not healthy and certainly not motivating.

Although the hygiene factors in the interviews are mostly considered motivating, the factors that fit to the category of higher-order needs are considered even more motivating. This is very representative to the theories, since the higher-order needs should be the ones that motivate the most (Maslow, 1954; Herzberg, 1993). Solidarity, which was considered the factor that most motivated an individual to be part of a team, is also considered a high motivational factor for an individual. This shows a similarity in how teams and individuals are motivated. The factors that represent the two highest steps in the hierarchy of needs (Maslow, 1954) were also regarded as highly motivating. Recognition represents the second highest step, the *need for esteem*, and is also mentioned as one of the motivators in Herzberg's two-factor theory (1993). It involves an individual's need to feel competent and respected and will improve his or her self-confidence. The highest step of the hierarchy (Maslow, 1954) is the *need for self-actualization*, which is another alternative that is considered motivating by the respondents. When an individual has reached this stage he or she uses his or her full potential, which brings total motivation in work and a feeling of all needs being satisfied.

6.5.3 Communication between individuals

To have active meetings in the team that encourages discussion and focuses on problem solving is a characteristic of a high-performance team (Katzenbach & Smith, 1993). These are meetings where issues are dealt with by involving all members of the team in discussing the issues. Active meetings can take quite a long time, but they will result in decisions that come from issues that have been thought of and evaluated by all members of the team and hence are well rooted in the team. The respondents consider this kind of meeting very motivating. The other kind of meeting is the efficient meeting. This type has the advantage of taking less time, focus lies on dealing with issues quickly, but it loses the deeper meaning that further discussion brings. The result of the interviews shows that active meetings motivate more than efficient meetings, which is consistent with the theories on the subject. A respondent commented that efficient meeting that only focus on productivity and efficiency do not increase motivation. The respondent further elaborated that a meeting that is very short and efficient can instead obstruct motivation. A meeting with stimulating discussions and possibilities for interruptions and contributions to the discussion is more motivating. This is also very representative to the theories.

The issue of meetings that promote discussion is linked to the issue of effective communication. The respondents of the interviews consider effective communication highly motivating. This issue deals with the importance of the communication that occur within, as well as in and out of, the team is rich and has a meaningful substance. With this kind of communication there is an improved opportunity to change the understanding of the one communicated with by overcoming different frames of reference (Daft & Lengel, 1986). Theories also state that faster, higher quality decisions can only be made by teams that consider many alternatives that involve more information (Boland et al., 1994).

6.6 Environmental motivational factors

6.6.1 Environments of a team

Of the different environments that affect the team an interactive environment is regarded as being very high in promoting motivation. The result is very even between the team leaders and the team members. Communication is an important factor, and especially communication that is interactive. An environment that uses feedback receives the advantages of this type of communication since the use of feedback will contribute to motivation within a team (Boddy et al., 2002). This is consistent with the results and also corresponds well to the theories. Compared to the interactive environment, the communicative environment with communication only in one direction is regarded as very low in promoting motivation, both among team leaders and team members. This is also consistent with theories as there is no use of feedback when there is only one way of communication, hence a decreased possibility of motivation.

Like the interactive environment the collaborative environment is also highly promoting motivation according to the results. The answers are evenly distributed between the respondents. Existing theories state that a team that exists in a collaborative environment can achieve common goals by combining their emotional efforts (Dickson & DeSanctis, 2001) and that achievable goals can increase the commitment in the team (Katzenbach & Smith, 1993). Since collaboration and commitment are related the result in this question can be explained by that the respondents' opinion of collaboration is very important since it contributes to the ability in achieving common goals, and therefore the increase of commitment in the team.

Both collaboration and competition can be seen as constructive. The collaboration in a team can be constructive as collaboration directly has an effect on the work of other team members and advantage is attained when team members perform their tasks perfectly together toward the goal (Dickson & DeSanctis, 2001). However it is remarkable that a competitive environment between the teams is considered as not high in promoting motivation with an even result between team leaders and team members. One of the respondents comments that there is no drive to win over other teams or departments. It is not a good thing to step on somebody's toes to get ahead. An explanation to the opinion can be that the respondents want a stable environment. But existing theories argue that people get passive if there is no competition. If there is no competition between teams, the teams will never know if they have uniqueness and they will never become perfect teams¹⁸. The general impression of the different environments, except the communicative and the competitive, is according to the respondents that the environment has a high affect on team motivation.

¹⁸ T. Magoulas, personal communication, May 13, 2004

6.6.2 Environmental interdependencies

The environmental surroundings of the team that affect how the team works are regarded as having a high affect on team motivation which could be a sign that the respondents are influenced by the environment in different ways. Of the results concerning the different organizational interdependencies the infological interdependency is considered as having the highest effect on team motivation with even answers between team leaders and team members. As the infological interdependencies involve communication to obtain mutual understandings in an organization (Magoulas & Pessi, 1998) this corresponds well to earlier results of communication, which the respondents find very important in promoting team motivation. Strategic and economic interdependencies are also regarded as having a high effect on motivation among the respondents.

A general impression of the results of the different interdependencies is that they have a relatively high effect on team motivation. Interestingly the respondents had no comments on the organizational interdependencies. A reason could be that the question is easy to understand and they don't have any additional comments concerning these aspects.

6.7 Summary

The interpretation of the empirical result is completed. The interpretation has been done according to the five different aspects of motivational factors: structural, socio-cultural, functional, individual and environmental. This was done so that the interpretation would be done on the basis of our model and hence give validity to the result. However, the interpretation is affected by our own subjective values and ability to notice connections. According to Ackoff (1974) the soft part of system science is dependent on subjective values. Sciences with a harder approach have the ability to map their findings but they cannot reach an understanding about them.

The interpretations are done with the assumption that the empirical material is correct. If this is so and our interpretations are correct we claim that the motivational factors presented show a strong and representative view of team motivation. The results are representative and strong because of the respondent's unanimous opinions in most matters. This validates our model and also the theories on which the model is built. The following derivation shows these relations (see Figure 17).

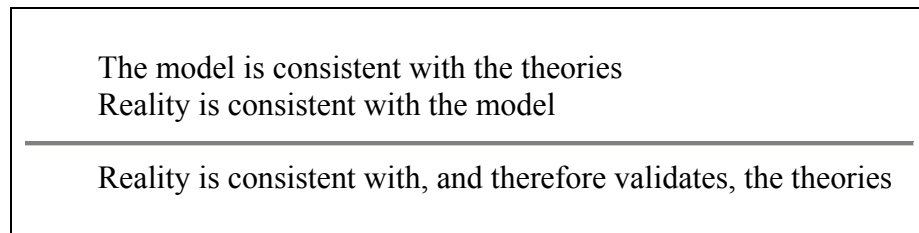


Figure 17 *Derivation of validation*

6.7.1 Working together

The performed interviews contained a final open question in purpose of gaining the respondents' own opinions on what can increase team motivation. This was done to validate the model of team motivation by hearing the team members own words and see if they match the theories used to build the model. The result indicates that issues that are related to how the members of the team work together are most motivating. A team that is open, that has a high level of cooperation and where there is willingness to share knowledge in order to learn from each other seems to be the most motivating form of teamwork. Skill variety is also considered motivating and is needed in order to have something to learn from each other. When comparing these indications to our previous interpretations we find that there is great similarity. The different aspects that seem to be considered as the most motivating factors to a team can be found in all the constituents of the model. This is an indication that they truly are motivational factors of teams since the concept that the model describe has to be seen through a holistic view in order to gain validity.

To share knowledge there has to be communication. Several theories state the importance of this issue and the concept is also brought forward several times in different parts of the interpretation of the empirical result. An interactive environment is considered highly motivating because of its ability to give feedback to the team members. Feedback in itself is considered one of the main advantages of working in a team structure. Communication is also an essential factor in order to gain advantages from workforce diversity, as in an environment with infological as well as social interdependencies. There is a need to share the different knowledge possessed by the different team members if it should be of any use, this can only be done through communication. The advantage that personal independency in the team can give is also dependent on the effectiveness of the communication so that the knowledge will be shared throughout the team. The ability to share ones knowledge and receive knowledge from others induces a feeling of support. The respondents consider effective communication to be motivating them as individuals as well as team members. The motivational potential of communication is further pointed out by the high motivational potential of active meetings where there is much communication through discussion.

For the communication to flow freely within the team theories state the need for the team to be in a network structure. Surprisingly enough the results of the investigation show that a network structure is not the most motivating structure for a team. Instead a hierarchic and participative structure where there is a clear leadership role, which can be altered between several leaders, is preferred. Although, the network structure is not far behind and the reason why the hierarchic and participative structure was considered most motivating could be that it is the existing structure of the teams today, which makes it more familiar and easy to relate to. The least motivating structure of a team is considered to be the hierarchic and authoritarian structure. This is consistent with other results that state the importance of freedom of action. To have freedom to manage one's own actions is a characteristic of a network structure and is non-existent if there is an authoritarian leader in charge. The network structure gives the team members the ability to take responsibility for their own actions, something that is considered highly motivating by several theories. Also, by working together a team is able to perform a lot more together than the team members could by themselves.

6.7.2 A sense of commitment

Other factors that are considered highly motivating are those that are related to the sense of commitment in the team. For the team members to get on well with the other members and enjoy the collaboration are important factors that are mentioned to contribute to the commitment in the team. Motivation is also considered to be gained by mutual accountability and by supporting each other at all times. These are all factors that can be referenced to different parts of the model of team motivation. The sense of commitment between team members is a key characteristic of a team that will perform well. Theories further state that commitment can be reached by the team members focusing on goals and visions. The goals have to be meaningful and clear in order to improve the commitment. It is the leader's role to visualize the team member's visions. The leader should also be encouraging, give recognition and be able to delegate responsibility to the team members. This will motivate the team member as an individual as well as a part of the team. Another quality of the leader that is of importance for team commitment is his or her ability to communicate. A leader that focuses on personal communication has the best ability to motivate a team since personal communication is the communication form that contains most information. This because the richness of the information that personal communication brings will increase its possibilities of motivating.

Solidarity is an issue that is stated as highly motivating to be part of a team as well as motivating an individual. It is a concept that is closely related to commitment. That a competitive environment is not considered as motivating a team could be related to the high opinion that the respondents have of solidarity being motivating. It could be explained by the sense of wanting to belong together that solidarity brings and also to feel secure is not compatible with a competitive environment. Although, it is important to have some competitiveness for the team not to lose its "edge". A feeling of being the best team will help to keep the team motivated. Inside the team a collaborative environment is desired since it increases the sense of commitment and is therefore suited for a team that seeks motivation. Trust and respect within the team is also a common ground for a committed and motivated team.

6.7.3 Task and goals

Only after the previous areas of motivational factors that are more concerned with the “softer” aspects of teamwork come the factors that are related to the task. Meaningful, developmental and stimulating tasks are wanted to reach a higher level of motivation in the team. To have a mutual understanding of the goal and purpose of the team is also considered motivating. The respondents feel that having a good relation with the customer and to never loose connection with the client’s requirements is motivating. This is an important thing in an environment where the team member’s main task is to handle the computer systems of their clients.

Although these are factors that were not mentioned as many times as the ones in the previous sections it has to be pointed out that they are not to be considered not motivating the team. After all, they were mentioned as factors that are the most motivating factors for a team. A satisfying work task was seen as the most motivating aspect for an individual. To positively affect the motivation of an individual is closely related to the sense of achievement that comes from the performance of the task. Hence, a change in the way that the task is performed or the task itself and the creation of intrinsic rewards will affect the motivation of the individual that perform it. The task should feel significant and be developmental for the individual.

The importance of the goals being meaningful and mutual within the team is stated both in the interviews and in existing theories. The responsibility here lies with the leader whose main task is to help the team members to visualize their mental models and also his or hers own so that they can be discussed and evaluated. This will lead to the forming of mutual goals and since all parts of the team has been involved in formulating these goals they will also be better received and easier to relate to. A collaborative environment will help the team members to understand the goals, which will increase their commitment to the team. This in turn will lead to a higher level of motivation for the work that is to be performed.

7 Conclusions

After studying existing theories on the subject and creating a model that summarize these theories we formulated relevant interview questions to investigate the area. The result from the interviews has been interpreted and after this we have reached three separate conclusions. We continue by explaining the conclusions one by one, more in detail.

7.1 Motivational factors of a team

When starting out with this research paper we wanted to investigate how a team as a whole can be motivated. To do this the following question was asked:

What factors affect team motivation?

During the study we have found that there are more than one type of motivational factors that can motivate a team. The research shows that it is the combination of the different factors that promote motivation; aspects from all parts of the model created from the theories are considered as highly motivating and there is a balance between the factors from the different parts. The different factors that motivate a team are shown in Figure 18 below.

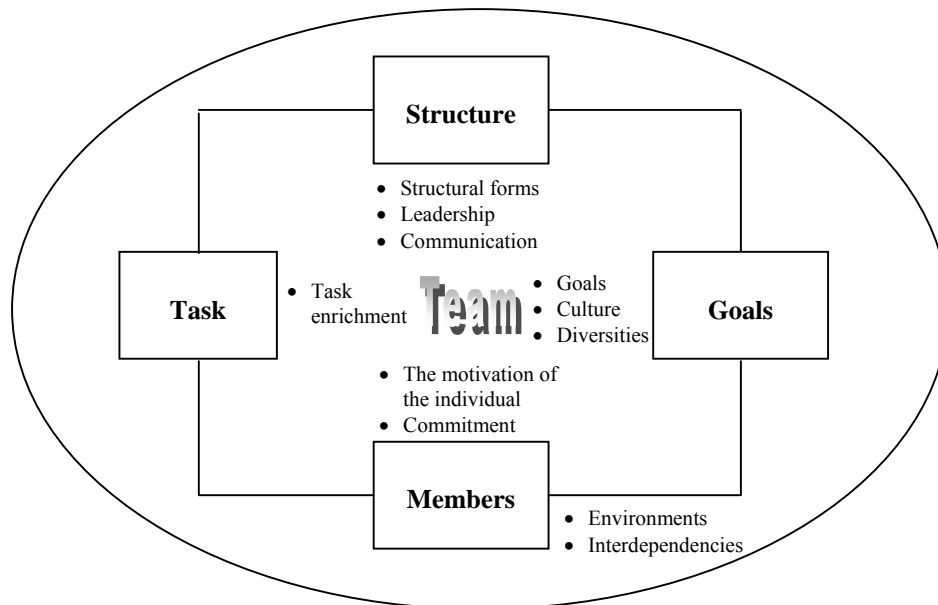


Figure 18 *Motivational factors of a team*

All in all, if our interpretations are right, the following can be said as contributing to team motivation: A team that exists within a collaborative environment, with a structure that gives good abilities for communication, has a high possibility of being motivated. Further, the team members must be committed to the team; this is done by the leader helping the team members to reach the goals by giving them freedom of action. For the team members to be individually motivated they need to fulfill their higher level needs. This can be done by changing the way that the task is performed. It is the combination of all these qualities that will make the team feel motivated.

7.2 Difference between individual and team motivation

The concept of motivation is often related to the individual. In order to gain further insight in the concept of team motivation and to see the distinctions thereof we also asked the following question:

How does motivation differ between individuals and individuals within a team?

If our interpretations are right there is a significant difference in how individuals are motivated on their own and how they are motivated when being part of a team. There are more possibilities to motivate the team, but because of the many possibilities it can be harder to, since there are more motivational factors to fulfil for a team in order to gain motivation.

The motivational factors differ since the goals of the individual and the team are often not on the same level. An individual will always strive to fulfil his or her higher-level needs in order to be motivated and it is not always that these needs are consistent with the needs of the team. Of course the team will not be motivated if the individuals in it are not, but there are other factors than only the intrinsic rewards that promote the individual's higher-level needs that can motivate a team. Several issues are affected differently according to if they are concerned with an individual or a team. The sharing of knowledge, support, solidarity and communication are issues that have a high affect on motivation for a team. An individual, who works alone, will not gain the advantages of these aspects of motivation. As the model of team motivation shows a team is influenced from many directions, i.e. there are more factors to use to motivate the team than there is to motivate the individual since the individual is only one part of the model.

7.3 Team motivation - the issue of freedom of action

To conclude this research the issue of freedom of action is acknowledged as one of the most important factors concerning team motivation. A team that is allowed to negotiate its goals and visions will have a higher freedom of action, and therefore be more motivated. A further elaboration of this conclusion is presented below.

There are some differences in what role the leader should have in a team according to existing theories in the subject, and the role that the team leader has in the teams in the research environment. Today it is of importance for team leaders to communicate their vision, to create a shared vision in the team and to provide freedom of action in order to promote team motivation. A leader that has the ability to promote personal visions from the employees and to provide freedom of action is of importance for both team leaders and team members. During the interviews it was commented that the vision is made by the division manager and the team leader as well as the rest of the team is to follow that vision. As this comment is inconsistent with the motivational aspect of freedom of action this conflict concludes that the teams are without this condition that would have a positive affect on their motivation. If the team follows the division manager's vision instead of creating their own, they will find themselves in a state of limited freedom (see Figure 19).

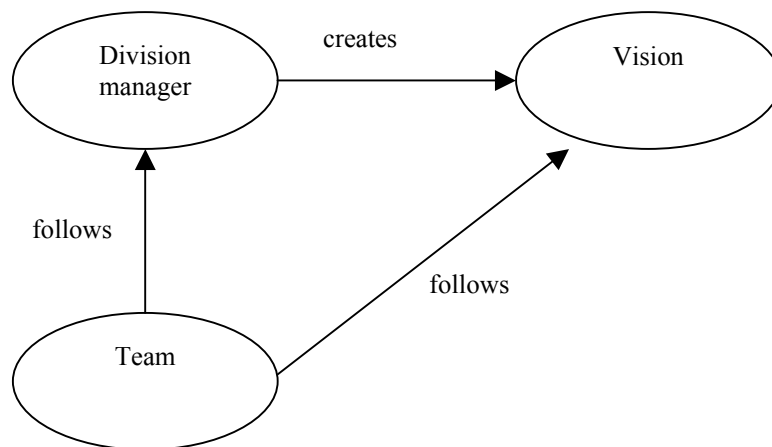


Figure 19 *State of limited freedom*

Theories also argue the importance of the goals being created within the team for the goals to be accepted by the team members. At the department of the research area it is the client that makes the requirements that the teams has to follow, the client is in one way seen as the actual manager (see Figure 20). The connection with the client is very important at the department and not to loose that connection induces a sense of motivation and satisfaction in work. When the requirements are achieved there will be a “win/win” relation for both parts; the client will be content with getting the requirements fulfilled and the team members will be satisfied because of their achievement. This is an issue that motivates the use of teamwork, as there can be a risk to end up in the hands of the customer when working individually. The advantage of teamwork is that the team is stronger than an individual, which decreases the risk. To follow the requirements of the client is consistent with today’s approach that requires an attitude shift towards “do it their way”.

Even though the client is setting the requirements for the team can be considered motivating it is important to acknowledge other aspects of the issue. There can lie a risk in trusting the client’s ability to formulate the requirements. This presupposes that the client has knowledge about an issue that they might not have knowledge about, which can make it difficult to formulate the requirements in a clear and specific way. If the client is unable to do this it will decrease the motivation for the team (Magoulas & Pessi, 1998).

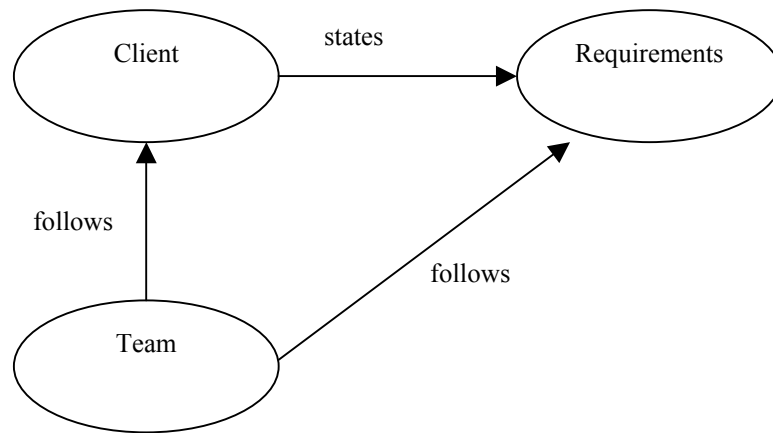


Figure 20 *Client decides the requirements*

To follow somebody else's goals and vision, be it the client's or the division manager's, is not consistent with today's definition of teams. According to existing theories of teams today there is a need for all members of the team to have responsibility and freedom of action in their work. If there is a lack of these aspects the motivation as well as commitment in the teams will not be able to reach a higher level. There is also uncertainty concerning who it is that the team is to follow, the client or the division manager. The result shows that the team members want freedom to handle their own task in order to feel motivated. If the team members are not free to decide their own goals and visions, they will not have freedom of action. Visions can always, and should, be negotiated to suit the team member who is affected by them. This will give the team members a chance to contribute to the visions instead of having the visions handed to them from a higher level. This is consistent with Lengefors' concept of workability. By negotiating the vision with the team a new improved vision will emerge. When the client or the manager agrees with the team's improved vision freedom of action is achieved (see Figure 21). In this way the team becomes teacher of the client or the manager.

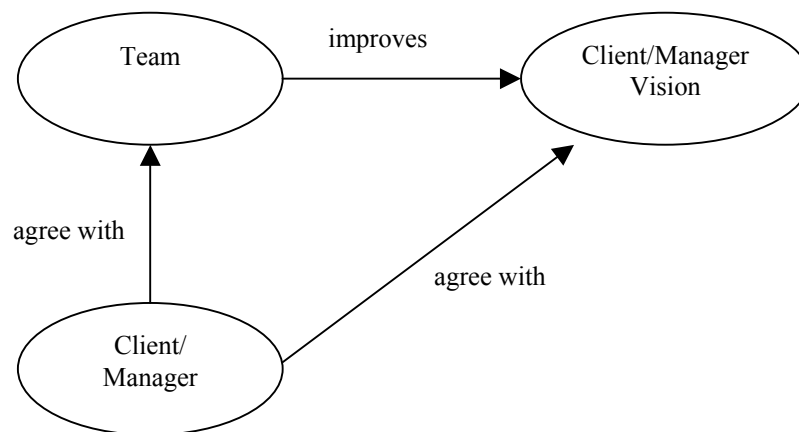


Figure 21 *Freedom of action*

In order for the teams of the research area to have the ability to be fully motivated and if our interpretations are correct, they would benefit from allowing the team members to be part of the creating of goals and especially focus on formulating goals that are on a closer level in order for them to be easier to relate to. It seems like the team members are more committed to the requirement that come from the client than the ones that come from higher management. If the goals and visions come from a closer level, for example the team leader level, they will be more likely to be accepted and hence bring more committed team members. This is an area that could be further elaborated. To be able to reach an understanding of the motivational potential of goals and visions, an investigation of the area has to be performed in an environment that is more accurate to the environment that theories state teams should exist in today.

7.4 Proposals to further research

In our investigation we have found several issues that would benefit from further research. These issues are listed below in order for future researchers to get inspiration from.

- Leadership – which form of leadership is most promoting motivation? Theories state that there should be a network structure in order to gain motivation in a team but the result from our research show that a participative structure with a clearly defined leader role is more desirable. Can this structure exist for the team to still have autonomy?
- The issue of personal independency emerged during the interviews as a motivating factor to the team concept. Since this was not an area that we had brought up ourselves focus was not laid on it. However, the area could still be further investigated in order to see the degree of affect it has on motivation. Personal independency can both be positive and negative in a team; a positive side to it is that if a team member quits or gets sick and someone else quickly can handle his or her tasks. It can also be negative because of the risk of unemployment that can come from not being the only one who knows a certain task. How these issues differently affect the way a team member is motivated would benefit from further investigation.
- Cultural diversity is considered to be motivating although it actually should obstruct motivation. A too high diversity can divide the team instead of increasing its commitment. On the other hand, different values in a team can also bring the team members together and therefore increase commitment. Further research in the area could enlighten the different aspects that cultural diversity brings and bring forward factors that affect if the outcome is an increase or a decrease in commitment.

8 References

- Ackoff, R.L., (1974). *Redesigning the Future: a systems approach to societal problems*. New York: Wiley.
- Backman, J. (1998). *Rapporter och uppsatser*. Lund: Studentlitteratur.
- Blomé, M. (2000). *Arbetsorganisation, introduktionskompendium*. Lund: Lund Institute of Technology, Lund University.
- Boddy, D., Boonstra, A., & Kennedy, G. (2002). *Managing Information Systems, an organizational perspective*. Edinburgh Gate, Harlow: Pearson Education Limited.
- Boland, R.J., Jr., Tenkasi, R.V., & Te'eni, D. (1994). Designing Information Technology to Support Distributed Cognition. *Organization Science*, 5, (3), 456-475.
- Boland, R.J., Jr., & Tenkasi, R.V. (1995). Perspective Making and Perspective Taking in Communities of Knowing. *Organization Science*, 6, (4), 350-372.
- Bolman, L.G., & Deal, T.E (1997). *Nya perspektiv på organisation och ledarskap*. Lund: Studentlitteratur.
- Claesson, T., & Pettersson, S. (2002). Towards introduction of the Rational Unified Process: Investigation of the prerequisites for introduction of a system development methodology. Master's Thesis, Chalmers University of Gothenburg, Department of Computing Science.
- Daft, R.L., & Lengel, R.H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32, (5), 554-571.
- Dickson, G.W., & DeSanctis, G. (2001). *Information technology and the future enterprise: new models for managers*. Upper Saddle River, New Jersey: Prentice Hall.
- Easterby-Smith, M., Thorpe, R., & Lowe, A. (1991). *Management research: An introduction*. London: Sage publications Ltd.
- Grazier, P. (2004, February 12) *Team motivation* [WWW document]. URL http://www.teambuildinginc.com/article_teammotivation.htm
- Hackman, J.R., & Oldham, G.R. (1980). *Work redesign*. Menlo Park, California: Addison-Wesley Publishing Company.

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- Hedberg, B. (1980). *Using computerized information systems to design better organizations and jobs*. Amsterdam: The human side of information processing, Bjørn-Andersen, N. (editor).
- Hedberg, B., & Jönsson S. (1978). Designing semi-confusing information systems for organizations in changing environments. *Accounting Organizations and Society*, 3, (1), 47-64.
- Herzberg, F. (1993). *The motivation to work*. New Brunswick, New Jersey: Transaction Publishers.
- Jacobsen, D.I., & Thorsvik, J. (1998). *Hur moderna organisationer fungerar*. Lund: Studentlitteratur.
- Katzenbach J., & Smith D. (1993). *The Wisdom of Teams: Creating the High-Performance Organization*. Boston: Harvard Business School Press.
- Kaufmann, G. (1998). *Psykologi i organisation och ledning*. Lund: Studentlitteratur.
- Langefors, B. (1993). *Essays on Infology: Summing up and Planning for the Future*. Gothenburg: Department of Information Systems, University of Gothenburg.
- Magoulas, T., & Pessi, K. (1998). Strategisk IT-management. Ph. D. Thesis, University of Gothenburg, Department of Informatics.
- Mabon, H. (1992). *Organisationsläran, struktur och beteenden*. Stockholm: Psykologiförlaget AB.
- Maslow, A. (1954). *Motivation and personality*. New York: Harper.
- Nationalencyklopedin*. (1989). Höganäs: Bra Böcker.
- Ranerup, A. (2003). *Forskningsmetod*. (Lecture in course Informatik som Vetenskap). Handelshögskolan vid Göteborgs Universitet, Institutionen för informatik, 405 30 Göteborg.
- Schou, P. (1991). *Arbetsmotivation*. Stockholm: IMIT.
- Scott, R. (1998). *Organizations: Rational, Natural, and Open Systems*. Upper Saddle River, New Jersey: Prentice Hall.
- Taylor, F. (1947). *Scientific management*. New York: Harper & Row