DECISION MAKING AND DECISION COMMUNICATION IN AN ENGINEER BASED ORGANIZATION

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Tiivistelmä – Abstract

The purpose of this thesis was to examine how decisions are defined, made and communicated in an engineer based working community. These processes in this study are reviewed from the point of view of organizational communication.

This study gathers information about how organizations define decisions, how they use information and how it affects the decision making in individual, group and organizational level.

The target organization for this thesis was a local automation engineering department of Metso Paper. Decision making and decision communication were studied using mixed method. The superiors of the organization were interviewed and the employees answered a questionnaire.

The results show that even decisions have no single definition, decision making and communication in automation engineering department is highly based on information and facts. Superiors and employees of organization prefer more face-to-face communication and email in decision communication. Combined with theoretical background this thesis show that decision communication is the backbone of the organization and organizational communication.

Asiasanat – Keywords
Decision, decision making, decision communication, organization, information, group decision making, internal communication, päätös, päätöksenteko, päätösviestintä, organisaatio, informaatio, ryhmäpäätöksenteko, sisäinen viestintä

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CONTENT

1 INTRODUCTION

Organized communication is an important part of modern society and organizations. But the emergence of modern society has meant a number of changes in organizing the whole society and in the forms of communication. People are now a part of several organizations, while just a few decades ago a man as individual was a member of an organization for the rest of his life. In modern society, people are loosely connected or coupled to countless organizations. This increased complexity concerns the communication and decision making in organizations. Increased complexity means that organizations and managements have to put more effort into organizing the life within organizations. This means increased communication and decision making.

The significance of decision making and decision communication based on information can be seen in various lately made decisions in Finland and Europe. The eruption of the volcano in Iceland forced authorities to close the airspace of nearly the entire Europe. In Finland long decision processes about bioenergy and new nuclear plants have just finished. These examples show that decision making and its' communication influences the lives of millions of people every day. The scale in this study is rather smaller: organizations and their employees.

Decisions in organizations in this study are mainly seen from the communication-theoretical point of view. The aim is to see decisions rather

as communication than actions. The purpose is to explore the concept of decisions, decision making and decision communication as well as learn more about these communication behaviors through the research organization.

The basis of this master's thesis is built on the theory of organization of German sociologist Niklas Luhmann (1927–1998). According to this theory, organizations are seen as social systems, but they are also communicative systems. Communicative systems operate as closed systems but they are cognitively open and structurally coupled to each other. Communicative systems are autopoietic, which means that they have a permanent structure and they reproduce their structure and their elements. Organizations are made of people and due to the changes in the past decades, people in modern society are more and more connected to different organizations.

Stepping to a new field in communication

One of the purposes of this study is to explore a communication phenomenon, which has not been handled much in theories of organizational communication. Several courses and lectures about communication and management have taught that decision making is a vital function in organizations. Unfortunately, decisions as independent subjects are not usually included in courses or lectures. This work gathers theories from the field of communication, management and sociology. The goal is to gather a strong solid theoretical background about decisions in organizations.

Decisions and decision communication are also a field of communication studies in Finland, which is not much covered. Any previous studies from the organizational communication point of view do not exist. Decision making is studied more in the field of management. One purpose of this study is to take the first steps in this new field and maybe help students and

researchers to become familiar with phenomenon and possibly apply studies to other organizations as well.

The structure of the work

The theoretical part of this work is divided into three sections. The sections handle the basic concept of decisions, decision making in organization and decision communication as a phenomenon. The decision section explores what is decision in the context of this work, why organizations make decisions and how decisions are seen in literature. The purpose of this section as a whole is to give basic information about views on how decisions can be seen in organizations.

The decision making section presents how decisions are made in organizations. The crux of the matter behind it all is information: how it is gathered, processed and used in the decision making process. Understanding the role of information also helps to understand some key aspects of a research organization's decision making. This section also introduces other fundamentals of decision making and factors that affect decision making on the level of the individual, group and organizational.

The section of decision communication introduces known theories about the phenomenon. The main purpose is to present a view that organizations are built on the basis of decision communication as well as present it to be the initial force of organizational communication. As earlier mentioned, all of these sections are based on or are inspired by the organization theory of Luhmann.

In the empirical part of this work is presented how decisions are defined, made and communicated in an engineer based working community. Their daily work is largely based on interpreting information to making different

kinds of decisions. Employees and superiors in this organization have their own field of expertise and every employee's knowledge and experience are highly needed for the organization to be successful and effective. The data for this study was gathered by using both qualitative and quantitative methods. This mixed method approach was the most suitable way to study this communication phenomenon.

One of the goals of this study is to provide useful data and information to the research organization. This information is hoped to help the target organization to develop its decision making and internal communication. The target organization and its communication are presented in this work after the theoretical part.

Definition of concepts

As mentioned above, the focus of this study is to examine how decisions are made and communicated. During the process of the master's thesis, a great deal of thought for these topics have been given. Here are presented author' views about these phenomena. Actually forming some theories and creating own point of views were necessary to outline the theoretical part of this work. Theories and scholars discuss to a great extent about how communication is linked to decision making, but decision communication is not widely covered in communication literature as assumed. Decision communication as a theoretical phenomenon seems to be, to an extent, quite unclear, because the information found from books and articles were slightly inconsistent or focused on handling the topic widely.

Decision communication in many cases is seen as communication about decisions. This study's original idea was that all communication related to decisions is decision communication. Decision communication starts when

the problem is recognized and ends when the solution is implemented and feedback received. After this, a new process of decision making begins.

Also the decision making is often seen as a process. The purpose of this study is to present decision making as coordinated communication towards successful problem solving. It is recognized as a process as well, but this study emphasizes the role of communication. Based on theories, data and experience, decision making and communication of decisions to employees are more social events than just processes. In other words, this study considers decision making and decision communication as communication behavior.

2 DECISIONS

> "A decision divides the world into a before and an after." (Andersen 2003b, 244).

One of the most important and critical activities of organizations is to make decisions. The decision might involve the strategic direction of the organization or just simply deal with the day-to-day activities of employees. Decisions might be made after months of gathering information or be made in an instant without any or with limited information or consideration.

In an organization, individuals might make the decision alone, through consultation with relevant organizational members or in larger groups. But what is a decision actually? Literature offers several definitions and as Andersen (2003b, 237) reminds, it is nowadays very hard to find a clear theoretical definition for this phenomenon. He also emphasizes that the organizational sociology is still tied up to Shannon's communication model where the decision maker acts as a sender. System theorist Niklas Luhmann defined the decision as a form of communication which limits contingency (Jönhill 2003, 27) and "choice between alternatives" (Luhmann 2003, 36).

Choices or managerial activities?

Also Hitt, Miller & Colella (2006, 358) find decisions to be choices, something that people are doing every day. Everyone makes them, but they see

decisions as the primary work of managers. The defined CEO level decisions are such things as entering new businesses or coordinating the units of the firm. Lower level managers take decisions related to how an organization is organized and how job performance is evaluated. Hitt et al. (2006, 358) point out that the decision making skills are critical to organizational effectiveness in every level.

As Greenberg & Baron (2008, 380) say, in an organization decision making is one of the most important managerial activities. They define decision as the process of "making choices among several activities". It is very widely assumed that only senior executives make decisions or that only senior executives' decisions matter. They point out that decisions are crucial at every level. Organizations are made of people – people are the organization. Accordingly, it is important to understand that people are the ones who make decisions in an organization. As Greenberg & Baron (2008, 380) state, these people make decisions every day from a wide variety of topics. The decisions can for instance be what to eat during the work day, what time he or she is going to go home, or whether it is necessary to make chances in a blueprint of a model.

Nassehi (2005, 186) emphasizes that when decisions are considered as choices, the choosing could have preferred the other possibility. If decision making includes any secure knowledge about how to decide, there would not be a choice. He points out that "to have the choice means not to know what to do".

A mystery or an organized anarchy?

The true concept of decision is to be itself a mystery as Seidl and Becker (2006, 25) find. They argue that a decision has something to do with selection of

alternatives and choices. But both depend on the decision maker and would like to leave the original question, the definition, unanswered.

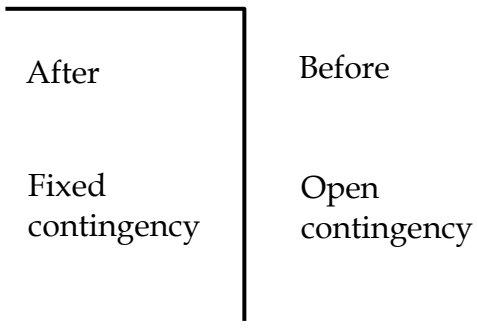
Yukl (2006, 26) defines decisions as discrete events made by a single manager or a group. He also argues that the decision making process is more likely to be characterized by confusion, disorder and emotionality rather than rationality. Information is often used to serve preconceptions about the best course of action or self-serving interest.

Cohen, March & Olsen (1988, 294) go a little bit further and state that decision situations are organized anarchies. A decision making process is more of a loose collection of ideas than a coherent structure. In an organization, preferences for decisions are found more through action than it acts on the basis of preferences.

Greenberg & Baron (2008, 394) view that rational decisions in organizations are ones that maximize the attainment of goals of a person, a group or entire organization.

A unity and form of communication

According to Andersen (2003b, 244) a decision is the unity which divides social expectations and the world to fixed and open contingency. Every decision doesn't fulfill expectations but it also produces insecurity. The outcome of a decision communicates that a different decision could have been reached.



Decision

Picture 1. The definition of decision by Andersen (2003b, 244).

Based on these several definitions, the concept of decisions can be seen in many different dimensions in the context of organization and its environment. According to a theory of Luhmann (Jönhill 2003, 27), the decisions and decision making within an organization are a form of communication. But this is limiting contingency. Before the decision is made there are other possibilities. After the decisions there were other possibilities. This leads to the fact that decisions can only be made on the basis of other decisions within the same system. Decisions cannot occur as individual events but as organized events (Jönhill 2003, 27).

2.1 Decisions as a communication and organizational process

Andersen (2003b, 244), proposes that a decision is a form of communication that takes into account the social expectations of members of organizations. These can be divided into three groups: temporal expectations directed to the future, factual expectations directed at the organization and social expectations directed at the partakers in the communication. Decisions tell what to expect from individual tasks and from future decisions. In organizations they create social expectations of subsequent decisions.

Organizations as systems have need for communicative action. According to Habermas (1998, 106), this necessity is born when coordinated action, decision making, needs communication. Decision making in organizations can be considered as strategic action because decision making is oriented toward successful problem solving.

Decisions are also an organizational process. According to Seidl & Becker

(2006, 26), this process is created when one decision is in connection to another one. In this connection, the uncertainty of the first decision disappears, because the first decision is not evaluated anymore.

Falcione and Wilson (1995, 162) remind that decisions in organizations serve as symbolic processes and are a central part of the socialization process. This process can communicate the norms, values and beliefs the organization have. Decision making also indicates the managerial attitudes toward communication. The process might also influence individual attitudes and perceptions towards an organization.

2.2 Decisions as a process of information

Organizations are entities, which process information. Decision making is largely a process of information as Cheney, Christensen, Zorn and Ganesh (2004, 51) present. This means that the organization itself can be seen as bits of information that are moving forward in organization. Gathering more information and sending it forward in an organization creates the work of information processing. But this increases the stress of employees and consumes the time to do work.

Cheney et al. (2004, 52) continue that in the context of organizational communication, organizations can be considered as brains or computers. In these analogies decisions are seen as functions which rely on the creation, management, flow and use of information. The use of the brain model emphasizes the fact that organizations are self-aware and self-organizing. These kinds of organizations can also be seen as learning organizations, which can adjust to the changes in their environment and can benefit from mistakes. Through the computer model, organizations can be simulated and various scenarios for their future can be predicted.

Organizations have a strong belief in information. Feldman & March (1981, 178) find that organizations think that more information characterizes better decisions, and having more is better than an organization with less. The quality and quantity of information is considered as alternatives to a decision makers' knowledge. Seeking and using information in decisions is a value to organization and this means that using it, asking it and justifying decisions in terms of information symbolize that the organization is a good decision maker and well managed.

2.3 Decisions as social events

Working in an organization means coordinated action between people. As Habermas (1998, 106) finds, activities between people need a certain amount of communication, which must be met so that it is possible to coordinate actions effectively for the purpose of satisfying needs.

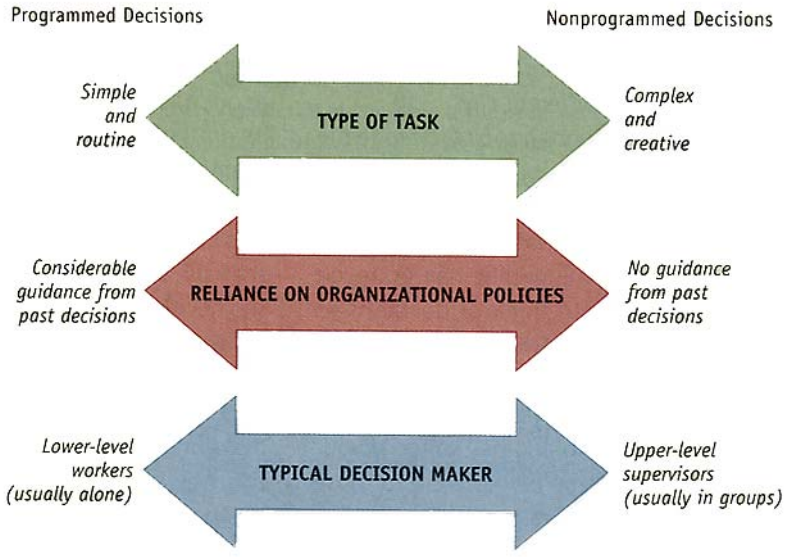
Decisions in organizations can be seen as coordinated social actions. They are something that people do together and they have a certain purpose. Leeper (1996, 136) interpretes Habermas' theory of communicative action. He finds that communication is the key which leads to understanding. "The major purpose of communication is to facilitate understanding among people and such other systems as organizations, publics or societies". The process of decision making needs understanding and as an organizational process it has necessity to coordinated action.

Social action and communicative practices are inherent part of decision making process (Habermas 1998, 387). In this process the participants are dependent on an action coordinating agreement. Habermas (1998, 23) states that reaching agreement brings reciprocal comprehension, shared knowledge,

mutual trust in decision making process. This agreement is based on the four validity claims: comprehensibility, truth, truthfulness and rightness.

2.4 Organizational decisions

Decisions in organizations can be divided into programmed and non-programmed decisions as Greenberg & Baron (2008, 384) present in picture 2. The different types can also be viewed by three dimensional levels. Programmed decisions are made repeatedly and usually according to a pre-established set of alternatives. These decisions are often made by lower-level personnel. For non-programmed decisions there are no ready-made solutions. Every non-programmed decision making situation is usually unique.



Picture 2. Programmed and non-programmed decisions in an organization by Greenberg & Baron (2008, 384).

A good example of non-programmed decisions is strategic decisions. As Greenberg & Baron (2008, 384) say, these decisions are typically made by high-level executives and they have important long-term implications for the

organization. These decisions often underline the mission of an organization and guide the future direction of the organization.

Organizations are certain places where different forms of decisions get concentrated and where the history of decision making and routines arises (Nassehi (2005, 185;188). He also points out that when organizations connect decisions to decisions, organizations should be seen as decision machinery.

Feldman & March (1981, 172) represent that organizational choice is a simple extension of decision-theory visions of individual choice. They express that in organizations decisions are possible actions for the consequences and preferences of the future.

Decisions made in organizations are not automatically held as legitimately valid. As Holmström (2006) finds, the organizational legitimization is facing specific demands in contingent modernity. She emphasizes that nowadays legitimization is increasingly based on contingencies. Decisions are more and more taken on grounds of necessity and based on matters of fact. Organizational legitimization is now more based on conventions and apparent naturalness. This means that organizations have decreased possibility to underlie decisions to fundamental decision premises.

3 DECISION MAKING IN ORGANIZATIONS

Decision making in organizations can be studied from three points of view, as Veryard (2005) presents. The three views are Herbert Simon's model of rational choice, Jacques Lacan's focus on time and Geoffrey Vickers' focus on value. All models divide the process of decision making into three parts but punctuate it differently.

Earlier I presented that in this study decisions and decision making process are seen from the point of view of communication. But as stated above, decisions can also be seen as choices. In the base of whole process is Simon's theory of administrative behavior (1968, 74) which represents organizations as goal-oriented systems. In these systems decision making is largely concerned to find effective patterns of activity directed towards the goals. The theory sees decision making as thinking and problem solving, which is directed toward the discovery and selection of courses of action. Any decision involves a choice and it is selected from a number of alternatives. The made choice is directed toward an organizational goal.

Simon (1968, 77) presents three stages to decision making and emphasizes that only part of a decision making process is spent in choosing among courses of action. The two preceding stages before choosing the course of action are intelligence gathering and design. First he includes all the "intelligence activities" needed for searching information about situations and problems that call for attention. Designing includes the specifying of

possible courses of action, elaboration and evaluation of them. The last stage is choosing the course of action.

But Simon (1968, 77) also criticizes these models of decision making. He sees that they do not apply in organizations where rationality is limited. An organization's reality is limited by their capability to gather and process information. As a result, he finds that a situation, where all the alternatives of choice and all consequences of alternatives are known, cannot exist.

How organizations make decisions is not completely visible to external viewers, as Veryard (2005) reminds. Even if they tell how decisions are made, the process might not be understandable or believable. Members of organizations may be embarrassed about the true reasons, they may have reasons for concealing their true agenda or they may be unaware of their own unconscious thoughts.

Organizational decision making includes certain characteristics which are distinct from the choice-based individual decision making (Shapira 1997). The characteristics are ambiguity, a longitudinal context, incentives, repeated decisions and conflict. Jabs (2005, 269) reminds, however, that individual choices may have a direct influence on the result of the decision making event.

Nassehi (2005, 181) reminds of Luhmann's view that social systems, as well as organizations, produce their problems and solutions by using their own resources. This means decision making.

Decision making is a part of autopoietic organization

Organizations can be understood as autopoietic systems as Luhmann (2003, 32) views. They produce the elementary units they consist. They have permanent structure and they reproduce their structure and their elements. Organized social systems, organizations in this study, can be understood as

systems made up by decisions. They are capable of completing the decisions that make them up through the decisions that make them up. According to Luhmann (2003, 35) in this point of view, the decision is not understood as a psychological mechanism or event, but as a matter of communication and social event. Therefore, decisions are communication.

Earlier, I presented several definitions of decisions from different scholars. In the organizational context, the decisions can be anything. According to Luhmann (2003, 35), the question what decisions "are" or "are not" is primarily dependent on the organization and its decision making system. Luhmann finds that, in an organization, a decision is thus everything the system regards as decision.

The fact is that decisions in an organization occur in a fixed point. It comes a time when a decision has to be made . Decisions also disappear when time goes by, whether they were successful or not. With this, Luhmann (2003, 35) points out, that the organizations are reproductive through decisions. Like a dying cell being replaced by a functional equivalent. In decision-making, new and reproductive decisions are needed. Every made decision opens possibilities and options for new ones. Decisions cannot be replications of previous ones. Always making identical decisions is pointless because organizations need reproduction.

In an organizational context, the decisions should not be understood as a psychological mechanism. According to Luhmann (2003, 32), decisions should be seen as communication. Organized social systems should be understood "as systems made by decisions and capable of completing the decisions that make them up, through the decisions that make them up". Decisions are communication and they are something that one can clearly communicate.

Luhmann (2003, 32) also finds that organizations are autonomous whether they adapt their decision making to the environment or not. Organizations as closed systems also take their other decisions into consideration. This means that the organizations learn from themselves. Moreover, as a closed system an organization may only be defined based on its own decisions. This also affects the true nature of decision. What decisions are and are not, is defined entirely by organizations themselves and their decision making systems.

Decisions are everyday events in organizations

As Greenberg & Baron (2008, 380) state, people in an organization make decisions every day on a wide variety of topics. The decisions can be related or unrelated to daily work.

Cornelissen (2008, 200) argues that employees are still often left out of organizational decision making, because senior and middle level superiors may feel threatened by negative feedback. They might also believe that employees do not know what is best for the organization. In these cases decentralized decision making is not seen as worth of time and effort. When superiors fear negative feedback, they are unlikely to engage in seeking further information from employees.

In an opposite approach, the power is vested in employees. In this empowered decision making, employees are allowed to make decisions without seeking approval from their superior. This gives them a possibility to decide what to do so they can do their job more effectively. Employees, rather than someone else, usually know what the best solutions for the job are. Employees also accept the consequences of their decisions better. Commitment to decisions is higher, which can aid an organization to maintain its effectiveness.

Organizations strive for effective decision making

According to Gore, Banks, Millward & Kyriakidou (2006, 928), different strategies for decision making in organizations are required for their effectiveness. This is commonly regarded to appear at the level of an individual, a group and an organization's decision making.

Organizations need effective decision making. According to Nutt (1999, 75), half of the decisions in organizations fail. The reasons can be complex, but often the main reasons are lack of participation in the decision making process and taking shortcuts due to time pressures. Shortcuts serve the interest of individual people rather than the organization as a whole.

But eventually the organizational decision making is more important than its outcomes as Feldman & March (1981, 177) see it. In this arena social values are exercised, authority displayed and the concept of intelligent choice is cherished.

Holmström (2006) reminds that organizations' identity and how the organization views itself affects the premises of decision making. "When they are no longer given, then they must be continuously regenerated along with the decision processes". She also points out that organizations have to see their importance and responsibility as decision makers. Through decisions, organizations will question their identity, responsibility and role in society.

Strategy guides decisions

Decisions are not just dependent on organizational information. As Cyert, Feigenbaum & March (1988, 38) point out, organizational procedures and expectations also affect decision making. Organizations cannot consider all alternatives because hundreds of decisions are made everyday within an organization. The set of alternatives depends on some features of

organizational structure and the amount of resources they devote to organizational goals.

Tosti & Jackson (2003, 6) remind that strategic goals and values also guide decision making in organizations. Cultural values and organizational strategy are mutually supportive, and are key components in reasoning and problem solving. Organizational strategy especially affects group objectives, which should be derived from strategy and supported by management practices. So people's daily behavior and decision making should be in line with missions, vision and values. This is also called organizational alignment. Aligned employees will make better decisions and make the company a more profitable place to work.

3.1 Decision making and communication

Organizational decision making is based on communication. One model of communication-dependent decision making by Herbert Simon (Cheney, Christensen, Zorn and Ganesh 2004, 50), presented the decisional premise, a value that guides decisions. According to the model, decisional premises are basic building blocks of organization. Vertically this means that the biggest decisions are made on the top of the organization and the ideas and goals are translated to lower levels.

Decision premises, according to Seidl & Becker (2006, 27), are structural preconditions that define a specific decision situation and every decision serves as premises for later decisions. One example of decisions premises is communication channels. As Seidl & Becker (2006, 26) state, "communication channels define what decisions have to be treated as decisions premises by which other decisions". Typical examples are hierarchy and matrix organizations.

Communication in organizations is needed to measure the effectiveness of decisions (Hitt et al. 2006, 325). Especially upward communication from subordinates to supervisors is needed to receive feedback about how previously made decisions are working.

How can the decision making process be observed through the process of communication? According to Andersen (2003b, 248-251), it can be seen through the process of deparadoxification. "Deparadoxification is a form of strategy for ignoring the paradox in order for communication to continue unchallenged". Usually communication paralyzes when it comes up against its paradox. Andersen presents three deparadoxifications, which are common to decisions.

1. Factual deparadoxification sees decisions as reactions to "the nature of the case".

   Organizations see decisions usually as choices between alternatives. The best strategy is to provide alternatives from which to choose. But this is also a decision which divides the world into what is important and what is less important. In other words, which alternatives are important and which ones are not.

2. Temporal deparadoxification concerns decisions as a reaction to necessity.

   This means that a decision has to be made and it is not possible to postpone it. Temporal deparadoxification means creating a time dimension for a decision.

3. Social deparadoxification makes decisions look as if they were in fact already made.

This means that the only thing that is left is the formalizations of decisions. This is often made by pointing out the central players and their authority in the decision making process.

Adair (2007, 61) states that communication and decision making are complementary dimensions. He reminds that all decisions should be shared with a team of colleagues. The quality of a decision is more likely to be higher when the decisions are shared. Shared decisions directly affect the working climate and people are more motivated to implement these decisions. But the more the decision is shared, the less control you one over the resulting decision's quality and direction.

3.2 Importance of decisions

Decision making is an important process for organizational effectiveness and it is closely related to all the traditional management functions. As an organizational process, decision making is individual behavior and has an effect on organizational goals. Organizations as systems build themselves up by making decisions. Every made decision creates and leads to a new decision.

The quality of decision making is essential for the success of any company or organization. Organizations ability to make good decisions is particularly important in the face of increasing global competition, and the greater uncertainty from exposure to more competitors and a greater number more markets that this brings. (Meagher and Wait 2010).

Decision defines the organization

Andersen (2003b, 237) reminds that decisions ground the definitions of organizations. This means that one or several decisions are needed to establish an organization and further decisions to maintain it. Once established, organizations as systems are communicative and can be considered as autopoietic systems as earlier presented. According to Andersen (2003b, 242), these systems create themselves through communication. They also create their communicative operations and environment.

To understand the meaning of decisions as communication in this work, it is necessary to know how important decisions are to organizations. Luhmann (Jönhill 2003, 25) defined the form of organization through four fundamental distinctions:

1) Membership; decision if a person belongs to an organization or not
2) Program; definite delimited goals
3) Positions and staff; persons at specified positions
4) Decisions; the function of an organization is to make and implement decisions

According to Jönhill (2003, 25), the membership of an organization, the formulated program and defined goals and the appointed staff are all established through decisions. This means that the life and the form of the organization are based on decisions. If the organization no longer makes decisions, it ceases to exist as an organization. From this point of view, the decisions are a special medium of communication.

For organizations, as Brooks (2003, 36) says, decision making throughout the whole organization is important and in an effective organization people are

required to be able to make effective decisions. Decision making is not just affected by communication, but also changes and conflicts in organizations.

3.3 Decisions and organizational culture

According to Sriramesh, Grunig and Dozier (1996), organizational culture affects how decision making is seen within an organization. In participatory cultures, organizational members are allowed to have input into decision making. In authoritarian cultures, decisions are made in a more traditional way and organizations rely more on a trial and error style in decision making.

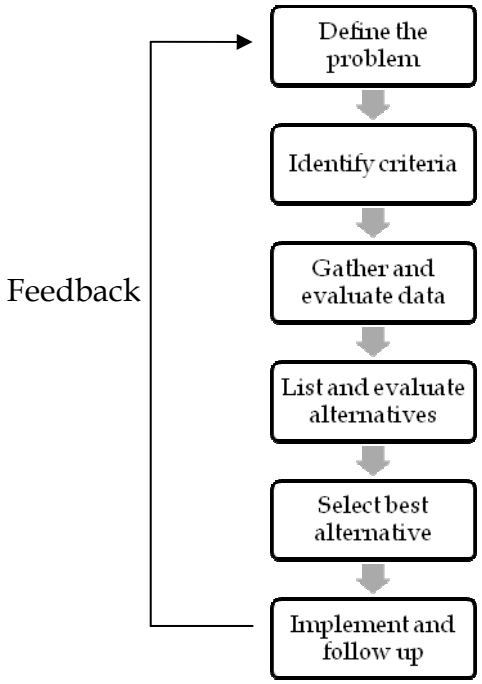
The organizational culture affects how the members are allowed to participate in the decision making. In participatory cultures, the organization wishes that employees give their input to decision making. On the contrary, in authoritarian cultures decision making relies more on trial and error. Heath (2001, 631).

Seibold & Shea (2001, 644) remind that several changes in the past decades have changed the traditional forms of management and increased the employee's participation in organizational decision making. Organizations have created various participation programs which want to increase the employee involvement and increase the flow of information in organizations. Behind this is an assumption that when employees know more about their work than the management, employee's participation in decision making is valuable for the organization. This also gives a possibility for the employees to learn more about the organization, its policies and others work, which ultimately is hoped to enhance the quality of decisions and productivity.

Adler (2008, 219-220) says that every decision maker is influenced by their work environment and cultural background. Decisions, effective and most appropriate, are dependent on industry, organization and individuals involved.

3.4 Fundamentals of decision making

Even decision making is not always rational. The process in an organization is often conducted in a certain order. Decision making as a process, picture 3, includes several steps as Hitt et al. (2006, 358) present. An effective decision making process begins with identifying the problem at hand. An effective process also includes a determination of the problem to be solved.



Picture 3. The steps of decision making in an organization by Hitt et al. (2006, 358).

Identifying the decision criteria is needed to find the alternatives for solving the problem. This step is also important because it determines what

information is needed to gather for evaluating the alternatives. Possible failure in identifying might lead to faulty decision making. Gathering and processing information in this process is needed to understand the context of decision and discover alternatives. According to Hitt et al. (2006, 359), finding the list of alternatives and evaluating them is important, because the decision maker cannot choose an alternative that has not been considered and cannot choose an alternative that is better than the best on the list. After this, the decision maker chooses the alternative which solves the problem in the best way. The decision making process is not over when the decision is made. Then begins the implementation and monitoring of the outcome.

3.5 Information and decision making

Eisenhardt (1989, 617;623) underlines the significance of information in decision making, especially in strategic decision making. According to her, in fast decision making more information is used than in slow decision making. Also more alternatives are used. The speed of strategic decision making correlates with the use of real-time information.

Information gathering involves a perceptual process as Hitt et al. (2006, 362) present. This can be done by sensing or through intuition. Decision makers who use the sensing style work steadily in the early-stages of a decision process. They enjoy gathering information. Intuition users dislike routine details and want information in large chunks.

Hitt et al. (2006, 363) also emphasize that there is no fixed relationship between gathering information and the evaluation of alternatives. Thinkers prefer objective and systematic decisions, while feelers emphasize the maintenance of harmony in organization: they are subjective, sympathetic and appreciative in their decisions. Both styles are important for an organization.

People and organizations have to act on the basis of incomplete and/or imperfect information as Veryard (2005) reminds. This leads to that they might have only a limited number of options in use and the accurate values to outcomes is harder to attach.

Flow of information

Decision making is related to the flow of information. According to Feldman & March (1981, 174), the use of information is more important than the pieces of information. Many organizations gather too much information, which is never used in the decision making process. Too much information can even paralyze the individual or groups who are making decisions. Organizations, as well as the employees, can make effective use of only part of the information.

Cheney et al. (2004, 54) remind that decision making in organizations is related to the flow of messages. The flow of information makes the environment for decision making for individuals and groups. The amount of information in this flow affects how successful the decision making in the end is. Cheney et al. also point out that when individuals cannot process large amounts of information, organizations tend to gather more and more information through for example surveys and forecasting. The effective decision making process is buried under a heavy workload of information processing.

Hitt et al. (2006, 332) point out that decision making and especially managerial decision making benefits fast communication. In strategic decision making quick access to information may be critical.

But decisions in organizations are not always made through a logical analysis of information. They are often made considering similar situations and past decisions. (Miller 2006, 142).

The quality and quantity of information

Veryard (2005) points out that sometimes the effectiveness of the decision making process is increased by the quality and quantity of information. Increased information could also reduce the effectiveness. Veryard also presents a few potential advantages and disadvantages of information to decisions.

Potential advantages	*Potential disadvantages*
Information supply. A good information system makes it easier to obtain reliable information.	**Information overload**. When the quantity increases, it becomes harder to analyze.
Risk and issues. A good information system helps to identify risks and issues.	**Information complexity**. As details of information increases, the overall complexity increases. This may lead to confusion and stress.
Fit for purpose. Information should have been properly filtered, selected and presented.	**Control sensitivity**. Too much sensitivity may cause information control to go unstable.

Table 4. The potential advantages and disadvantages of information in decision making by Veryard 2005.

Cheney et al. (2004, 61) emphasize that decision makers in organizations must constantly interpret data. They present Weick's three key stages of decision making.

1. Enactment. The enactment of the information environment the organization inhabits, such as what information is relevant.

2. Selection. The choices about how to interpret the information.

3. Retention. What the organization remembers from made decisions or what is retained for future decisions.

Information gathering

Why do organizations gather information for decision making? As Feldman & March (1981, 182) showed, information is used because it helps to make a choice. But on the other hand, organizations' members often find value in information that has no great relevance in decision making. For this over-consumption of information Feldman & March (1981, 182) offer four explanations.

1. Organizations provide incentives for gathering extra information, which are buried in conventional rules for organizing and for evaluating decisions.

2. Organizations scan their environment for surprises and the collected information is only useful in surveillance, not in decision making.

3. Much of the gathered information is used in a context that makes the innocence of information problematic.

4. The use of information symbolizes a commitment to rational choice. Organizational competence is reaffirmed through this display of symbol.

Lordan (2001, 584–585) points out that the modern technology has even increased the gathering of information. Especially information technology, of which use has increased in the last decades, includes sources for internal and external information. These sources contain and deliver information throughout the whole organization. They help decision making, but at the same time they create pressure on decision makers.

Feldman & March (1981, 174) conclude that when observing how organizations collect information, organizations are systematically stupid.

They list several problems which are often made while gathering and processing information:

1. Gathered and communicated information has little decisions relevance.
2. Used information to justify decision is collected and interpreted after the decision.
3. Requested information is not considered in decision making for which it was requested.
4. More information is requested even it exists enough to consider a decision.
5. Available information is ignored and complaints about an inadequate amount of information are expressed.
6. More information is gathered than actually needed in a decision making process.

Many of these problems are derived from misguided organizational processes and inattentive organizational procedures.

Feldman & March (1981, 172) say that organizations make explicit and implicit decisions about seeking and using information. This might improve estimates of future consequences and future references. Decisions are based on estimates of the expected benefits and costs of information. The value of information depends on what is its relevance to the decision to be made. Information has only value if it can be expected to affect choice.

3.6 Decision making process

Decision making in organizations is affected by several factors. According to Greenberg & Baron (2008, 388), these factors are associated in the field of individuals, groups and organizations. On the individual level, affecting factors are different styles of decision making. On the group level, the biggest concerns are how resources are pooled, how time is used, and can the group think critically. On the organizational level, affecting forces are mostly political and time pressures.

It is common for a number of people to participate in problem solving in organizational decision making. Hitt et al. (2006, 370) remind that this is especially common in high-involvement organizations where managers in different levels participate in decisions with managers on the upper or lower level.

Models of the decision making process

In rational models, the decisions are seen entirely as a rational and logical process. The members of the organization notice the problem that needs a decision. According to Miller (2006, 140), the decision making process in this case starts by defining the problem. Then the decision makers search for all the relevant information that could be useful for solving the problem and making the decision. After defining, the decision makers set different options for decisions and evaluate them. The process ends when the decision is implemented.

Miller (2006, 140-143) points that this model is ideal for decision making in organizations. But she also criticizes that it does not represent the reality of organizational decision making. Organizational decision makers are

characterized by bounded rationality and they are typically relying on intuition, satisfying solutions and the collision of problems and answers.

Miller presents (2006, 140-143) a few alternative models which are used instead. These are the optimizing model, intuitive process model and garbage can model. In the optimizing model, decision makers try to find the single best solution to an organizational problem. In the intuitive process, the decision maker has to use the experience that he or she has learned from previous decisions. Often decision makers make their decision based on solutions, which have worked in similar situations in the past. In the garbage can model, decision making is a process where for instance all the problems, solutions and choices are dumped together. A decision is made when a suitable result is found.

Decision making is influenced by organizational characteristics

Berry (2006, 345) reminds that decision making and communication effectiveness are influenced by various organizational characteristics. The style of leadership, information technology systems, organizational culture and structure affect how decision making and communication work as processes. Berry also points out that decision making and organizational communication are paradoxically becoming both easier and more difficult. The problems and issues in decision making often illustrate issues in communication.

Adler (2008, 207-208) views that the changes in the 21st century force organizations to cope with the ambiguity and uncertainty of reality. Decision makers, especially managers, cannot base their decisions on experience and culture anymore. Today all decisions are not made in time-consuming logical and rational processes, but rather instantly and intuitively.

Stone (2002, 232) argues that problems in decision making are "cast as a choice between alternative means for achieving goal". Rationality means finding the best ways to attain the given goal of decision making. This also means that the ways in making decisions are various: habit, social custom, intuition, trial, voting, flipping a coin etc.

Coherence in decision making

Coherence is an important factor in decision making. Coherence in this context is considered, as Thagard (2001) suggests, as maximal satisfaction of multiple constraints. He explains that different elements can cohere (fit together) or incore (resist fitting together). In decision making different views and alternatives do the same thing – they can fit together or not. As he says, "deciding is based on inference to the most coherent plan, where coherence involves evaluating goals as well as deciding what to do".

Poole & Baldwin (1996, 227) remind that especially groups handle alternatives through different kinds of representations. Coherence structures are usually applied to give continuity and cohesiveness to discussion. March (1988, 17) emphasizes that individuals seek coherence between actions and attitudes. Organizations seek coherence from tasks and activities such as decision making. Conflicts between intra-individuals and inter-individuals are seen as moving toward resolution. Decisions can be more decentralized and of better quality when everyone understands where the company is headed. By achieving coherence, every individual and each part of the company will be better able to drive purposefully toward a common goal that is clear, communicated and understood by everyone.

3.7 Individual decision making

How does an individual organization member make decisions? Do they just think things over and do what they perceive as the best choice? Greenberg & Baron (2008, 394-398) present the three most important models of individual decision making. They are:

Rational-economic model	A decision maker considers all the possible alternatives to problems before selecting the optimal solution.
Administrative model	Recognizes that people have imperfect views of problems, which limits the making of optimally rational-economic decisions.
Image theory	Decisions are made in an automatic, intuitive fashion. People adopt a course of action that best fits their principles, goals and future plans.

Table 5. The three models of individual decision making by Greenberg & Baron (2008, 394-398).

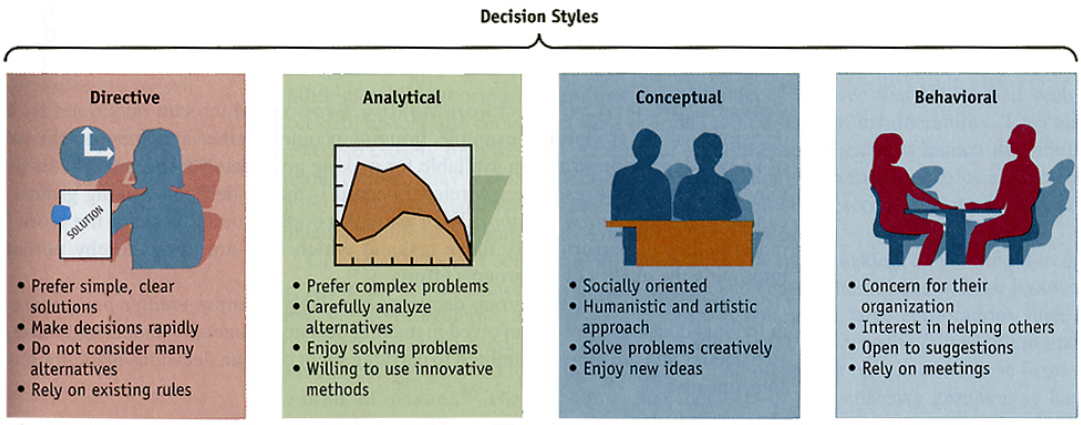
These models do not replace each other in organizational decision making as Greenberg & Baron (2008, 398) remind. In fact, different decisions are made using different models. Some decisions may even need the use of various models.

Greenberg & Baron (2008, 398) also point out that the basic nature of individual decision making is imperfect. People have limited capability to gather and process information, and they make mistakes all the time. For instance, people make decisions based on how the problem was originally represented to them and they tend to simplify decision rules to make quick decisions.

Harrison & March (1988, 229) emphasize that decisions in organizations are made by individuals whose explicit calculations of the benefits and costs of anticipated from alternative actions.

Styles of decision making

On the individual level, there are several types of styles how individuals make decisions. Greenberg & Baron (2008, 389) present four styles: directive, analytical, conceptual and behavioral.



Picture 6. The individual styles of decision making by Greenberg & Baron (2008, 389).

Greenberg & Baron (2008, 389) point out that people usually use many different styles in making decisions. In an organization, people find this is a flexible way to make decisions. This could also reduce conflicts between people who used to have different styles in decision making. Being aware of people's decision styles is one way to increase understanding of social interactions in organizations.

Hitt et al. (2006, 384) find that different decision making styles represent preferred ways of gathering information and evaluating alternatives. Decision makers as individuals can affect the decision process at two critical stages:

1. Perceiving of information

2. Judging of alternatives

Hitt et al. (2006, 384) present four styles: sensing, intuition, thinking and feeling.

	Style	
Perceiving of information	Sensing	Focuses on gathering concrete information directly through senses, with an emphasis on practical and realistic thinking
	Intuition	Focuses on developing abstractions and figurative examples for use in decision making with an emphasis on imagination and possibilities
Judging of alternatives	Thinking	Focuses on objective evaluation and systematic analysis.
	Feeling	Focuses on subjective evaluation and the emotional reactions of others.

Table 7. The decision making styles by Hitt, et al. (2006, 361-364).

3.8 Group decision making

Organizations use groups to solve problems and make decisions. They offer several potential advantages to decision making, for example comparing to a leader who makes the decisions by himself. According to Yukl (2006, 338), groups offer more relevant information and knowledge that can be used to improve the quality of decisions. They can also increase the participation to decision making and commitment to implementation of decisions. On the other hand, group decision making takes longer, the agreement might be hard to find and the problems of decision making can weaken the quality of decisions.

Francesco & Gold (1998, 113) say that group decisions are used because they are useful for technical and organizational reasons. Groups pool talent, technical perspective, skills and experience of decision making. From

organizational reasons the active participation increases the likelihood of decision implementation. However, organizational cultures are different and it varies how much participation of decision making organizational members require.

Making decisions in group increase the amount of information and knowledge. This usually results in better decisions. Group decisions also usually gather more acceptance than individual ones. Group decisions are understood better and people are more motivated to commit to them. But groups are more likely to waste time on decision making. Moreover, possible disagreements may lead to group conflict and may ultimately cease the whole decision making process. (Greenberg & Baron 2008, 390).

Advantages	*Disadvantages*
Groups can accumulate more knowledge and facts and thus generate more and better alternatives.	Groups take more time to reach decisions than individuals do.
Groups often display superior judgment when evaluating alternatives, especially for complex problems.	Social interactions of a group may lead to premature compromise and failure to consider all alternatives fully.
Group involvement in decisions leads to a higher level of acceptance of the decisions and satisfaction.	Groups are often dominated by one or two "decision leaders", which may reduce acceptance, satisfaction and quality.
Group decision making can result in growth for members of the group.	Managers may rely too much on group decisions, leading to the loss of their own decision and implementation skills.

Table 8. Advantages and disadvantages of group decision making. (Hitt, et al. 2006 381).

In group decision making, the communication is often challenged (Yukl, 2006). When people in large groups exchange information, less time is

available for each person to speak. This might increase the difficulties in reaching a consensus.

The quality of leadership affects the decision making in groups as well. Group members often prefer to have one designated discussion leader, who has responsibility for conducting the meeting. (Yukl, 2006). The role of leadership is not easy, because the decision process is affected if the leader is too passive or too dominating. The leader should be unbiased and he should encourage the group to think of alternative solutions to the problem. (Yukl, 2006; 347)

Communication in group decision making

But for what purposes is communication in group decision making really needed? Communication is needed for problem analysis, goal setting, the identification of alternatives and evaluation of positive and negative characteristics. Hirokawa & Gouran (2003, 232;237) state that "communication is best when it doesn't obstruct the free flow of ideas".

Hirokawa & Gouran (2003, 237) also list three types of communication in decision making groups:

1. **Promotive**. Interaction that helps the group to move along the goal path.
2. **Disruptive**. Interaction that hinders the group to conduct the four needed task.
3. **Counteractive**. Interaction that group members need to get back on track.

The basic units of organizational decision making are often teams. As Berry (2006, 347) emphasizes, teams are believed to lead the organization to enhance the performance as they are able to gather and process more

information than individuals. Teams also have higher level of expertise and knowledge and receive synergy from different talents. In addition, teams could have stronger influence over their environment than individuals. This usually makes the decision implementation easier.

However, decision making in teams is affected by the time-starved reality of organizations. According to Berry (2006, 348), decision making under time pressure reduces the accuracy and quality of communication processes. This means that information between team members is not shared as effectively as possible, fewer alternatives are examined and discussed, and the acceptance for the decision is harder to get. Sufficient time is necessary for effective communication and decision making.

Problems of group decision making

As Eisenberg & Goodall (2001, 272) emphasize, one of the biggest problems of decision making in groups is groupthink. Groupthink occurs when members of the group do not evaluate the ideas and proposals of the group, but instead just go along with others. Miller (2006, 145) lists several symptoms of groupthink:

Symptom	***Description***
Illusion of invulnerability	A belief that nothing can go wrong
Illusion of morality	The virtues of the group cannot be reproached
Stereotyping	Categorizing the outsider views of groups as unacceptable
Self-censorship	The overt restraint of group members against offering opinions counter to the prevailing thought in the group
Illusion of unanimity	The statement of group agreement while private doubts and disagreements are suppressed
Direct pressure on	The coercive force that obliges group

dissidents	members to behave and think in similar ways
Reliance on self-appointed mind guards	The protection of the group from contrary information from the outside influences

Table 9. Symptoms of groupthink by Miller (2006, 145).

Problems in group decisions often arise from communication practices, as Deetz (2005, 98) points out. According to him, these problems lead to the limited access of communication channels and forums, and decisions are based on arbitrary authority relations.

Hackman & Johnson (2009, 210) emphasize that groups doesn't always make effective decisions. They present four functions used with communication that bring high quality solutions to decision making.

1. Problem analysis
2. Goal setting
3. Identification of alternatives
4. Evaluation of solutions

These steps increase the possibility that team members will carefully define the problems and develop criteria instead of rushing to potential solutions.

Group decision making does not only include positive outcomes. Hitt et al. (2006, 371) point out that the social nature of group decisions may lead to unwanted results. The process of group decision making may for instance prevent full handling of information. This leads to excessive cohesiveness and ineffective decisions. Group decision making also includes other pitfalls such as common information bias, diversity-based infighting and risky shift.

Hitt et al. (2006, 373) point out that in the common information bias, group members overemphasize information held by a majority. In diversity-based

infighting, group members engage in negative conflict over differing views. In risky shift, group members collectively make more risky choices than most or all of the individuals would have made.

This supports the view of Yukl (2006, 26) that different people usually disagree about the true nature of the problem and the outcomes of a decision making process.

Models of group decision making and communication

Cheney et al. (2004, 57) present that group decision making has several models, and the logics of these models are often similar: the size of the group and the organization affects the model. But organizations and groups are interested in which processes or models are the most effective.

Cheney et al. (2004, 57) also remind that based on theories, the most used and effective model of group decision making is the functional theory. In this model, a group moves from more general considerations of goals to specific considerations on means of implementation. The options are evaluated according to agreed-upon criteria.

In this model, communication is a social tool and it can inhibit or facilitate influence on effective decision making either by complicating or overcoming obstacles. Functional theory, according to Cheney et al. (2004, 57), is the result of a series of smaller decisions. Each smaller decision serves effective group decision making.

4 DECISION COMMUNICATION

The basic need of organizations is to make the decision process visible. As Nassehi (2005, 186) presents, this means giving decisions meetings, times, certain rites and documents. He sees this as the communication of decisions. Communication's job is to communicate the goals and objectives of decisions. This is needed because organizations as systems need a rational type of order to follow the decision making process.

Earlier we found that Luhmann's theory of organization does not consider decisions as mental operations, but as specific forms of communication. Based on this theory and Seidl & Becker (2006, 26) this means that decisions in organizations are not just made and communicated. Decisions themselves are decision communication.

Decision communication is a very special part of organizational communication. On the other hand, it is the guiding force of organizational communication, as this chapter later presents. Decision communication also has a notable feature: it communicates the rejected alternatives. This is done either explicitly or implicitly. Seidl & Becker (2006, 26).

Decision communication contains a paradox: the more the chosen alternative is communicated as a justified right selection, the less the other options will appear as real alternatives and the decision is considered less as a real decision. The same applies the other way around: the more there is

communication about other options, the less the chosen one seems as a justified decision and the less the decision will appear as decided (Seidl & Becker 2006, 26.)

Andersen (2003a, 162) emphasizes that a decision's "before" and "after" leaves a mark in a medium that affects the decision as a decision and organizational communication is codified in accordance with the medium. Decision communication is colored by the forms of organizational communication because it can form several medium. These medium can be for instance money or power. When the generalized medium is money, the decision communication communicates about the decision "best value for the money". As Andersen (2003b, 161) points out, "decisions cannot be communicated except in the imprinting in a symbolically generalized medium".

Organizations are built on decision communication

Andersen's (2003b, 252) view of organizations is not a typical organization theory, in which it is sought to answer what an organization is. His assumption is that organizations are formed around decision communication. Decisions are confirmed through decision communication and transformed for new premises for decisions. Organizational systems and processes are created through decision making and decisions define what a decision is. Decision creates itself as well.

Decision communication uses information about the world. But information of decision communication usage is always different from what is used in subsequent decision communication (Andersen 2003b, 254). Andersen (2003a, 160) also reminds that organizations as autopoietic systems create themselves and their elements through decision communication.

The nature of decision communication

According to Andersen (2003b, 243), decisions can be seen as communications. His perspective includes two options:

1. Decisions are made the object of observation in a communication and recognized as decisions.

   This means that in a specific organization we can observe what that organization considers as a decision and how that allows for subsequent communication.

2. Decisions are a particular form of observation and are considered a particular view of the world.

   In this case the world is observed from the perspective of decision.

Based on these options, decisions are the "infinity machine" of organizational communication, which keeps the organizational communication going. But Andersen (2003b, 246) emphasizes that decisions are fundamentally paradoxical in three levels:

1. Only questions which are fundamentally undecidable can be resolved.

   Decisions cannot have final definitions because a decision itself includes possibilities for further different decisions. For decision communication this means that it has freedom of choice.

2. Decisions fulfill social expectations of the future, but are always reached retrospectively.

   Like all other communications, decision communication is always facing backwards. Decisions constantly decide which previous communications

can be regarded as decisions and which can be used as premises for future decisions. Decision communication is always linked up with prior communication. Through this linking is then decided what an organization considers as decisions.

3. What a decision is, is in itself a decision.

Organizations are constantly deciding what makes a decision a decision and who has rights to make certain decisions. Decision communication makes the distinction between open and fixed contingency in relation to social expectations.

Based on these views, the nature of decision communication can be seen as very fragile. According to Seidl & Becker (2006, 26), it is even more fragile than the ordinary communication. To be successful, decision communication needs to have particular communicative provisions which are referred to as deparadoxifications. This means that the paradoxical form of decision communications is hidden.

A managers role in decision communication is important. Mintzberg (1975, 306-308) acknowledged 35 years ago that managers emerge as the nerve center and database of information of an organizational unit. A manager usually has access to every member of his unit and knows more about his unit than anyone else. They can provide and create possibilities to well working decision communication. Through this point of view, a manager's role in decision communication can be seen as informational, which includes three levels.

Informational roles
Monitor. Manager scans information from the environment through contacts and employees.
Disseminator. Manager shares and distributes information needed in organization.
Spokesman. Manager works as foreman outside of his unit.

Table 10. Roles of managers in decision communication by Mintzberg (1975, 306-308).

Williams & Clampitt (2007) emphasize that subsequent communication are difficult due to the nature of decision making and decisions itself. Communicators cannot keep everyone informed in real-time during the decision making process. Decision makers often labor themselves in the long-term with evidence, interpretations, and alternatives, and may become exasperated when they have to communicate something that is obvious to the decision making process.

As Williams & Clampitt (2007) say, those who are not part of the decision making process, have a different view of point. They lack the perspective of the decision making process so they have need for information on how options were weighted or how the decision is connected to the company's strategy.

Greenberg & Baron (2008, 370) point out that managers in communication should be supportive and use inspirational tactics. Hackman & Johnson (2009, 65) continue that when managers adapt democratic communication style, they encourage the followers participation and involvement of decisions. Followers are also capable of doing more informed decisions.

Benefits and problems of decision communication

Williams & Clampitt (2007) point out that well communicated decisions engender greater employee job satisfaction, commitment to the organization and identity. They also present two common reasons for ineffective decision communication:

1. Failure to clarify responsibilities
2. Desire to quickly inform

In the first case, decision makers often think that their job is just to make decisions, not to communicate them. They assume that someone else will carry out the communication. Williams & Clampitt (2007) remind that many decision making models give scant attention to communication of decisions.

In the second case, the communication is only restricted to the highlights of a decision. Often only the final information results are told forward. The relevant facts, weighted options, uncertainties surrounding conclusion and the manner by which the decision was made are left outside from communication.

As presented above, information after decision shows the results of decisions. Harrison & March (1988, 229) say that the post-decisional information clarifies the outcomes and values of the selected alternative.

5 METHODS AND DATA COLLECTION

The research part of this study treats the decision making and decision communication in an engineer based work community. The data collection contains two different parts: the results from interviews and a survey. The aim of this research is to find out and explore how decision making and – communication is constructed in an every day work environment among superiors and employees in this specific organization. Thus, this study, as Frey, Botan, Kreps & Friedman (2003, 8) suggest, fulfills the original goal for communication research: to describe a communication behavior.

This chapter provides information on the following: what the research questions are, what the goal of this study is and how the research was conducted. This chapter also describes how the methods were chosen and how the data, both qualitative and quantitative, were analyzed. Furthermore, the end of this chapter introduces the way the results are presented.

5.1 The goal of the study and research questions

The purpose of this study is to gain an understanding of decision making and – communication in an engineer based organization.
Accordingly, the final research questions are as follows:

1. How is a decision defined in automation engineering department?

The first question tries to find out how the employees and superiors of the automation engineering department find or describe the concept of decision. The question examines what is a decision in overall, what decision is in their daily working life context and what the decisions are related to.

2. How is a decision done in the communication point of view?

The second research question tries to find out the decision making process in the target organization as seen through the processes of communication. The main purpose is also to find out what kinds of responsibilities superiors and employees have and what things are affecting the decision making. This question also explores how the member of an organization participates in decision making.

3. How is a decision communicated in the automation engineering department?

The third question tries to find out how decisions and their outcomes are communicated in target organization. The purpose is to find out what the main communication channels are and what information is communicated as well as how the information of decisions flows in the organization.

5.2 The research organization

This chapter presents the target organization of the study. It introduces the daily work of the organization and presents how communication is organized. The provided information of this chapter helps to understand how employees and supervisors communicate or are communicated with daily.

The target organization of this study is the automation engineering department of Metso Paper, Inc in Jyväskylä. Metso Paper, Inc. has approximately 12,000 employees all over the world. Metso is a global supplier of sustainable technology and services for mining, construction, energy, metal recycling and the pulp and paper industries. The company has about 28,000 employees in more than 50 countries. The unit at Jyväskylä is specialized in engineering and manufacturing the parts of paper machines. In Jyväskylä the company has approximately 1 900 employees.

The automation engineering department is an organization of which works contain parts from many different fields. The department makes e.g. cost accounting, participates in the starting of new machinery. The department participates in projects in a large scale, from the earliest offers to the final phase of starting a new paper machine. The department has four sub groups called engineering groups: concepts and product engineering, fluid power engineering, hardware engineering and software engineering. In this study, these engineering groups are called teams or groups. The head of the department participates in the decision making upper level and shares the received information, e.g. projects and current financial situation as well as decisions to own team leaders and other members of the department. The normal time scale of meetings is one week. The management of daily engineering work is shared to team leaders. Team leaders as well as other members of the department have a possibility to discuss freely issues related to engineering with the head of the department every day.

Internal communication – the premise of decisions

The main purpose of internal communications is to support a company's vision of becoming the industry benchmark. Internal communications provide information on issues related to one's own work and the work community. Internal communications also communicate a broader scope of

information about the company's strategy, targets, operations and profit development. Internal communications in an organization is mentioned to be open, equal, honest and systematic.

Internal communications creates a foundation for practical operations and mutual cooperation, thereby promoting job motivation, job satisfaction and a sense of community among employees. At the same time, employees can communicate a more precise image of the company to customers and other stakeholders.

All employees are responsible for the internal communications related to their own work, areas of responsibility and key issues in terms of getting the job done. Internal communications is regulated by the employment contracts as well as the valid legislation in each country of operation. The company's values and ethical principles steer the communication flow within the organization.

A significant share of daily communications occurs at the individual level through meetings with people, so it is important that every employee shares their own work-related knowledge with others and actively pursues new knowledge. Supervisors provide information on work procedures, offer direction in specific tasks and communicate issues related to the work environment. Employees communicate work-related issues to their supervisor.

Communication channels for internal communication

The company has several communication channels for internal communication. They can be divided into three groups:

- face-to-face meetings
- online publications

- printed publications

Face-to-face meetings include supervisor/employee communication, employee interactions, meetings and briefings, employee representative meetings and informal get-togethers.
In supervisor/employee communication supervisors are in regular contact with their employees in work-related issues. Employees communicate work-related issues to their supervisor. Communication is intended to be active and reciprocal.

In employee interactions, meetings and briefings the company's vision, strategy and changes in units and local level is communicated to employees by communal events. Briefings for employees are held in conjunction with significant events concerning the organization, such as major acquisitions and significant internal arrangements.

The employee representative meetings are held in compliance with laws and regulations. Informal get-togethers are aimed to boost job motivation and sense of community.

Online publications consist of a company's internal network, i.e. the intranet, internal bulletins, group emails and phone and video conferences.
Intranet is the most important internal communications' channel conveying up-to-date information about the company, guidelines and employee-related news. The intranet also contains all bulletins concerning the organization and updated work guidelines. An internal bulletin consists of news concerning the entire corporation, a single business unit or a local unit, for instance appointments. Bulletins are always published on the intranet and on the bulletin board if all employees do not have online access or email.

Group email is used as a communications tool for a specific group of employees or for the entire personnel. Phone and video conferences are a widely used option for internal meetings to reduce unnecessary travel.
Printed publications include personnel magazines and other internal publications. Employees' own personnel magazine is published four times a year in seven languages. The magazine features employees and the company's operations and it provides more background to news and press releases. Additionally, internal publications for different target groups are published based on the need. External publications such as annual reports, interim reviews, presentation materials and sustainable development reports are also available for all employees.

5.3 In-depth interviews of superiors

The first part of the research consisted of in-depth interviews. The interviews were chosen because the qualitative research methods were found to suit the study's theme the best, which have not been studied in Finland before. The method also suited well for the base of this study's second, the quantitative part. The qualitative method also gives the best information, which is based on people's subjective point of views and experiences. Interviews, according to Daymon and Holloway (2002, 167-168), aim to give information from the past and present, when the interviewees can express their feelings and thoughts. They are also more flexible and enable the interviewer to understand better the perspectives of interviewees and may reveal new phenomena (Keyton 2006, 72). The interview can bring new topics outside the questionnaire, but the interview has to be sharp enough to notice what information is left outside or taken outside the preplanned questions (Patton 2002, 341).

Four team leaders and the head of the department were asked to participate. They were contacted by email and they all agreed to participate. All of the

interviewees were male. They were selected for the interviews because their role in the department is vital in the communication and decision making point of view. Interviews were conducted in their workplace at Metso's unit in Jyväskylä. This made it possible for all the participants to attend during their workday. This also ensured that the entire 60 minutes were used effectively. The interviews were conducted on the 20th and 22nd of October 2008, and they were recorded.

The basic structure of the interviews was as follows:

1. Definition of decision
2. Decision making process
3. Communication of decisions
4. Information flow and communication channels
5. The role of superior as decision maker

The interview question form comprised of 14 different questions (appendix 1). The form was made in cooperation with Metso's human resource employees. The interviewees were asked to answer the question one at a time. One hour was reserved for each interview. After the completion of an interview, the themes were openly discussed depending on whether there was time left and the interviewee was willing to do so. These discussions were also recorded and used as background material. In some cases, the interviewee wanted to come back to earlier questions and add information to them. The length of the overall interview material was over five hours.

According to Lindlof and Taylor (2002, 172), interviews serve well the purpose of getting information, which increases the understanding of social actors and experience. The team leaders' role as decision makers is critical and their knowledge is a unique fountain of experience. Interviews allow us to hear people's stories of their experiences and understand better how decision making and decision communication is conducted.

The findings and reasoning of this study is based on the collected data. According to Keyton (2006, 63), this method is called inductive analysis. This

is very common in qualitative research. The researcher uses data to make interpretations and builds up theories as they emerge from the data. The inductive analysis continues through the whole study when the researcher moves from a specific phenomenon or theme to more general conclusions.
In this study communications theories have an important role, because no previous studies about decision communication exists in Finland. Communication theories have influenced the analysis and therefore the analyzing process cannot be seen entirely inductive, but also as abductive. In an abductive analysis, the researcher recognizes the influence of theories when making interpretations from the data.

In this study it is also important to notice that the researcher was partly related to the organization, when he shortly worked for the company as a communication officer. This also influences the analysis.

5.4 The quantitative research to employees

The second part of the research of decisions in the automation engineering department included a quantitative research. It was a survey, which was conducted via internet. The used software was Mr. Interview, which is software for creating, fielding, and managing large or small surveys in multiple languages. Online surveys are cost efficient and respondents can return data quickly, but online surveys are often challenged by the rate of answers (Keyton 2006, 165).

The main purpose of a survey is to seek and describe communication characteristics of a group or people. Strengths of surveys are that the information is received from the grass roots level and the findings can be generalized to the population. But on the other hand, the conclusions can be just stated as probabilities, because the sample does not reflect the researched population as a whole (Frey et al. 2003, 8;86).

The research on the employees was conducted in the first week of February. The whole department as well as the subcontractors and superiors working in the department had a possibility to participate in the research. Overall 38 employees participated in the research. Two of them were superiors whereas none of the subcontractors participated in the research. According to the organization chart from February 2008, the automation engineering department had 74 employees. The head of the department stated in the fall of 2008 that at that time the department had 68 employees.

The purpose of the second part of the research was to gain information about how the employees perceive the decision making and decision communication. The questionnaire (appendix 2) was a mixture of open questions and structured questions. Questions were built and prepared with the thesis mentor and the human resource person of Metso Paper.

The questionnaire contained some questions which were not used in this study but which were wished to be included by the research organization. The structured questions used the Likert scale. According to Maxim (1999, 224), this scale is commonly used because it is easy to use and it works well in a wide range of circumstances. The questionnaire also included a few questions, which used Wiio's Organizational Communication Development (OCD) method. According to Hargie and Tourish (2009, 59-60), the OCD method helps to translate the goals of organization to end-results and it addresses several issues, which are not covered by other survey instruments.

But why use the quantitative method in a study, which addresses decisions in communication, a theme that can be considered as a microelement of communication? Keyton (2006, 54) views quantitative methods as having advantages of their own. One of them is making comparisons. By quantifying and using statistical procedures, the concepts of communication

are more exact and precise. The findings can also be generalized to other individuals in the same research project. But at the same time quantitative methods lose the possibility to capture the complexity or depth of communication. It also fails to capture those phenomena that cannot be controlled or simulated.

In this study the purpose of quantitative methods is to bring objectivity through the traditional statistical techniques and increase the reliability of the study. The quantitative data also gives information about the communication of the organization from another point of view.

The creditability of qualitative data is often completed by using triangulation. In this study this is done by using the method of methodological and data triangulation. According to Keyton (2006, 298), different data enhance the validity of the study when researches becomes more familiar with the themes of study by looking them through different research methods. Lindlof and Taylor (2002, 241) remind that different methods should not be used uncritically because the comparison between different data might become problematic. Different data might even tell about different realities and the making of conclusions might become even more problematic. But in this study the triangulation brought much more details and richer data, which can initiate new ways of thinking (Miles and Huberman, 1994).

5.5 Analysing process

Analysis of qualitative data

The overall data of the qualitative interviews contained five interviews, and the length of the materials was over five hours. All the interviews were partly lettered(transcribed?) by themes. The interviews were not transcribed entirely, but by according to the questions. All irrelevant material, unrelated

discussions, pauses, etc. were excluded from the transcribed material. After the transcription, all of the material was read and the answers were grouped and combined together according to the questions. Following this, the questions were grouped according to the research questions and the answers were combined together. When the questions were analyzed together, different theme groups within a question were formed.

In this study, the analysis has been made strongly based on the collected material. As Miles and Huberman (1994, 10-11) have stated, the material based analysis is divided into three phases: data reduction, data display and conclusions. The first phase refers to the process of selecting, focusing and abstracting the data. In the second phase, the data display, similarities and/or differences are sought after and different classes or groups are formed. In the third phase, the conclusions are drawn and verified.

After the groups were formed, they were firstly categorized according to the interview questions. As Keyton states (2006, 293), the categories emerge often from the data. Later, the findings were grouped according research questions. To ensure the quality of the findings in different groups, quotations from participants were added. The quotations were translated into English from word to word and as correctly as possible to ensure that the contents and meanings stay as close as possible to the original ones.

Analysis of quantitative data

The quantitative data was analyzed during the spring and summer of 2009. The data was analyzed with SPSS statistical analysis software. The answers of the superior and subcontractors were excluded in this phase. The answers of the two superiors did not bring any new information after the interviews.

The respondents of the qualitative data were divided into groups according to their team, age and work experience. When analyzing the background

variables, the groups of age and work experience were modified. The final groups in the age category were 18 to 40 and over 41 years old. The first group has 11 respondents and the latter 25 respondents. In work experience, the respondents were divided into two groups. The groups were under 10 years and over 10 years. The quantitative data was analyzed by using means, ranges, numbers of respondents and deviations. Cross tabulations were used to receive information on the effect of different background variables.

Analysis of methods

The quality of research is usually evaluated by using the concepts of reliability and validity. In communication research, it is necessary to measure those things which are required by the research questions and possible hypotheses. The process also requires that everything is measured validly and reliably. Reliability and validity are separate concepts, yet still connected in a fundamental way. Both of them must produce truthful and consistent data (Keyton 2006, 104;112).

In a qualitative study, the evaluation is based on the measurement of the whole research process. Daymon and Holloway (2002, 7) remind that the biggest challenges of qualitative research are subjectivity, repeatability, lack of transparency and the problems in generalizations. Objectivity and neutrality are impossible to achieve in qualitative research.

Keyton (2006, 54) points out that in quantitative research reliability is achieved when researchers are consistent in data collection procedures and when participants react similarly to them. Validity in quantitative research is achieved when the measurement does what it is intended to.

Lindlof and Taylor (2002, 238) say that reliability is consistency of observations. This means that research elements of the study should give the same results every time they are applied. Thus, the study should be

repeatable and reflect the results of the first time. If the reliability is low, there may be several potential sources for problems, e.g. instruments are not precise enough or instruments have been interpreted and used differently. As Lindlof and Taylor (2002, 239) remind, qualitative research may include operations which are non-repeatable. Especially interviews are problematic as the questions vary for each interviewee. A greater problem, which lowers the reliability of a study in qualitative research, is the assumption of realities. According to Keyton (2006, 113), in communication research many threats to reliability and validity come from the researcher's interpretation when answering questions related to the behavior and issues of communication. Also the nature of communication research is complex. Problems with data collection and alternative explanations may lead to false conclusions.

In this study both questionnaires, qualitative and quantitative, were tested before. The topics of the interview questions were planned together with a Human resource specialist who is related to the target organization. A number of questions were reduced, leaving altogether 14. The final questionnaire was accepted by the HR specialist and the mentor of master thesis.

The same procedure was used in the quantitative questionnaire. The topics and the number of questions were planned beforehand with the HR specialist. The questionnaire was finalized in a few meetings and the final form was accepted by the HR specialist and the mentor of the master's thesis.

According to Daymon and Holloway (2002, 90), the best way to describe how the study has been conducted is to describe the process step by step. This means that every part of the process is described carefully and explained in detail. The whole research process of this study is explained in the methodology part.

In this study, the researcher's subjective interpretations of qualitative data and objective data of the quantitative research are combined. The findings of this study were sharpened by using methodological and data triangulation. According to Lindlof and Taylor (2002, 241), using multiple methods increases the understandings of the respondents' subjectivity. This also dispels doubts of the findings.

In the next chapter, the results of this study will be presented step by step according to the three research questions. Both studies are presented as independent entities to help the reader to obtain a clear picture of the results of the interviews and the qualitative questionnaire.

6 FINDINGS

6.1 In-depth interviews

Five in-depth interviews with team leaders and the head of the automation engineering department were conducted October 2008. These interviews lasted circa 60 minutes and in these interviews respondents answered 14 questions concerning the definition of decision, decision making process, communication of decision, communication channels and information flow. Responses were processed question by question and were content analyzed. The results are presented in the same order as in the questionnaire. Some quotations from interviewees are added to deepen the analysis and to give to readers an opportunity to review some of the answers.

Definition of decisions

Team leaders found that the decisions are usually changes in consensual policies. They consider decisions to be "something bigger" that always include a change. So the decision is usually seen as a change. They found that normal daily routines, existing policies or decisions that have been made earlier, are not decisions.

"Decision is a change in policy and forces us to change the daily routine. Decision tells that we have to take a new direction." (I1)

"Decision is a bargain of policy and a collective treaty of something. It is always something big, but do I have to communicate it forward is also something to decide." (I2)

Team leaders also found that the decision can be collective information that leads to a decision. Those who were not sure how to define a decision said that the decisions are normal work and something that is a part of a supervisor's job. In some level, the decisions are "playing by the rules and guidelines". One leader found that acting according to norms and regulations is also a decision. Another leader had no words to describe what a decision is, but said that he feels and knows it when a decision is made.

certain

"The decision can be just something that comes to my mind." (I4)

Decision making

Team leaders and the head-of-department

In generally, the decision making in the automation engineering department is based on facts. This is influenced by the nature of the working community. The people of the department are engineers and their work is based on facts and precise information.

"Decisions are based on facts that exist. The things on the table might not be what they look like." (I5)

The team leaders in the department have different roles compared to each other. So the decision-making process is influenced by team size and its role in the department. In general, the job of a team leader is to decide about

timetables, the project leaders in different projects, and how resources are shared. Their decisions are guided by the nature of each decision.

> *"The decision making is dependent on what I have to decide. If it deals with personal things, then it is more delicate and I take a more peaceful and careful approach." (I2)*

Team leaders often use background information in their decisions. They also discuss with each other and different specialists before the decisions. Sometimes they want the acceptance for the decision beforehand from their supervision.

The head of department concentrates more on financial things. He decides the budget, acquisitions, what projects the department takes, and sees whether the department can offer the same deal that sales have offered to the customer. He also takes an attitude on different themes and finds what other departments and leaders have to say about these themes. His decisions are also based on facts.

He usually gathers facts, discusses, gets numerical information and preconceives. The final decision comes based on the knowledge that he has at that moment. Decision making is guided by the existing guidelines, but they can be changed if the guideline is found too old.

Employees and project leaders

The interviewees were asked to describe how employees make decisions. The project leaders have the responsibility of current projects. They are usually engineers and team members. They decide what teams are formed for different projects and what everyone begins to do. The most important things to decide are the sub goals and the suitable timetable of each project. They also allocate the resources that they get from their superior.

"Employees decide what teams they form and their work. They are responsible for the progress of each project. They also decide when the project is behind its schedule." (I2)

"They share the resources with the leader of the team. They also manage the resources of their own work." (I4)

The work of the member of the automation engineering department is highly modelled beforehand. One employee's decision is to decide in what order different groups design. They communicate their decisions mostly to the project leaders but not always to their team leader or the head of automation department.

"Part of the workers do not necessarily know what decisions should be communicated forward. The responsibility of this kind of communication is on the employees." (I1)

Things affecting the decision making

The leaders of the automation department found that major guidelines affecting the decision making are the strategy of Metso and the economy. In addition to this, the things that come from other departments and other superiors also have an effect. Because Metso is a joint-stock company, some of these matters cannot be told to all leaders or subjects.

"That what affects have been told and lined by Metso. These things define what I can decide." (I2)

In daily routines, the leaders found that the better the matter has been prepared, the easier the decision is to make. Usually the process includes policies, economy and technical issues. In these kinds of cases the proposal and the final decision is easier to make. The respondents said that knowing the work situation in the department and seeing the big picture helps the decision making. Discussions with different experts help in decision making.

According to one respondent, this is a good way to commit to a decision. In technical things, the norms and laws also have an effect.

The leaders as individuals base their decisions on facts and experience as a team member does. These two things are important, but leaders do not want to let them mix. According to respondents, one major problem in decision making is the low amount of information.

> *"When decision making is hard I sense that I don't have all of the information that I need to make a proper decision. Lack of information is slowing the decision making process. I have been sometimes forced to make a decision with sleazy information." (I4)*

The respondents viewed the decision making process as "humanitarian work", where feelings and personal opinions matter.

The justification of decisions

Facts are the most important things in justifying a decision. In the automation department, the facts have to be something that can be measured or calculated. Justifications of decision are often economically. Justification can also be found from previous decisions from other departments and can be defined as common knowledge. The general guidelines of Metso also affect.

> *"In work where so many engineers are involved, the decision is not worth making if it cannot be justified by facts." (I1)*

> *"I base my decisions on facts and experience as a team member. I try to keep emotional things aside. But sometimes experience and feelings unfortunately get mixed." (I3)*

Some leaders said that they search for information in order to justify their decisions. In technical issues various standards give the justification. The leaders found that the justifications are still not always necessary.

> *"I seldom have needed to justify my decisions. The reason for a decision comes usually during the decision making process and I won't make it without a reason." (I4)*

The respondents found the justifications as workload and it is everyone's own job to decide how much time they want to spend on it.

> *"The justifications are like a thin red line. These are told if they suit the timetable." (I4)*

In decisions where human resources are involved, for instance in a development discussion, the leaders want to be more delicate and do not usually want to tell the justifications. In these situations the justifications can be personal.

Group decision making

Team leaders found that the group decision making has some weaknesses. They found that a superior's job is to encourage the team members to talk and to give time and space for team members to express their opinions and point-of-views. Their intention is to find some tacit knowledge from the group. Leaders felt that despite giving the time and space, it is hard to get workers to participate in the group meetings even when they are assigned as normal work.

> *"Superior should get all members' opinions said and give some space to talk. But he should not let them just talk without a decision, because then the meeting has been useless." (I1)*

The group decision making is often driven by the leader. Leaders found they have to keep the pace and direction of discussion as right as possible. Some of them find this quite challenging and the good, useful ideas are not found easily. Team leaders felt that the discussion in group decision making is usually better when some team member introduces the themes.

> *"If team leader introduces the theme, the conversation is not so wide scale and pondering as it should be. I think giving more responsibility to more to team member is better way to expand the decision making and responsibility taking." (I2)*

The team leaders, in general, do not want to take an excessively active role in group meetings. They expressed that they want to bring the facts and their opinions to the meetings. They will answer the questions that team members have. They also plan the agenda and send information about meetings.

The communication of decisions

Communicating decisions to employees

Team leaders found that the best ways to communicate decisions to employees are scheduled meetings, face-to-face communication and email. Made decisions are revised once in a month in a group meeting. This meeting also introduces the board's decisions. The whole department gathers together every two months in a department's meeting. After meetings, the made decisions are communicated with memos via email. In addition to these meetings, there is also a technical core meeting and a team leaders own meeting with the department's leader every Tuesday.

Communication is often driven by the urgency of the message. Messages that are in hurry are delivered by email or face-to-face. Messages with lower priority are communicated in meetings.

"Telling something personally is often quicker and easier than sending email. Emailing usually takes more time than walking to a person and talking face-to-face." (I1)

Team leaders found that a major part of communication is done by databases and computer based memos. The instructions for daily work exist in different databases. If an instruction is changed, the new instruction is accepted and commented by a superior before it is sent forward. The memos are sent via email along with comments. Messages concerning all employees of the department are sent via email. Press conferences for employees are held only when, for instance, some big organizational reform is planned to do.

Almost every team leader found that one of the best ways to inform employees is to participate in coffee table conversations during breaks. These conversations are thought of as a little bit problematic. Team leaders felt that not every subject is appropriate for discussion during breaks. Also during these conversations employees try to get some information that is not yet public from superiors.

Superiors felt that younger employees have used to do their decisions more independently and freely, but they also are more willing to accept the decisions of superiors than older employees. The independence is seen in the form of new ideas in their work. The older employees are more willing to acknowledge the changes to superiors'. Superiors see that some employees felt it strange that superiors give liberties and are willing to discuss about decisions.

Superiors found that the communication capabilities vary very much among employees and each employee's attitude towards decisions affects how the decisions are accepted. Superiors said that they wanted to keep their mind

open to negative feedback and want to discuss openly if someone has something negative to say about the decision making process.

Employees' decision communication to superiors

Team leaders felt that they receive the information of decisions made by employees very well. Designers and project leaders often come to talk. Email is also an often used channel and the messages are often commentated. If team leaders want some information via a normally unused channel, this is agreed in monthly meetings.

> *"I find it good that decisions are brought to me face-to-face. Matters that have no hurry are handled in a group meeting. There we also handle those things people want to complain about." (I3)*

Team leaders also felt that they do not want to monitor excessively the work of project leaders and employees. Also, they found that they have no need to know every decision that is made by team members. For decent knowledge of the situation of projects and its decision, the team leaders found the project databases to be very useful.

> *"Project databases include the decision and memos and they can be read from there. The superior doesn't need the information of decision as much as the project leaders do." (I4)*

Leaders said it is very common that employees come to talk and give feedback when walking among employees or around the coffee point. They also stated that they keep their doors open every time, so that they are available for discussion.

Giving and getting feedback

The feedback was a matter that divided the team leaders' opinions. They felt that they receive feedback but also found that in the common level they do

not get enough feedback. Different team leaders also receive different kinds of feedback. Especially the head of the department mainly receive more negative feedback than the team leaders. One team leader found that giving feedback is a common problem in the whole company.

> *"Dealt the decision anything, the well working decision rouses positive feelings and it is easily delivered forward. If the decision is bad, people start to find a change for it." (I2)*

At the superior level, discussion is a very used form of giving feedback. Team leaders found that they do a lot of cooperation at the superior level. Team leaders give more detailed feedback in development discussion. Employees get recognition when they make good decisions. When they have made a bad decision, a superior solves it with the employee and ponders how the employee has end up with this decision and how it could be seen in other ways. When a superior makes a bad decision, it is usually handled in group meetings.

One team leader found that when he hears nothing, things are going well. Also another team leader found that the positive decisions do not get any reaction. Team leaders felt that people usually expect to get more feedback than they actually give. Surprisingly, the best possibility to get feedback is to participate in the discussions around the coffee table. The employees, according to team leaders, are very quick-witted.

The flow of information and communication channels

Team leaders found that the most used communication channels of the automation department are face-to-face talking, email and scheduled meetings. Between leaders the important things are discussed face-to-face. Messages to employees are communicated via email or meetings. The most important channels according to respondents were face-to-face talking and meetings.

"We have aimed that in the group meetings everyone could say and tell what he or she has done."(I1)

"I think the group meeting is the most important before email. Some preliminary information about decisions is given during coffee breaks." (I3)

In daily work, the official communication channels are meetings and databases, for instance the project database and the review-handling database. The automation department also has a weekly reporting practice used for delivering information about the employee's sectors.

The interviewees said that the organizational culture has improved a lot and it is now more open than for instance 20 years ago. Team leaders felt that the information is distributed generally very well, but there are some setbacks. The delivery of information via reports of meetings was found poor. One leader believed that the meetings are not found as useful as earlier. Another leader felt that someone from the team should make memos and reports from meetings, so they could look more closely into matters which the meeting has handled and decided.

"The information flows freely and the published information is told openly. If we don't have the correct information of the matter in hand, then we say directly that we don't know. A superior cannot afford to speculate with information."

Some leaders felt that they have too much information to remember and deliver, for example documentation. Superiors sometimes have difficulties choosing what information they should put on frame.

Team leaders found that almost all of the teams have a good atmosphere. One team has studied the atmosphere and a few improvements were found. Leaders found that a good atmosphere is needed as it affects the total output of teams. Decision making and communication were said to be important things that influence the atmosphere. Still, the biggest problems according to

the last atmosphere study in 2007 were said to be in salaries and communication.

Superiors as decision makers and communicators

The superiors of the automation department saw their roles as decision makers to be more akin to information gatherers and ponderers than authorial leaders.

> *"In an organization where everyone has a certain expertise, the information and knowledge are in the group as a whole. I have to try to act so that I could get out all the needed tacit knowledge for the support of a decision." (I1)*

> *"When we make a decision, we follow it and act according to it. But when we get a decision, usually we don't follow it as good as we should." (I1)*

The team leaders also felt that the decisions are not just something that only a superior has made. They felt that they draw the lines and weld together the alternatives. The superior is the last person to formulate the decision.

> *"I would be in trouble if I just dictate the decisions and tell how things are. The expertise is found from the group." (I2)*

Superiors use consideration when making decisions. They expressed that if needed, the arguments for a certain decision can be found. They also said that they would not begin to explain their decisions. All decision making is based on facts. If they do not have enough information to make the decision, they will get it from somewhere. They also stated that the managerial work would be easier if the strategies from the upper level would be communicated better. They felt that superiors are the key part of an organization that "lives" the strategies to lower level and employees.

They saw that their role as a decision maker and a communicator is to take decision making to a direction that eases and helps the decision making of

employees. They found that the employees are more willing to speak out about decisions and discuss when they feel that they are heard. This also helps commit to previously made decisions.

6.2 The quantitative survey

The aim of the second part was to find out how employees of the automation engineering department define the decision and how they find the communication of decisions. The main results in this chapter are presented in tables and the additional results in appendices.

The quantitative questionnaire was conducted on the first week of February. The questionnaire (see appendix 2) had questions about the definition of a decision, how they make decisions alone and in the group and how they communicate the decisions.

The number of respondents was 38. The automation engineering department had 68 employees in the start of February 2009 according to the head of the department. The department also has some subcontractors. Overall, 55 percent of employees answered the questionnaire. 36 of them were employees and only two were superiors. Because the share of superiors was so small and because they were already interviewed, their answers were used to complement the overall results of the interview part and were excluded from the quantitative part.

6.2.1 Background variables

In background variables, the respondents answered questions about their team, age and how long they have been working for the automation engineering department. Their positions in their working community were asked as well, but not used in the findings. This variable turned out to be useless because only two superiors answered the questionnaire and the subcontractor did not answer at all. The comparison between these groups was not seen as reasonable to use in this study.

Most of the respondents, 52.6 percent, were 41–50 years old. The second biggest group was 31–40 years old, their share was 26.3 percent. There were only two under 30-year-old respondents, their share were 5.2 percent. Over 50 years' share was 15.8 percent. In the final results, the respondents were divided into two groups: from 18 to 40 years old and over 41 years old. The first group included 11 respondents and the second 25 respondents.

In generally, the respondents were experienced and had long working careers. 73.7 percent of respondents had over ten years of experience in working for the automation engineering department. 15.8 percent had a long working career ranging from six to ten years. A career that was less than six years had only 10.5 percent of respondents. Respondents were divided into two groups according to their work experience. The final groups were less than ten years (nine respondents) and more than ten years (27 respondents).

The most active respondents were found from the group of concepts and product engineering. Their share of total respondents was 39.5 percent. The second biggest share was hardware engineering, 26.3 percent. Software engineering's share was 21.1 and fluid power engineering's 13.2 percent.

The most active group was concept and product engineering. 75 percent of the team's employees found the questionnaire interesting enough to answer. Activity was the smallest in the team of software engineering and fluid power engineering. Only 30 percent of the group members found time to answer the questions. In the team of hardware engineering 60 percent of the members answered the questionnaire. The numbers are based on the organization chart from February 2008. The real number of employees in every team was slightly changed but the chart was still usable as a reference.

6.2.2 The definition of decision

The respondents were asked to define what decisions are. 28 respondents expressed their thoughts about decisions. According to the answers, the question was hard to answer. The answers were discourse analyzed and divided into five groups. The groups were:

- Choices
- Information process
- Technical implementation
- Application of concepts
- "Daily work"

Some respondents found that decision making is making choices or some kind of choices.

"In our job description we make choices in different projects, what I find as decisions."

"It is to choose the right function or policy and stand behind it. For the choose I have to have arguments or black and white."

"Different kinds of choices."

"It is making choices between the alternatives on the hand."

"Choosing the suitable function from different alternatives."

Some respondents found that decision making is a process where information has an important role. In this process the decisions have a major effect on the results of the process.

"It is a continuing and extensive process where decisions have very far reaching impact."

"Decisions are always the end of some kind of considerations and researching and moving to its completion. During the process of product development lots of little

decisions are made and in the beginning and in the end "a big one" decision is made."

"They are made by based on the information that exists in the starting moment. It is a significant solution that affects how things progress."

"They usually are things that have effects on the results of a project."

Some felt that the decisions in projects are driven by the guidelines of Metso.

"I decide what the guidelines of the project are. They are primarily interpretations of contracts and standards of Metso."

"It is deciding and defining the sellable concept."

"1) Decisions concerning the integrated solutions within Metso for technical and economical delivery projects.
2) Decisions in customer interface for technical and economical."

Some felt that making decisions is bonded to the designing or technical implementation.

"They are decisions that are related to the methods of designing."

"Decisions usually concern the procedures of technical implementation."

"Decision defines, instructs and limits the thing."

"Designing is very model based. There is not much room for own decisions."

"Technical decisions."

"Decision is for instance some things agreed way of implementation."

"Decision is for work of function and way of implementation."

"I make decisions about the ways of making hardware designing in different kind projects."

Other definitions were more superficial. In these definitions can be seen that decision making and decisions are something that is "just a part of work" everyday.

"Definition???! Maybe one has to make decisions in his work all the time but at least we are not in the assembly line. So this is just making different kinds of decisions."

"Decisions are affected by the up to date kept instructions."

"Decisions are mostly based on experience."

"Decisions are made according to instructions."

"I can decide my work rhythm and can do my job independently."

"Adjusting things that have already been chewed."

"I can make decisions primarily within customer contracts."

"Taking care of the project."

6.2.3 What decisions relate to

The respondents were asked to describe with an open question what their decisions are usually related to. Overall, 30 respondents expressed their opinions. When the answers were analyzed, they were placed in four theme groups according to the number of answers. The groups were:

- technical solutions and designing (17 answers)
- schedules and resources (9 answers)
- procedures (5 answers)
- organization of work and projects (5 answers)

Some answers had to be grouped into two or even more groups as they were long and contained diverse answers.

Technical solutions and designing

The group that gathered the most answers was technical solutions and designing. It gathered 17 different answers. The respondents said they for instance choose the components, material, user interfaces and machines. They also choose the technical level, devices and the placement of devices.

> *"On the other hand, the decisions are related to the technical solutions of delivery projects and the cohesion of solutions."*

The respondents found that the choosing of technical things is an essential part of the designing process and if it is done sloppily, it may have disastrous consequences.

> *"A wrong decision and suitable malfunction at a paper machine might end up in physical injuries or material damages."*

Schedules and resources

Some part of the employees' decisions is related to different kinds of schedules and resources. Overall nine answers were gathered in this category. Respondents found that a part of their job is to plan and decide how they are using their working time.

> *"One part of the decision making is planning how the working time is used etc."*

"[Decisions are related to] schedules and working methods."

"I decide what my working order is according to the timetable."

Employees also decide how the projects proceed and what kinds of effects they have on timetables. This might have a significant impact on the cost of time management and projects.

"The leading project engineer often makes decisions during the projects and they affect the cost of the time management."

"The timing of designing and procurement schedules, decisions related to cost control, etc."

Essential parts of the daily work and the decision making are decisions related to different resources than time. Employees also have a responsibility to think about the costs related to testing, tools and which models are used.

"What devices are tested, how and where the money for this is taken? When the product is ready for sale? How the costs of warranty are estimated? How the angry client is handled?"

"Related to my job description, the decisions I make are related to different resources of the projects, the tools that are used and the model templates, etc."

Procedures

The respondents felt that the decisions are also related to different procedures. This category gathered five answers. According to the respondents, the procedures are, for instance, how the design is executed or how a single function is technically resolved. The procedure can also be the

defining of a bigger technical function. Some respondents found that documentation is part of the procedures.

"Usually the decision is mostly related to different procedures. In some projects the decision is related to the scale of delivery."

The organization of the work and the projects

The fourth category of decisions relations is the organization of the work and the projects. Five answers were gathered. These answers expressed that the decisions in daily work are related to personal choices. Addition to these, the employees, the project engineers, also organize the subcontracting work.

"During the design process I can choose how I can schedule the order of my work."

"I choose the order of what work I do now and what later on."

The decisions are also related to projects. The respondents felt that they are making decisions in projects which are shared by Metso Paper and Metso Automation. These decisions are made in within the project but also with customers.

6.2.4 Things that affect decision making

The members of the automation engineering department found that decision making is usually affected by the current information as figure 11 shows. The respondents evaluated the alternatives on a scale from 1 to 5. The mean for this was 4.42. The customer's role is not insignificant – the mean was 4.17. Time schedule and general guidelines were near to each other. Their means

were 3.97 and 3.86. The role of financial factors was estimated with the mean of 3.50. The last two for this question were the opinions of a co-worker and a superior. Their means were 3.42 and 3.06.

A few answers were gathered via open comments. One respondent felt that the things related to safety are also affecting the decision making. Another one expressed that the standards of customers have an influence on decisions. One respondent stated that the decisions should be based on the contracts and standards of Metso. In other cases, the acceptance should be always gotten before a decision.

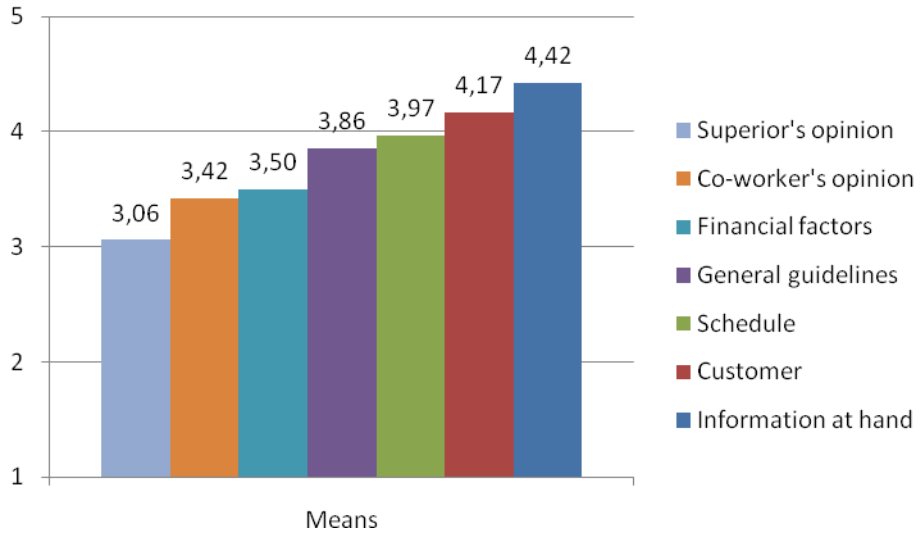


Figure 11. Things that affect decision making.

When comparing question to background variables the most significant information is that different age groups rely on different things. The respondents in the first age group (from 18 to 40 years old) relied more on information than over 41 years old (the second age group). The second age group also found the superiors opinion to affect more decision making. They also thought that the financial factors affect decisions more than in the first age group (see appendix 3).

6.2.5 Support of decisions

The respondents (figure 12) found that the best way to get support for decisions is to get it from a co-worker. The mean for co-worker was 3.75. Engineers use many different databases and instructions to aid the decision making. The mean for instructions and databases was 3.67. The respondents also use previous decisions when support is needed. The mean for previous decisions was 3.50. Different memos as supportive tools were rated with the mean 3.28. The last ones were superior and subcontractor. Their means were 3.03 and 2.36. One respondent commented the question and expressed to receive support from the project organization. Another commentator stated that he knows the customer and his demands.

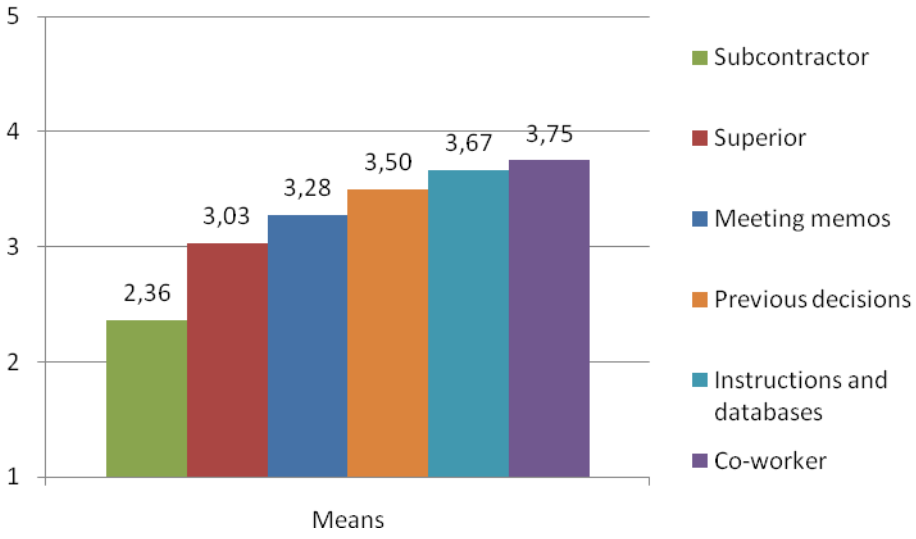


Figure 12. Support for decisions.

Different background (appendix 4) variables showed that teams have their own methods in finding support. The comparison between age groups (appendix 4) showed that younger employees rely more on instructions, databases and co-worker when they need support for their decisions. The

older employees rely more on a superior, previous decisions and meeting memos.

6.2.6 What the decisions are related to

Although the employees described by open question what their decisions are related to, another question from this theme was also added to the questionnaire. At this time the respondents choose from alternatives. These two questions provide fruitful information about the decision making of the automation department.

The open question provided information about the decisions the employees make most often. Surprisingly, this question asked things that the employees did not mention in the open question. This question (figure 13) showed that the employees, the project engineers, also have a big responsibility towards the budget. 36 respondents answered and found that their decisions usually, mean 3.64, are related their own budget. Decisions are also related to the budget of the department, mean 3.28.

After this, there is a big gap between other alternatives. Respondents felt that the decisions are not so often related to the work of a colleague or the subcontractor (mean 2.58 in both). Decisions are only seldom related to the own work of employees, mean 1.53, or planning the works, mean 2.17.

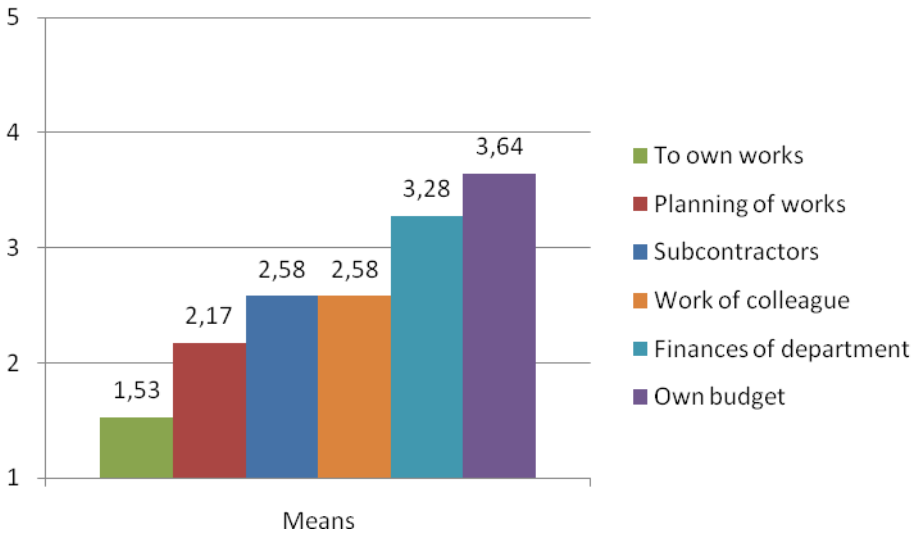


Figure 13. What the decisions are related to.

6.2.7 The problems of decision making

The problems of decision making were inquired with an open question. The respondents found some problems with decision making. The most mentioned reason for problems is the lack of correct and/or suitable information. Also the lack of instructions and the clarity of who eventually has the power to make a decision was mentioned.

> *"The information needed for decision making is not always at hand when it is needed."*

The respondent who expressed their opinions about problems with information also commented that the lack of information increases the possibility that something goes wrong in designing, especially in a hurry. The needed information can in some cases be outdated and/or is not usable anymore. The nature of research and development is to create something new and new products also bring demand for new information.

> *"Product development is learning something new. When making decisions there is seldom enough information."*

Some respondents found that existing databases and instructions are not always helpful for decision making. They felt that the useful information is often hard to find from a large amount of instructions. The information in these databases can be adversarial with the new information that another group is using. Also the information might be too open to interpretation. Even the information on how decisions are made can be lost.

One another important point is that the role of the automation engineering is not always known by the counter side. One respondent found that in these cases getting the information might be very hard even if the customer knows what risks it may hold. Some respondents felt that sometimes it is not clear who has the power to make decisions and this is the main reason why things do not go further. One respondent felt that things are not always looked at from every required point of view. Some important things might come to awareness after the decision is made. Some felt that even the slightest change in decisions might have a big difference. Some respondent felt that the company does not have good instructions for decision making. Also the difference of customers brings difficulties to decision making.

6.2.8 The clearness and responsibility of decisions

The respondents (figure 14) were asked to evaluate whether they find the decisions and the responsibilities of decisions as clear and well-defined. Overall 36 employees expressed their opinions. The mean for the clearness of decisions was 3.5, which means that the decisions are clearer than average.
The respondents felt that the responsibility of decisions is not as clear as the clearness of decisions. The mean dropped and the deviation rose. The mean for the responsibility of decisions was 3.19.

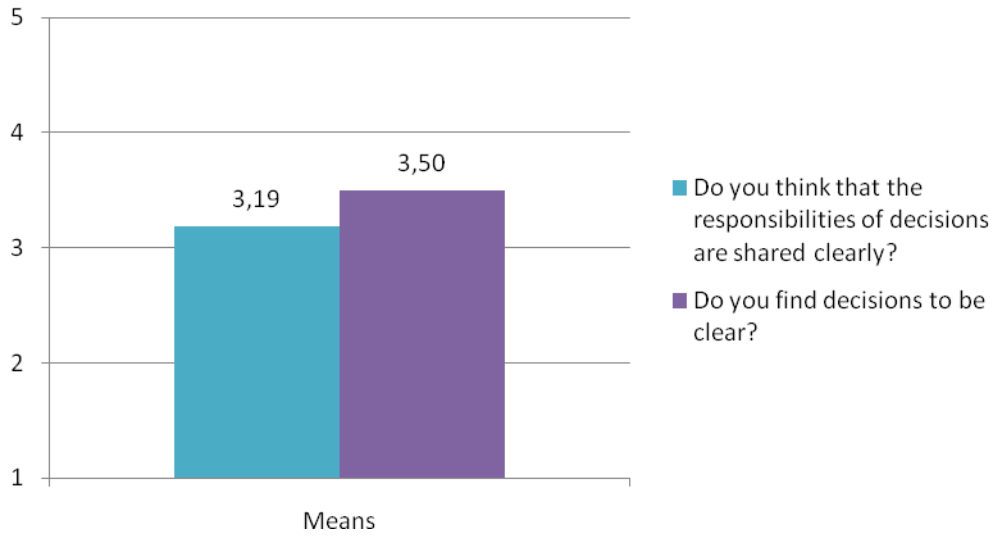


Figure 14. The clearness of decisions and responsibilities of decisions.

In background variables (appendix 6), younger employees found the decisions to be better defined than the older employees. They also found the responsibilities of decisions to be shared more clearly than the older employees.

6.2.9 Information of decisions

The following questions try to solve the information levels of decisions. The first and simple question was to solve the basic information level of decisions in the automation engineering department. A total of 36 employees answered the question. They found (Figure 15) that they are a little bit more than satisfied with the basic level of information about a decision. The overall mean was 3.19.

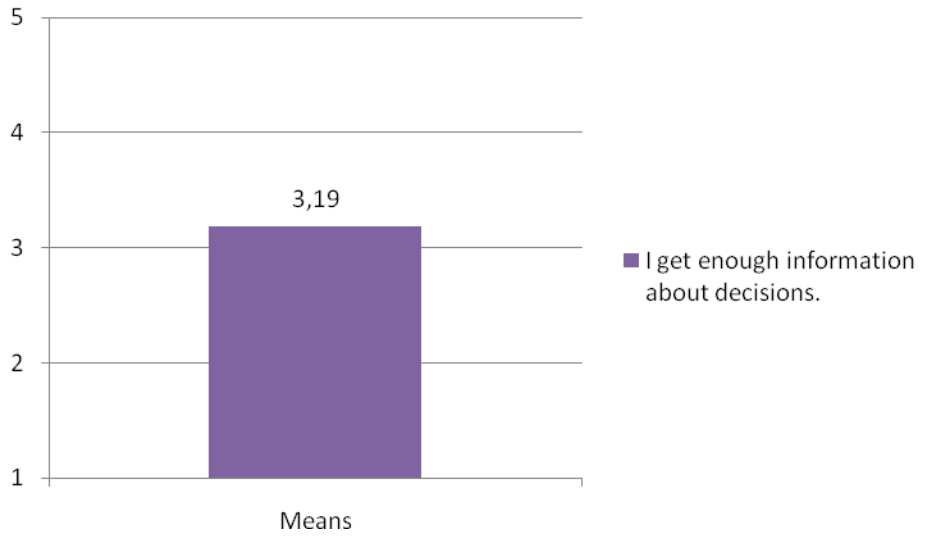


Figure 15. Information about decisions.

In background variables (appendix 7) one team, the hardware engineering team, receive more information about decisions than the other groups, mean 3.40. Also younger employees felt to receive more information about decisions than the older employees.

Wanted and received information about decisions

One of the most important questions of the questionnaire was the question about wanted and received information. In these questions the respondents estimated how much they want information about certain decisions and how much they receive it. This is called the information gap. The exact questions were: how often do you get information about the following things and how often would you like to have information about the following things?

The differences between these two questions were analyzed by subtracting the received information from the wanted information. As figure 16 shows, the gap was the biggest in information about decisions which are related to changes in daily work. The gap was 0.86 and it is remarkable. The mean for wanted information was 4.08. The gap in information about a decision which is related to technical things and education possibilities was also significant.

The gap in the first was 0.83 and in the latter 0.70. The mean in information which is related to technical things is high, 4.14. In an engineer based organization this is explained by the nature of daily work.

The gap for the information about decisions of personnel was 0.41. Traveling is one part of the work in automation engineering. The gap in this question was 0.31. The gap between wanted and received information about running projects was 0.39.

Less significant gaps were the gaps for information about decisions which are related to Metso as a company, timetables and working hours. The gaps in order were 0.25, 0.19 and 0.11. It is significant to notice that there exists one theme where the gap is negative, in other words the employees receive more information than they need. The gap for the department's financial things is -0.08.
This question viewed how much information about decision flows to employees. The results as a whole show that more information about decisions is needed. Especially the themes where the gaps are big should be addressed. In nine fields out of ten, the amount of information about decisions does not cover the need. In terms of communication, the situation is serious where the gap is more than 0.50.

Two respondents commented the question by open comment. One felt that the true information of the goals of management should always be given. Now the information is more or less non-specific. Another respondent found that the possibilities to influence the decisions are too low. Now the information comes when the decision is already made.

Decision information	N	Needed information	Received information	Gap
Changes in work	36	4.08	3.22	0.86
Technical things	36	4.14	3.31	0.83
Education possibilities	36	3.81	3.11	0.70
Personnel of department	36	3.53	3.19	0.41
Running projects	36	3.83	3.42	0.39
Traveling	36	3.28	2.97	0.31
Metso as a company	36	3.39	3.14	0.25
Timetables	36	3.72	3.53	0.19
Working hours	36	3.28	3.17	0.11
Department's finance	36	3.28	3.36	-0.08

Figure 16. Differences between wanted and received information about decisions.

Cross tabulation (appendix 8) showed several differences. The teams' gaps vary strongly in different themes, age is strongly related to what information is needed and working experience tells what information is appreciated better in different phases of working life.

Information of decisions in different communication channels

The questionnaire also inquired about the gap between wanted and received information about decisions in different communication channels. This gap is called the channel gap. The exact questions were:

1. Through which communication channels do you get the information about your work best?
2. Through which communication channels would you like to have more information about decisions concerning your work?

These questions were used to resolve the best channels to communicate about decisions.

The gap (figure 17) was the biggest in the core meeting, 0.69. After this, the second biggest gap was in personnel magazines. The gap is 0.42. These two communication channels had the biggest gap, but the means for wanted information and received information in both are under average. From this point of view they cannot be considered as very significant communication channels.

The gaps in superior announcement, department meeting, group meeting, intranet, memos, phone and email are not significant. In every case a bit more information through these channels is needed. It is notable that email and group meetings have relatively high means for both wanted and received information. The gap is negative in three cases: co-workers, databases and internet. Two respondents commented the questions. They emphasized that the best channels are superior and the face-to-face conversation.

The results of this question showed that the information sent through different channels are mainly in balance. In the light of means, the three most used communication channels where the information is wanted are in order email, group meetings and co-workers. In 9 cases out of 12 a bit more information through different channels were wanted. Only in one case the gap is significant, in others not. In three cases more information through the channels is received than wanted.

Communication channel	N	Wanted information	Received information	Channel gap
Core meeting	36	2.69	2.00	0.69
Personnel magazines	36	2.42	2.00	0.42
Superior's bulletin	36	3.03	2.81	0.22
Department meeting	36	3.36	3.17	0.19
Group meetings	36	3.81	3.67	0.14
Intranet	36	2.81	2.72	0.09
Memos	36	3.25	3.22	0.03
Phone	36	2.89	2.86	0.03

Email	36	3.94	3.92	0.02
Co-worker	36	3.72	3.81	-0.09
Databases	36	3.25	3.36	-0.11
Internet	36	2.64	2.86	-0.22

Figure 17. Differences between wanted and received information in different channels.

Differences in background variables (appendix 9) showed that teams valued different channels better than the others. Some channels were overused according to the negative gaps. The comparison between two age groups showed that younger employees preferred different kinds of meetings more than older employees. Both groups of working experiences wanted more decision information in core meetings as well.

Best communication channels for decisions in daily work

The respondents were asked to name the best communication channels for decisions in their daily work. They had a possibility to choose as many as they wanted to. The employees found (figure 18) that the best communication channel in the automation engineering department is email. 80.6 percent, 29 out of 36, named it. 26 employees, 69.4 percent, found that the team meetings are the best way to communicate within the organization. 21 out 36, 58.3 percent felt that the co-worker is the most useful channel to get information. After these three communication channels, the databases and memos were found useful in daily work. Their shares were 36.1 percent and 27.8 percent.

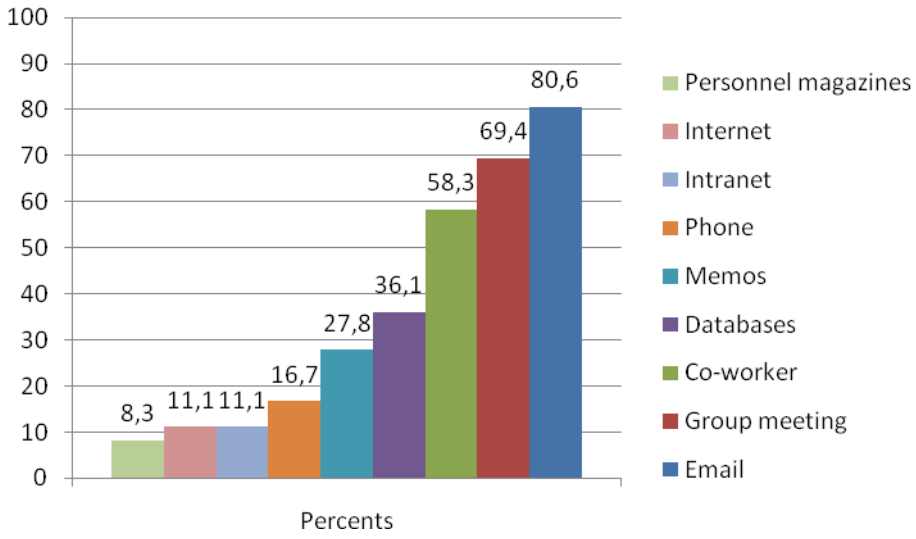


Figure 18. The best communication channels for decisions in daily work.

From traditional communication channels the phone was ranked higher than the internet and intranet. Phone's share was 16.7 percent while both internet and intranet got 11.1 percent's share. The least good communication channel was personnel magazines.

The respondent also had an opportunity to name other communication channels and give feedback by using the open comment space. One respondent found that the human resource magazine is a useful communication channel. One respondent reminded that the meetings for the whole department are the best channel.

A few respondents commented on the channels. They found that the RSS news feed is useless in daily work. Another respondent felt that co-workers are not using the databases as efficiently as they should. He thought that some information is hidden from the databases because all the needed information is not saved to databases.

6.2.10 Feedback of decisions

The respondents were asked to describe do they give and do they receive feedback on decisions. Overall 36 employees answered the question. The results show (figure 19) that the employees usually give more feedback than they receive. The mean for giving feedback to a co-worker or superior on decisions was 3.17. The mean for receiving feedback on decisions was 2.83.

The respondents were asked to comment on the feedback in the automation engineering department. Two comments were received. One felt that giving feedback is not motivating because everyone in the department wants to be an expert. He felt that the feedback is only received as negative feedback. Another commenter wrote that it would be important to get feedback but usually there is not enough available.

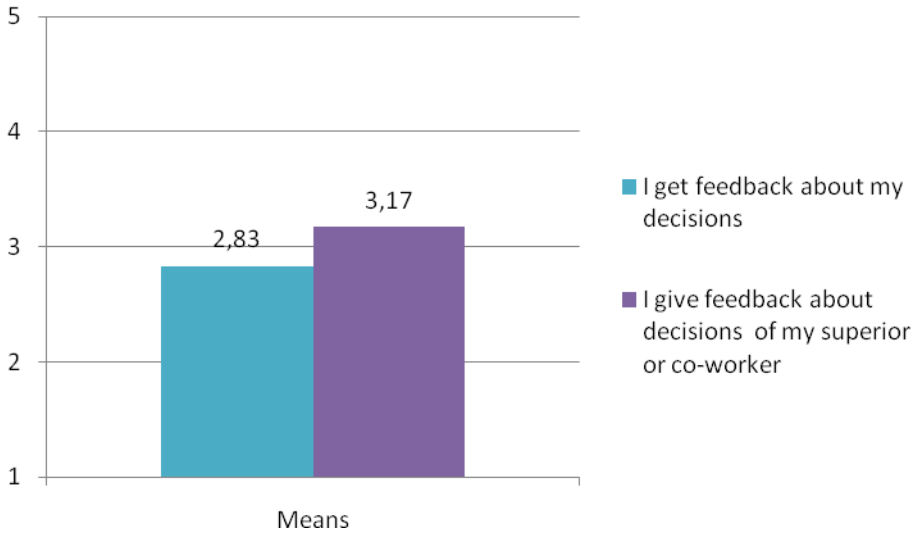


Figure 19. Giving and receiving feedback about decisions.

Differences between groups showed (appendix 11) that the giving of feedback works best in the team of concept & product engineering (mean 3.27). Younger employees give and receive more feedback than the older employees. Employees who have less than ten years of work experience give and receive more feedback than the other group.

6.2.11 Decision making in groups

The employees of the automation engineering department were asked to define how they find the decision making in groups within the organization. They gave their answers to two questions:

- Do you feel that you can participate in decision making in a group?
- Do you feel that you can influence decision making in a group?

The difference of results (figure 20) between these two questions was minimal. The mean for participation was 3.22 and the mean for influence was 3.19. Some respondent commented that the groups "are always the same". Another respondent reminded that one should always tell his or her opinions out loud.

Comparison to background variables (appendix 12) showed that the best possibilities to participate in the decision making are in the team of hardware engineering 3.40. The best chances to influence the decision making exist in team of concept and product engineer.

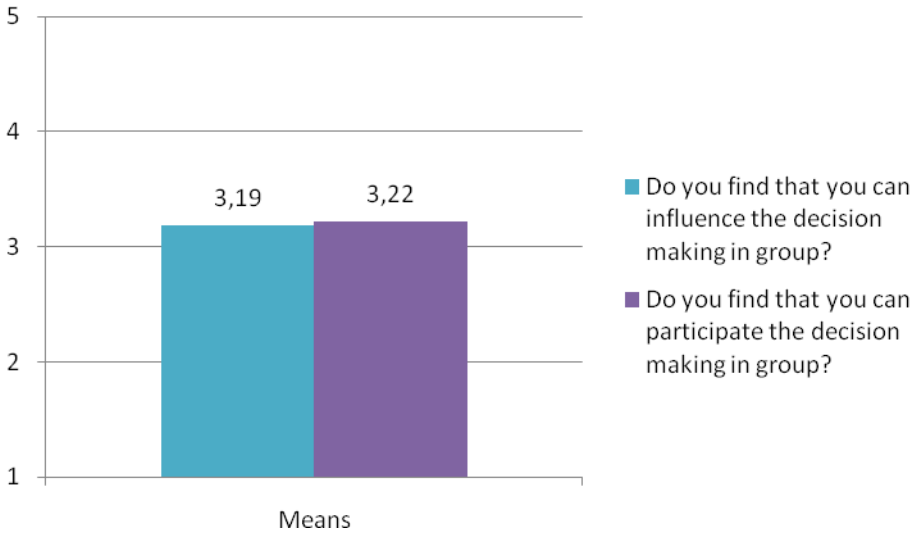


Figure 20. Participating the decision making in group.

The results for group decision making (appendix 12) indicated that the younger employees felt that they have more possibilities to participate and

influence the decision making. Some differences between work experience were found. The group of less than ten years have more possibilities to attend the decision making process and they have possibilities to influence the decision making process more than the other group.

6.2.12 Superiors' decision making

The respondents were asked to describe how they feel about the decision making of superiors within the organization. Overall, the answers (figure 21), mean 3.69, showed that employees are more than satisfied with the decision making of superiors. This means that the members of the automation engineering department find a superior to make enough decisions as a part of his managerial duties. Employees also found that superiors make decisions fast enough. The mean was 3.83.

One respondent pointed out that the advice from outside of the organization is often more listened to than that of the experts who are working for the automation engineering.

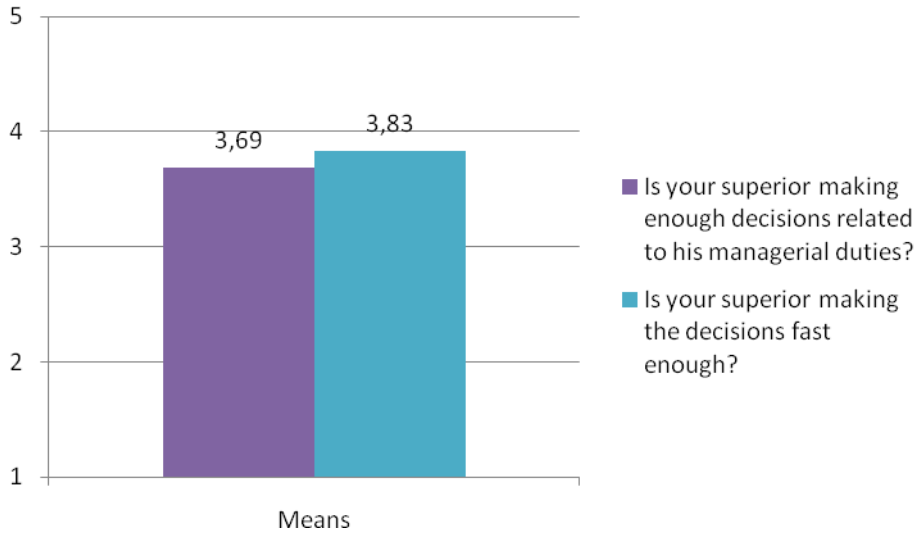


Figure 21. Superiors' decision making.

6.3 Key findings and themes of the researches

Findings from the research organization in this study show that when the daily work is full of decisions, the boundaries of decisions disappear. This means that usually only big decisions are found as decisions. The superiors of the automation engineering department found that the decisions are usually changes in consensual policies. They consider decisions to be "something bigger" that always includes a change. To them, decisions always seem to include a process of information.

Employees, whose daily work consist mostly of designing, found decisions to be more technical implementation and "playing by the guidelines" of the company. Their decisions are typical lower level decisions or "routines". These are considered as programmed organizational decisions, which are made repeatedly and usually according to a pre-established set of alternatives.

The data shows that in an engineer based organization decision making is based on information and facts. The flow of information and messages build the most important decision premise in this organization. Superiors of the automation engineer department see their role more as information gatherers than decision makers. They feel that they bring alternatives to decision making and try to ease and guide the employees' decision making.

Results also showed that the responsibility of decision communication in a research organization is widely given to employees. While the work, including decision making, is highly modeled, the decision communication is not. Employees' responsibility is to decide what they communicate to co-workers and superiors as well as what is saved to databases and memos. Results show that in that superiors and employees found best ways to communicate decisions to be meetings, email or face-to-face conversation

with employees and/or superiors. Usually the channel is chosen by the urgency of the message.

7 DISCUSSION

In this chapter, the main results are summarized and presented according to the research questions. The results are also compared to theories of decision making and decision communication, and then discussed. In this chapter some recommendations for decision communication are given and the study is evaluated. Also some suggestions for possible further studies are presented.

7.1 Main results

The final research questions of this study were:

1. How is a decision defined in the automation engineering department?
2. How is a decision done in the communication point of view?
3. How is a decision communicated in the automation engineering department?

The first question examined how the employees and superiors of automation engineering department find or describe the decision, what decision is in their daily working life context and what the decisions are related to. The results for the first research question showed that defining decisions is complicated even though decisions are made and handled every day. The

same phenomenon can be found from theories, as Andersen (2003b, 237) presented.

Almost every respondent found their own definition to decision, but according to the findings, a decision seems to have two main definitions according to the superiors of the automation engineering department. Superiors find the decisions to always include a change. It usually has to be significant and it has to force to take a new direction and change the earlier policies. I think that Andersen's definition (2003b, 244) "a decision divides the world into a before and an after" describes well superiors views of decisions as changes.
On the other hand, decision is also a process of information, which finally leads to a decision. Especially to employees, decision is some kind of process where information has a key role, but it is also making choices between alternatives. As Cheney et al. (2004, 51) emphasize, decision making is largely a process of information.

Employees also found decisions to be technical implementation and application of concepts driven by the guidelines of Metso. Decisions were also considered to be just part of normal routine. These "routines" as Greenberg & Baron (2008, 384) present, can be considered as programmed organizational decisions, which are made repeatedly and usually according to a pre-established set of alternatives. These are often made by lower-level personnel.

Decisions in an engineer based organization are often related to technical solutions and designing, schedules and resources, procedures and organization of work and projects. Through their work, employees also bear responsibility for their own budget and affect the finance of the department. Decision making on the employee level is more on the operative level than superior's and is bound to designing and project management. Superiors,

team leaders and the head of department, guide teams for different projects and tell what everyone begins to do. Superiors define the sub goals and the suitable timetable of each project as well as how resources are shared. Basic daily work is highly modeled and decisions are not necessarily communicated to superiors, but to other project members. I find the work of this department highly programmed. Past decisions have taught and guided this organization to make decisions like trains moving along train tracks.

Decisions are often influenced by information, customers, schedules and general guidelines. When needed, the support for decisions is mainly sought from a co-worker, instructions and databases as well as previous decisions. Decisions have to have some solid foundation. In an engineer based working community this is information. Decisions, at the superior or employee level, are based on facts, discussions and guidelines. Decisions are justified with information and data in technical things. This usually increases the unwanted workload of superiors. These results support theories of Feldman & March (1981, 178) and Eisenhardt (1989, 617;623). They presented that organizations have a strong belief in information and information is the base of decision making.

The second research question studied the decision making process in the target organization as seen through the processes of communications. The main purpose was also to find what kind of responsibilities superiors and employees have and what things affect the decision making.

Superiors of the automation engineer department see their role more as information gatherers than decision makers. They feel that they bring alternatives to decision making and try to ease and guide employees' decision making. Hitt et al. (2006, 362) find that these kinds of decision makers use the sensing style in decision making because they enjoy gathering information. They can also be considered as conceptual and

behavioral decision makers as Greenberg & Baron (2008, 389) describe. These kinds of types solve problems creatively, they are humanistic, they concern their organization and are interested in helping others.
Superiors feel that the daily work related to decisions would be easier if the decisions from the upper level would be communicated properly. This phenomenon is related to the flow of messages as Cheney et al. (2004, 54) emphasize. They state that the flow of messages is one environment to decision making for individuals and groups.

The most important things affecting decision making in an engineer based organization are information, customers, schedules and general guidelines. Support for decisions is mainly sought from co-workers, instructions and databases as well as previous decisions. Decision making is easier when the department's work load and the "big picture" behind a decision are acknowledged. These findings support the assumption that the members of this organization use conceptual and behavioral styles to make decisions as Greenberg & Baron (2008, 389) present. This also confirms the theory of Seidl & Becker (2006, 26) that decisions are connected to each other and create an organizational process.

The most common problems of decision making in a research organization are related to the lack of information and instructions. Information can be outdated, no longer available or too hard to find. Even the customer is not providing or does not always want to provide enough information. These problems show that very little has changed since Feldman & March (1981, 174) presented how conditional organizations are on information. Made decisions are usually found to be clear and the responsibility of shared decisions is stated clearly.

Employees were more than satisfied with their possibilities to attend group decision making and influence the decision making. Superiors feel that

employees are not using this possibility enough, because workers are not interested in attending the meetings. Expectance for higher attendance is that superiors want to get more discussions about decisions and tacit knowledge from the groups. These findings support Mintzberg's theory (1975, 306- 308) about superiors who emerge as the nerve center and database of information of organizational unit, and create possibilities for working decision communication.

The members of the automation engineering department find their superior to make enough decisions as a part of their managerial duties. Employees are more than satisfied to the speed of superiors' decision making.

The third question tried to find out how decisions are communicated in the target organization. The purpose was to find out what the main communication channels are, and what information is communicated as well as how the information of decisions flows in the organization.

The results for the third and last research question showed that responsibility of decision communication is widely given to employees. While the work, including decision making, is highly modeled, the decision communication is not. Employees' responsibility is to decide what they tell to co-workers and superiors as well as what is saved to databases and memos. Greenberg & Baron (2008, 387) presented that employees who have the power to make decisions usually know what is best for their job and effectiveness. This also increases the commitment to decisions.

In group decision making employees are encouraged to talk and share opinions. Still the decision making is driven by the team leader. Superiors feel that employees are more willing to discuss about decisions when they feel that they are heard. This shows that superiors try to be promotive in group communication as Hirokawa & Gouran (2003, 237) present. This helps

members of the working community to commit to made decisions. Behind of this all is an ambition to improve the quality of decisions, increase participation and commitment as Yukl (2006, 338) emphasizes.

This study shows that in this engineer based organization the best ways to communicate decisions are meetings, email or face-to-face conversation with employees and/or superiors. Usually the channel is chosen by the urgency of the message. Some decisions are also brought in to discussions around the coffee table.
Overall, superiors feel that decision information from employees flows very well. Superiors are not interested to know about every decision because the designing is driven by project leaders and the expertise and proficiency are in teams.

Superiors feel that feedback about decisions is given but not enough received. Also the tone of received feedback varies among superiors. Employees also feel they usually give more feedback about decisions than they receive. Based on these results, the process of giving feedback needs improvement.
The overall level of information about decisions is found to be slightly more than satisfying. Communicating different topics through different channels is not entirely problematic. Especially decision information about changes in work, technical things and education possibilities is not received as much as needed.

On the general level, most of the communication channels are working well. Employees have more expectations of core meetings, while some communication channels, co-worker, databases and internet, are used more than needed. Email, group meetings and co-workers were regarded as the best communication channels for decisions.

When comparing the results of this study to Luhmann's theory (2003, 35) about autopoietic organization, we can notice that decisions are truly a special form of communication. They for instance communicate what employees can expect from the future. Decisions are also social events and consist of coordinated actions as Habermas (1998, 106) presented. The work at the automation engineering department is oriented towards successful problem solving. As strategic functions, decisions and decision making are a part of every employee's daily work and made decisions during daily work create organizational processes inside the organization. As the results and theoretical background show, individual and group decision making form the backbone of organizational effectiveness.

7.2 Evaluation of the study and data

The purpose of this study was to explore and describe decision making and decision communication. The theoretical background and results show that decision making and communication as part of this process are complex dimensions.

This study has gathered a lot of information on how decision making is seen among scholars and in the research organization. The empirical part of this study helps us to understand how an engineer based organization works. However, it is important to remember that this study describes decision making in only one working community. The results cannot be generalized to other organizations.

A major part of this study was conducted as qualitative research. In qualitative research, the researcher always has an influence on the results, as Daymon & Holloway (2002, 7) remind. In qualitative research, the views of the researcher affect the findings.

Based on the results of this study and the theoretical background, it seems that the decision communication in an organization is not usually considered as an independent part of communication or a special form of it. Communication theories do not often seem to consider decision communication as a special form of communication, even some scholars as Andersen (2003b) and Seidl & Becker (2006) have wrote about it during the last years, although this special form of communication is not much covered in literature. Decision communication is often seen as part of normal organizational communication and its fragile nature (Seidl & Becker 2006, 26) is not recognized. In theories, the basic models of decision making are process oriented and do not recognize the role of communication enough as a part of decision making. Superiors should recognize their informational roles as important nerve centers and be ready to develop the decision communication at their workplaces.

7.3 Suggestions for further studies

The main purpose of this study was to present how decisions are made and communicated in organizations. This study has also gathered a lot of theoretical knowledge about information and decision making from the field of sociology, communication and management, and merged it all together. Since this study is the first in Finland about decision making and decision communication, it is possible to say that this study has opened a new window to the research of organizational communication in Finland. At this point it is hard to estimate what kind of significance this study creates in the future, but at least it can be used as a theoretical and methodological foundation for further studies. Hopefully this work also inspires students of organizational communication to study more deeply the phenomena of internal communication.

The ideas about further studies can be divided into several levels. Based on this study, further studies could wield the decisions and decision making on the organizational or individual level. The role of organizational decisions is important because programmed and non-programmed decisions guide the daily work in every organization. The use of information and communication need several further studies that could show how these phenomena are used in the organizations of today.

One interesting theme for further studies would be the importance of certain decisions. Do organizations and employees have enough information about the significance and possible consequences of their decisions? Do organizations really find decisions just a part of normal work or something bigger that influences the whole system? How do organizational culture and characteristics affect the decision making process? Because organizations are made of people, the individual decision making and its various styles, as well as group decision making from the point of view of communication and as social events, could be a fruitful area for further studies.

This study wielded the phenomenon called decision communication. This area of communication is not widely treated in organizational communication research. Hopefully this phenomenon is recognized as a part of organizational communication in the future. As the theoretical part of this work presented, decisions and decision communication are the "guiding force" that keeps organizational communication going. Roles of individuals and groups in decision communication also need more research.

7.4 Conclusion

The aim of this study was to explore a communication behavior: decision making and decision communication. As a conclusion, this master's thesis

shows that decision making and communication, from the view of organizational communication, are complicated and complex phenomena. In an organization they form organizational processes. As theories show, the role of decisions in the daily work of organizations is usually recognized. On the other hand, data indicates that if daily work is highly modeled beforehand, only "big decisions" are considered as important.

Decision making according to theories can be seen as a social event and the data of this study support this. Organizations can benefit from group decision making if the premises, for instance communication channels, are working well and the right medium is used. But for employees the process has to be transparent and decisions have to have solid foundation, which can always be proven to exist.

The data shows that in an engineer based organization, decision making is based on information and facts. The flow of information and messages build the most important decision premise in this organization. Theories also recognize that in decision making there are other meaningful factors as well, especially on the individual level.

The basis of this work was built on the theory of organization by Luhmann (2003). As this theory and data show, decisions are indeed a matter of communication. They can be seen as the guiding force of organizations and they feed organizational communication. Effective decision communication can be considered as the backbone of organizational communication, which can benefit the whole organization from the top management to lower levels. Organizations may only learn from themselves, and in this process decision making and decision communication play a key role.

LITERATURE

Adair, J. 2007. Decision Making and Problem Solving. London. Kogan Page, Limited.

Andersen, N. 2003. Polyphonic Organization. In T. Bakken and T. Hernes (eds) Autopoietic Organization Theory: Drawing on Niklas Luhmann's Social Systems Perspective, pp. 151–182. Oslo. Copenhagen Business School Press.

Andersen, N. 2003. The Undecidability of Decision. In T. Bakken and T. Hernes (eds) Autopoietic Organization Theory: Drawing on Niklas Luhmann's Social Systems Perspective, pp. 31–52. Oslo. Copenhagen Business School Press.

Berry, G. 2006. Can Computer-Mediated Asynchronous Communication Improve Team Processes and Decision Making? Learning From the Management Literature. Journal of Business Communication, Vol. 43, No. 4, 344–366.

Brooks, I. 2003. Organisational Behaviour : Individuals, Groups and Organization. 2nd edition. Harlow: Prentice Hall.

Cheney, G., Christensen, L., Zorn, T., & Ganesh, S. 2004. Organizational Communication in an Age of Globalization : Issues, Reflections, Practices. Prospect Heights, Ill: Waveland Press, cop.

Cohen, M., March, J & Olsen, J. 1988. A Carbage Can Model of Organizational Choice. In March, J. Decisions and Organizations. Oxford. Blackwell.

Cornelissen, J. 2008. Corporate Communication: A Guide to Theory and Practice. 2nd edition. London : Sage.

Daymon, C. & Holloway, I. 2002. Qualitative Research Methods in Public Relations and Marketing Communication. London. Routledge.

Deetz, S. 2005. Critical Theory. In May, S & Mumby, D. Engaging Organizational Communication Theory and Research : Multiple Perspectives. Thousand Oaks, CA : Sage Publications. 85-111.

Eisenberg, E & Goodall, H. 2001. Organizational Communication: Balancing Creativity and Constraint. 3rd edition. Boston. St.Martin's Press.

Eisenhardt, K. 1989. Making Fast Strategic Decisions in High-Velocity Environments. In Pugh, D. 2007. Organization theory: Selected Classic Readings. 5th edition. London: Penguin Books. 616-654.

Falcione, R. & Wilson, C. 1995. Socialization Process in Organization. In Goldhaber, G. & Barnett, G. Handbook of Organizational Communication. Norwood. Ablex, 1995, 151–169.

Feldman, M. & March, J. 1981. Information in Organizations as Signal and Symbol Author(s): Source: Administrative Science Quarterly, Vol. 26, No. 2 (Jun., 1981), 171-186.

Frey, L., Botan, C., Friedman, P. & Kreps, G. 1992. Interpreting Communication Research: A Case Study Approach. Englewood Cliffs. Prentice Hall.

Francesco, A. & Gold, B. 1998. International Organizational Behavior: Text,

Readings, Cases and Skills. Upper Saddle River. Prentice Hall.

Gore, J., Banks, A., Millward, L., & Kyriakidou, O., 2006. Naturalistic Decision Making and Organizations: Reviewing Pragmatic Science. Organization Studies, Vol. 27, No. 7, 925–942.

Greenberg, J.& Baron, R. 2008. Behavior in Organizations. 9th edition. Upper Saddle River. Prentice Hall.

Habermas, J. 1998. On the Pragmatics of Communication. Cambridge. MIT Press.

Hackman, M. & Johnson, C. 2009. Leadership: A Communication Perspective. Fifth edition. Prospect Heights. Waveland.

Hargie, O. & Tourish, D. 2009. Auditing Organizational Communication [Elektroninen aineisto] a Handbook of Research, Theory and Practice. 2nd edition. London. Routledge.

Harrison, R. & March, J. 1988. Decision Making and Postdecision Surprises. In March, J. Decisions and Organizations. Oxford. Blackwell.

Heath, R. 2001. Handbook of Public Relations. Thousand Oaks. Sage Publications.

Hirokawa, R. & Gouran, D. 2003. Functional Perspective on Group Decision Making. In Griffin, E. A First Look at Communication Theory. 5th edition. New York. McGraw-Hill.

Hirokawa, R. & Poole, M. 1996. Communication and Group Decision Making. 2nd edition. Thousand Oaks. Sage.

Hitt, M., Miller, C. & Colella, A. 2006. Organizational Behavior : A Strategic Approach. Hoboken. Wiley.

Holmström, S. 2006. The Co-evolution of Society and Organization. In S. Holmström (Editor), Organizational Legitimacy and The Public Sphere. Volume 1, 54–72. Roskilde: Roskilde University.

Jabs, L. 2005. Communicative Rules and Organizational Decision Making. Journal of Business Communication; 42; 265–288.

Jönhill, J. 2003. Communications With Decisions As Medium and Form – Some Notes on Niklas Luhmann's Theory of Organization. In T. Bakken and T. Hernes (eds) Autopoietic Organization Theory: Drawing on Niklas Luhmann's Social Systems Perspective, 31–52. Oslo. Copenhagen Business School Press.

Keyton, J. 2006. Communication Research: Asking Questions, Finding Answers. 2nd edition. Boston, Mass. McGraw-Hill Higher Education.

Leeper, R. 1996. Moral Objectivity, Jurgen Habermas's Discourse Ethics, and Public Relations. Public Relations Review. Volume 22, Issue 2, Summer 1996, 133–150.

Lindlof, T. & Taylor, B. 2002. Qualitative Communication Research Methods. Thousand Oaks, California. Sage.

Lordan, E. 2001. The Use of New Technologies in Public Relations. In Heath, R. Handbook of Public Relations. Thousand Oaks. Sage Publications.

Luhmann, N. 2003. Organization. In T. Bakken and T. Hernes (eds)

Autopoietic Organization Theory: Drawing on Niklas Luhmann's Social Systems Perspective, 31–52. Oslo. Copenhagen Business School Press.

March, J. 1988. Decisions and Organizations. Oxford. Blackwell.

Maxim, P. 1999. Quantitative Research Methods in the Social Sciences. New York. Oxford UP.

Meagher, K. & Wait, A. Decision Making Within Organizations. http://wwwdocs.fce.unsw.edu.au/economics/news/VisitorSeminar/wait.pdf. 17.02.2010.

Miles, B. & Huberman, M. 1994. Qualitative Data Analysis: an Expanded Sourcebook. 2nd edition. Thousand Oaks. Sage.

Miller, K. 2006. Organizational Communication: Approaches and Processes. Belmont. Thomson/Wadsworth.

Mintzberg, H. 1975. The Managers Job: Folklore and Fact. In Pugh, D. 2007. Organization Theory: Selected Classic Readings. Organization Theory: Selected Classic Readings. 5th edition. London: Penguin Books. 296-318.

Nassehi, A. Oct 2005. Organizations as Decision Machines: Niklas Luhmann's Theory of Organized Social Systems. The Sociological Review, vol. 53, no. s1, 178–191.

Nutt, P. Nov 1999. Surprising But True: Half the Decisions in Organizations Fail. The Academy of Management Executive. Vol. 13. No. 4.

Patton, M. 2002. Qualitative Research & Evaluation Methods. 3rd edition. Thousand Oaks. Sage.

Seibold, D. & Shea, C. 2001. Participation and Decision Making. In Jablin, F. & Putnam, L. 2001. New Handbook of Organizational Communication: Advances in Theory, Research, and Methods. Thousands Oaks. Sage.

Seidl, D. & Becker, K. 2006. Organizations as Distinction Generating and Processing Systems: Niklas Luhmann's Contribution to Organization Studies. Organization, Vol. 13, No. 1, 9–35.

Shapira, Z. 1997. Organizational Decision Making. Cambridge: Cambridge University Press.

Simon, H. 1968. Administrative Behavior. http://diva.library.cmu.edu/webapp/simon/item.jsp?q=/box00065/fld05002/bdl0001/doc0001/. 5.2.2010.

Sriramesh, K., Grunig, J. & Dozier D. 1996. Observation and Measurement of Two dimensions of Organizational Culture and Their Relationship to Public Relations. Journal of Public Relations Research, Vol. 8. 229–262.

Stone, D. 2002. Policy Paradox : The Art of Political Decision Making. Rev. edition. New York : Norton, cop.

Thagard, P. (2001). How to Make Decisions: Coherence, Emotion, and Practical Inference. http://cogsci.uwaterloo.ca/Articles/Pages/how-to-decide.html. 10.6.2010.

Tosti, D. & Jackson, S. 2003. Organizational Alignment. http://www.ichangeworld.com/docs/icwOA0303.pdf. 10.6.2010.

Veryard, R. 2005. Rationality and Decision Making. http://www.users.globalnet.co.uk/~rxv/orgmgt/decisions.pdf. 1.2.2010.

Williams, M. & Clampitt, P. 2007. Decision Downloading: An Analysis of How Leaders Communicate Their Decisions. Paper presented at the annual meeting of the International Communication Association, TBA, San Francisco, CA, May 23, 2007 http://www.allacademic.com/meta/p169083_index.html

Yukl, G. 2006. Leadership In Organizations. New Jersey. Prentice Hall.

Appendix 1: questionnaire to team leaders and head-of-department of automation engineering department

Definition of decision

1. Tell about your team and leading of your team
2. How would you define a decision in your work?

Decision making

3. What kind of decisions are part of your work
4. What kind of decisions your subordinates do?
5. What things affect your decisions and decision making?
6. What things you use to justify your decisions?
7. How do you participate group decision making?

Decisions communication

8. How do you communicate decisions to subordinates?
9. How information of subordinates' decisions come to you?
10. Do you receive and do you give feedback about decisions to subordinates?

Flow of information and communication channels

11. What communication channels are mostly used in your team?
12. How would you comment the flow of information in your team?
13. How would you describe the atmosphere of your team?

Superior's role and decision making

14. How you see the role of superior as decision maker in your team?

Appendix 2: questionnaire to employees

Tämän kyselylomakkeen tarkoitus on kartoittaa tietoa työyhteisösi päätöksistä ja niiden viestinnästä. Päätöksellä tässä yhteydessä tarkoitetaan sinuun, työkaveriisi tai koko työyhteisöön vaikuttavia ratkaisuja. Kyseisen ratkaisun eli päätöksen voi tehdä joko sinä, joku muu tai jokin osastosi ryhmä.

Kysymyksiin vastataan jokaisen kysymyksen ohessa olevien ohjeiden mukaisesti. Valmiiksi strukturoitujen kysymysten lisäksi lomakkeessa on mukana avoimia kysymyksiä. Näiden lisäksi lomakkeessa on vielä avoimia kommentteja, joihin voi kommentoida edellisissä kysymyksissä kysyttyjä asioita.

Kaikki vastaukset käsitellään luottamuksellisesti ja nimettömästi. Tulokset esitetään vain ryhmittäin sekä koko automaatio-osastoa koskien.

Lomake voi vastatessa olla välillä hieman hidas.

Kiitokset vastauksistasi!

Markus Mykkänen
Jyväskylän yliopisto
Yhteisöviestintä

Taustatiedot

Seuraavilla kysymyksillä kartoitetaan vastaajien taustoja. Taustakysymysten vastausten perusteella vastaukset voidaan ryhmitellä erilaisiin joukkoihin (esimerkiksi ryhmä tai ikä).

PAGE#1

IKÄ

Ikä?

- ❍ 18-25 vuotta
- ❍ 26-30 vuotta
- ❍ 31-40 vuotta
- ❍ 41-50 vuotta
- ❍ yli 50 vuotta

RYHMÄ

Mihin automaatio-osaston ryhmään kuulut?

- ❍ Automaatiokonseptit ja tuotehallinta
- ❍ Sähkösuunnittelu
- ❍ Fluidisuunnittelu
- ❍ Ohjelmistosuunnittelu

RYHMÄ_JOKUMUU

Joku muu, mikä

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ASEMA

Asemasi automaatio-osaston sisällä

- ❍ Ryhmän jäsen
- ❍ Alihankkija
- ❍ Esimies

ASEMA_JOKUMUU

Joku muu, mikä?

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TYÖKOKEMUS

Työkokemuksesi automaatio-osastolla

- ❍ alle vuosi
- ❍ 1 - 2 vuotta
- ❍ 3 - 5 vuotta
- ❍ 6 - 10 vuotta
- ❍ yli 10 vuotta

Päätökset päivittäisessa työssäsi

Seuraavilla kysymyksillä kartoitetaan millaisia päätöksiä

päivittäiseen työhösi kuuluu ja millaisia päätöksiä teet.

PAGE#13

PÄÄTÖKSET

Miten määrittelisit omassa työssäsi päätöksen?

_____

_____

_____

_____

PÄÄTÖKSET_LIITTYY

Kuvaile lyhyesti millaisiin asioihin päätökset työssäsi liittyvät

_____

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PAGE#2

PÄÄTÖKSET24

Miten usein tekemäsi päätökset liittyvät

	Erittäin usein	usein	silloin tällöin	harvoin	ei koskaan
Omaan työhön	❍	❍	❍	❍	❍
Työkaverin työhön	❍	❍	❍	❍	❍
Osaston talouteen	❍	❍	❍	❍	❍
Omaan budjettiin	❍	❍	❍	❍	❍
Alihankkijoihin	❍	❍	❍	❍	❍
Töiden suunnitteluun	❍	❍	❍	❍	❍

PÄÄTÖKSET_JOKUMUU

Johonkin muuhun, mihin?

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PÄÄTÖKSET3

Vapaa kommentti päätösten tekemisestä

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_____

_____

_____

PAGE#7

PÄÄTÖKSENTEKO4

Mikä mielestäsi vaikuttaa eniten päätöksentekoosi

	Erittäin usein	usein	silloin tällöin	harvoin	ei koskaan
saatavilla oleva tieto	❍	❍	❍	❍	❍
aikataulu	❍	❍	❍	❍	❍
työkaverin näkemys	❍	❍	❍	❍	❍
esimiehen näkemys	❍	❍	❍	❍	❍
yleiset ohjeet	❍	❍	❍	❍	❍
taloudelliset tekijät	❍	❍	❍	❍	❍
asiakas	❍	❍	❍	❍	❍

VAIKUTTAA_JOKUMUU

Joku muu, mikä?

_____

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_____

PÄÄTÖSTEN_TEKIJÄT

Vapaa kommentti päätöksiin vaikuttavista tekijöistä

_____

_____

_____

_____

PAGE#10

PÄÄTÖSTENTUKI

Mistä haet tarvittaessa tukea päätösten tekoon

	Erittäin usein	usein	silloin tällöin	harvoin	ei koskaan
esimieheltä	❍	❍	❍	❍	❍
työkaverilta	❍	❍	❍	❍	❍
alihankkijoilta	❍	❍	❍	❍	❍
ohjeista ja tietokannoista	❍	❍	❍	❍	❍
kokousmuistioista	❍	❍	❍	❍	❍
aikaisemmista päätöksistä	❍	❍	❍	❍	❍

TUKEA_MUUALTA

Jostain muualta, mistä?

PÄÄTÖSTEN_ONGELMAT

Mitä ongelmia päätöksentekoon mielestäsi liittyy?

PÄÄTÖS_ONGELMAT_JA_TUKI

Vapaa kommentti päätöksenteon ongelmista ja tuen hakemisesta.

Seuraavilla kysymyksillä kartoiteaan miten päätöksiä viestitään automaatio-osastolla.

PAGE#11

SELKEITÄ_PÄÄTÖKSIÄ3

Päätösten selkeys ja vastuu

	erittäin usein	usein	silloin tällöin	harvoin	ei koskaan
Ovatko päätökset mielestäsi selkeitä?	❍	❍	❍	❍	❍
Onko päätösten vastuun jakautuminen mielestäsi selkeää?	❍	❍	❍	❍	❍

PÄÄTÖKSISTÄ_TARPEEKSI_TIETOA

Saatko mielestäsi päätöksistä tarpeeksi tietoa?

	erittäin paljon	paljon	jonkun verran	vähän	erittäin vähän	en osaa sanoa
Saan mielestäni päätöksistä tarpeeksi tietoa	❍	❍	❍	❍	❍	❍

PAGE#12

TIETOA_PÄÄTÖKSISTÄ

Miten usein saat seuraavia asioita päätöksistä tietoa?

	erittäin usein	usein	silloin tällöin	harvoin	en koskaan
osaston taloudesta	❍	❍	❍	❍	❍
osaston henkilöstöä	❍	❍	❍	❍	❍
koulutusmahdollisuuksista	❍	❍	❍	❍	❍
työmatkoihin liittyvistä	❍	❍	❍	❍	❍
käynnissä olevista projekteista	❍	❍	❍	❍	❍
aikatauluihin liittyvistä	❍	❍	❍	❍	❍
työaikoihin liittyvistä	❍	❍	❍	❍	❍
Metsoon yleisesti liittyvistä	❍	❍	❍	❍	❍
teknisiin asioihin liittyvistä	❍	❍	❍	❍	❍
työhön liittyvistä muutoksista	❍	❍	❍	❍	❍

HALUTAAN_TIETOA_PÄÄTÖKSISTÄ

Miten usein haluaisit seuraavista päätöksistä tietoa?

	erittäin usein	usein	silloin tällöin	harvoin	en koskaan
osaston taloudesta	❍	❍	❍	❍	❍

osaston henkilöstöä	❍	❍	❍	❍	❍
koulutusmahdollisuuksista	❍	❍	❍	❍	❍
työmatkoihin liittyvistä	❍	❍	❍	❍	❍
käynnissä olevista projekteista	❍	❍	❍	❍	❍
aikatauluihin liittyvistä	❍	❍	❍	❍	❍
työaikoihin liittyvistä	❍	❍	❍	❍	❍
Metsoon yleisesti liittyvistä	❍	❍	❍	❍	❍
teknisiin asioihin liittyvistä	❍	❍	❍	❍	❍
työhön liittyvistä muutoksista	❍	❍	❍	❍	❍

PÄÄTÖKSISTÄ_MUUTA_TIETOA

Mistä muista päätöksistä haluasit tietoa?

_____

_____

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_____

KOMMENTTI_PÄÄTÖSTEN_TIEDOISTA

Vapaa kommentti halutusta ja saadusta tiedosta päätöksiin liittyen.

_____

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Viestintäkavanat

Seuraavilla kysymyksillä kartoitetaan miten automaatio-osaston viestintäkanavia käytetään päätöksien viestintään.

PAGE#9

VIESTINTÄKANAVAT

Minkä viestintäkanavan kautta saat tietoa työtäsi koskevista päätöksistä?

	erittäin usein	usein	silloin tällöin	harvoin	en koskaan
ryhmäpalaveri	❍	❍	❍	❍	❍
osastokokous	❍	❍	❍	❍	❍
core-kokous	❍	❍	❍	❍	❍
sähköposti	❍	❍	❍	❍	❍
työkaverit	❍	❍	❍	❍	❍
tietokannat	❍	❍	❍	❍	❍
muistiot	❍	❍	❍	❍	❍
puhelin	❍	❍	❍	❍	❍
henkilöstölehdet	❍	❍	❍	❍	❍
esimiestiedote	❍	❍	❍	❍	❍
intranet	❍	❍	❍	❍	❍
internet (uutissivut, verkkolehdet, rss:t)	❍	❍	❍	❍	❍

VIESTINTÄKANAVAT2

Minkä viestintäkanavan kautta haluaisit enemmän tietoa työtäsi koskevista päätöksistä?

	erittäin usein	usein	silloin tällöin	harvoin	en koskaan
ryhmäpalaveri	❍	❍	❍	❍	❍
osastokokous	❍	❍	❍	❍	❍
core-kokous	❍	❍	❍	❍	❍
sähköposti	❍	❍	❍	❍	❍
työkaverit	❍	❍	❍	❍	❍
tietokannat	❍	❍	❍	❍	❍
muistiot	❍	❍	❍	❍	❍
puhelin	❍	❍	❍	❍	❍
henkilöstölehdet	❍	❍	❍	❍	❍
esimiestiedote	❍	❍	❍	❍	❍
intranet	❍	❍	❍	❍	❍
internet (uutissivut, verkkolehdet, rss:t)	❍	❍	❍	❍	❍

VIESTINTÄKANAVA_JOKUU

Minkä muun viestintäkanavan kautta haluaisit tietoa päätöksistä?

_____

_____

KOMMENTTI_SAATUJAHALUTTU

Vapaa kommentti eri viestintäkanavista saadusta ja halutusta tiedosta automaatio-osastolla.

PAGE#3

PARHAAT_VIESTINTÄKANAVAT

Mitkä ovat mielestäsi parhaat viestintäkanavat työssäsi? (voit valita useampia)

- ❑ ryhmäpalaveri
- ❑ sähköposti
- ❑ työkaverit
- ❑ tietokannat
- ❑ muistiot
- ❑ puhelin
- ❑ henkilöstölehdet
- ❑ intranet
- ❑ internet (uutissivut, verkkolehdet, rss:t)

VIESTINTÄKANAVA_JOKUMUU

Joku muu, mikä?

KOMMENTTI_VIESTINTÄKANAVISTA

Vapaa kommentti viestintäkanavista ja niiden käytöstä automaatio-osastolla.

Palaute

Seuraavat kysymykset käsittelevät päätöksentekoon liittyvää palautteen saamista ja antamista.

PAGE#4

PALAUTTEEN_ANTAMINEN

Palaute

	Erittäin usein	usein	silloin tällöin	harvoin	en koskaan
Annan palautetta esimieheni tai työkaverini päätöksistä	❍	❍	❍	❍	❍
Saan palautetta tekemistäni päätöksistä	❍	❍	❍	❍	❍

PALAUTE2

Vapaa kommentti palautteen antamisesta ja saamisesta automaatio-osastolla.

Päätöksenteko ryhmässä

Seuraavat kysymykset kartoittavat päätöksentekoa ryhmissä.

PAGE#5

PÄÄTÖKSET_RYHMISSÄ

Päätöksenteko ryhmissä

	Erittäin usein	usein	silloin tällöin	harvoin	en koskaan

Pääsetkö osallistumaan päätöksen tekoon ryhmässä?	❍	❍	❍	❍	❍
Pääsetkö mielestäsi vaikuttamaan päätöksen tekoon ryhmässä?	❍	❍	❍	❍	❍

PÄÄTÖKSENTEKÖ_RYHMISSÄ2

Vapaa kommentti päätöksentekoon osallistumisesta ja vaikuttamisesta ryhmässä.

_____

_____

_____

_____

Esimiehen päätöksenteko

Seuraavilla kysymyksillä selvitetään esimiehen esimiestehtävään kuuluvaa päätöksentekoa.

PAGE#6

ESIMIEHEN_PÄÄTÖKSET

Esimiehen päätöksenteko

	Erittäin usein	**usein**	**silloin tällöin**	**harvoin**	**ei koskaan**
Tekee esimies mielestäsi tarpeeksi päätöksiä esimiestyöhönsä liittyen?	❍	❍	❍	❍	❍
Tekeekö esimies mielestäsi päätökset tarpeeksi nopeasti?	❍	❍	❍	❍	❍

ESIMIEHEN_PÄÄTÖKSET2

Vapaa kommentti esimiehen päätöksenteosta ja päätösten teon nopeudesta.

_____

_____

Viimeisellä kysymyksellä tiedustellaan koko automaatio-osaston ilmapiiriä.

ILMAPIIRI

Millaiseksi kuvailisit automaatio-osaston yleistä ilmapiiriä?

Kyselylomake on nyt lopussa.

Voit halutessasi palata kysymyksiin.

Kyselyn lopettaeksesi paina seuraava-nappia.

Kiitokset vastauksistasi!

Appendix 3

What is affecting to decision making

Group	N	Information at hand	Customer	Schedule	General guidelines	Financial factors	Co-worker's opinion	Superior's opinion
Concept & product engineering	15	4.20	4.20	3.73	3.60	4,00	3.40	3.20
Hardware engineering	10	4.30	4.20	4.00	3.90	3,30	3.20	3.10
Fluid power engineering	4	4.50	3.75	4.25	4.00	3,50	3.00	3.25
Software engineering	7	5.00	4.17	4.29	4.29	2,71	4.00	2.57
Total		**4.42**	**4.17**	**3.97**	**3.86**	**3,50**	**3.42**	**3.06**

Age	N	Information at hand	Customer	Schedule	General guidelines	Financial factors	Co-worker's opinion	Superior's opinion
18 to 40 years	11	4.73	4.09	4.09	4.00	3.09	3.45	2.82
Over 41 years	25	4.28	4.20	3.92	3.80	3.68	3.40	3.16
Total		**4.42**	**4.17**	**3.97**	**3.86**	**3,50**	**3.42**	**3.06**

Experience	N	Information at hand	Customer	Schedule	General guidelines	Financial factors	Co-worker's opinion	Superior's opinion
Less than ten years	9	4.89	4.22	4.11	4.11	2.67	3.56	2.89
Over ten years	27	4.26	4.15	3.93	3.78	3.78	3.37	3.11
Total		**4.42**	**4.17**	**3.97**	**3.86**	**3.50**	**3.42**	**3.06**

Appendix 4

Support of decisions

Group	N	Co-worker	Instructions and databases	Previous decisions	Meeting memos	Superior	Subcontractor
Concept & product engineering	15	3.60	3.40	3.33	3.27	3.20	1.93
Hardware engineering	10	3.50	3.60	3.60	3.30	3.20	2.60
Fluid power engineering	4	3.25	4.25	3.50	3.00	3.25	2.25
Software engineering	7	4.71	4.00	3.71	3.43	2.29	3.00
Total		**3.75**	**3.67**	**3.50**	**3.28**	**3.03**	**2.36**

Age	N	Co-worker	Instructions and databases	Previous decisions	Meeting memos	Superior	Subcontractor
18 to 40 years	11	4.00	3.91	3.36	3.00	2.82	2.45
Over 41 years	25	3.64	3.56	3.56	3.40	3.12	2.32
Total		**3.75**	**3.67**	**3.50**	**3.28**	**3.03**	**2.36**

Experience	N	Co-worker	Instructions and databases	Previous decisions	Meeting memos	Superior	Subcontractor
Less than ten years	9	4.11	3.89	3.56	3.33	2.89	2.78
Over ten years	27	3.63	3.59	3.48	3.26	3.07	2.22
Total		**3.75**	**3.67**	**3.50**	**3.28**	**3.03**	**2.36**

Appendix 5

Where the decisions are related to

Group	N	To own work	Work of colleague	Finances of department	Own budget	Subcontractors	Planning of work
Concept & product engineering	15	1.47	2.40	2.47	3.47	2.80	2.33
Hardware engineering	10	1.60	2.80	3.70	3.20	2.50	2.20
Fluid power engineering	4	2.00	3.25	4.25	4.00	3.00	2.50
Software engineering	7	1.29	2.29	3.86	4.43	2.00	1.57
Total		**1.53**	**2.58**	**3.28**	**3.64**	**2.58**	**2.17**

Age	N	To own work	Work of colleague	Finances of department	Own budget	Subcontractors	Planning of work
18 to 40 years	11	1.36	2.55	3.55	3.82	2.55	1.73
Over 41 years	25	1.60	2.60	3.16	3.56	2.60	2.36
Total		**1.53**	**2.58**	**3.28**	**3.64**	**2.58**	**2.17**

Experience	N	To own work	Work of colleague	Finances of department	Own budget	Subcontractors	Planning of work
Less than ten years	9	1.22	2.67	3.78	3.78	2.56	2.00
Over ten years	27	1.63	2.56	3.11	3.59	2.59	2.22
Total		**1.53**	**2.58**	**3.28**	**3.64**	**2.58**	**2.17**

Appendix 6

The clearness of decisions and responsibility

Group	N	Do you find decisions to be clear?	Do you think that the responsibilities of decisions are shared clearly?
Concept & product engineering	15	3.33	2.93
Hardware engineering	10	3.70	3.40
Fluid power engineering	4	3.50	3.25
Software engineering	7	3.57	3.43
Total	**36**	**3.50**	**3.19**

Age	N	Do you find decisions to be clear?	Do you think that the responsibilities of decisions are shared clearly?
18 to 40 years	11	3.73	3.64
Over 41 years	25	3.40	3.00
Total	**36**	**3.50**	**3.19**

Experience	N	Do you find decisions to be clear?	Do you think that the responsibilities of decisions are shared clearly?
Less than ten years	9	3.67	3.56
Over ten years	27	3.44	3.07
Total	**36**	**3.50**	**3.19**

Appendix 7

Do you get enough information about decisions?

Group	N	I get enough information about decisions.
Concept & product engineering	15	3.07
Hardware engineering	10	3.40
Fluid power engineering	4	3.25
Software engineering	7	3.14
Total	**36**	**3.19**

Age	N	I get enough information about decisions.
18 to 40 years	11	3.45
Over 41 years	25	3.08
Total	**36**	**3.19**

Experience	N	I get enough information about decisions.
Less than ten years	9	3.22
Over ten years	27	3.19
Total	**36**	**3.19**

Appendix 8

The wanted and received information about decisions

Concept & product engineering

Decision information	N	Wanted information	Received information	Cap
Changes in daily work	15	4.00	3.13	0.87
The running projects	15	3.87	3.27	0.60
Technical things	15	3.39	2.93	0.46
Education possibilities	15	3.47	3.07	0.40
Timetables	15	3.47	3.13	0.34
Personnel of the department	15	3.33	3.13	0.20
General things about Metso	15	3.40	3.20	0.20
Department's finance	15	3.27	3.20	0.07
Travels	15	3.00	3.00	0
Working hours	15	2.87	3.07	-0.20

Hardware engineering

Decision information	N	Wanted information	Received information	Cap
Changes in daily work	10	4.10	3.50	0.60
Education possibilities	10	3.80	3.20	0.60
Travels	10	3.80	3.20	0.60
Working hours	10	3.70	3.20	0.50
Personnel of the department	10	3.60	3.20	0.40
The running projects	10	3.60	3.30	0.30
Technical things	10	4.10	3.80	0.30
Timetables	10	4.00	3.70	0.30
Department's finance	10	3.20	3.50	0.30
General things about Metso	10	320	3.10	0.10

Fluid power engineering

Decision information	N	Wanted information	Received information	Cap
Changes in daily work	4	4.25	3.00	1.25
Education possibilities	4	4.25	3.25	1.00
Travels	4	3.25	2.50	0.75
Technical things	4	4.50	3.75	0.75
Personnel of the department	4	3.75	3.25	0.50
Working hours	4	3.25	3.00	0.25
General things about Metso	4	3.75	3.50	0.25
The running projects	4	3.75	3.75	0
Timetables	4	4.00	4.25	-0.25
Department's finance	4	3.50	3.75	-0.25

Software engineering

Decision information	N	Wanted information	Received information	Cap
Education possibilities	7	4.29	3.00	1.29
Technical things	7	4.43	3.14	1.29
Changes in daily work	7	4.14	3.14	1.00
General things about Metso	7	3.43	2.86	0.57
The running projects	7	4.14	3.71	0.43
Personnel of the department	7	3.71	3.29	0.42
Travels	7	3.71	3.43	0.28
Working hours	7	3.57	3.43	0.14
Timetables	7	3.71	3.71	0
Department's finance	7	3.29	3.29	0

18-40 years old

Decision information	N	Wanted information	Received information	Cap
Education possibilities	11	4.00	2.91	1.09
Technical things	11	4.36	3.36	1.00
Changes in daily work	11	4.09	3.27	0.82
General things about Metso	11	3.64	2.91	0.73
Travels	11	3.45	2.82	0.63
The running projects	11	3.91	3.45	0.46
Personnel of the department	11	3.73	3.27	0.46
Working hours	11	3.36	3.00	0.36
Timetables	11	3.73	3.55	0.18
Department’s finance	11	3.45	3.73	-0.28

Over 41 years old

Decision information	N	Wanted information	Received information	Cap
Changes in daily work	25	4.08	3.20	0.88
Technical things	25	4.04	3.28	0.76
Education possibilities	25	3.72	3.20	0.52
The running projects	25	3.80	3.40	0.40
Travels	25	3.36	3.04	0.34
Personnel of the department	25	3.44	3.16	0.28
Timetables	25	3.72	3.52	0.20
General things about Metso	25	3.28	3.24	0.04
Department’s finance	25	3.20	3.20	0
Working hours	25	3.24	3.24	0

Less than 10 years

Decision information	N	Wanted information	Received information	Cap
Education possibilities	9	4.22	2.78	1.44
Travels	9	3.56	2.56	1.00
Technical things	9	4.33	3.44	0.89
Changes in daily work	9	4.00	3.11	0.89
Working hours	9	3.33	2.67	0.67
General things about Metso	9	3.44	2.89	0.56
The running projects	9	3.89	3.33	0.56
Personnel of the department	9	3.78	3.22	0.56
Timetables	9	3.56	3.33	0.22
Department's finance	9	3.33	3.56	-0.22

More than 10 years

Decision information	N	Wanted information	Received information	Cap
Changes in daily work	27	4.11	3.22	0.89
Technical things	27	4.07	3.31	0.77
Education possibilities	27	3.67	3.11	0.56
The running projects	27	3.81	3.42	0.39
Travels	27	3.33	2.97	0.36
Personnel of the department	27	3.44	3.19	0.25
Timetables	27	3.78	3.53	0.25
General things about Metso	27	3.37	3.14	0.23
Working hours	27	3.26	3.17	0.09
Department's finance	27	3.26	3.36	-0.10

Appendix 9

Information of decisions in different communication channels

Concept & product engineering

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	15	3.00	2.47	0.53
Personnel magazines	15	2.13	1.73	0.40
Superior's bulletin	15	2.80	2.60	0.20
Group meetings	15	3.40	3.33	0.07
Memos	15	3.27	3.20	0.07
Department meeting	15	3.13	3.07	0.06
Databases	15	3.33	3.33	0
Intranet	15	2.53	2.53	0
Internet	15	2.40	2.47	-0.07
Co-workers	15	3.40	3.67	-0.27
Phone	15	2.80	3.13	-0.33
Email	15	3.73	4.07	-0.34

Hardware engineering

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	10	2.40	1.60	0.80
Phone	10	3.30	2.80	0.50
Department meeting	10	3.40	3.00	0.40
Co-workers	10	3.90	3.50	0.40
Personnel magazines	10	2.70	2.40	0.30
Email	10	4.00	3.80	0.20
Memos	10	3.60	3.40	0.20
Intranet	10	3.10	2.90	0.20
Group meetings	10	3.80	3.80	0
Superior's bulletin	10	2.80	2.80	0
Internet	10	3.00	3.00	0
Databases	10	3.50	3.60	-0.10

Fluid power engineering

Channels for decision information	N	Wanted information	Received information	Cap
Personnel magazines	4	2.75	1.75	1.00
Core meeting	4	3.25	2.75	0.50
Superior's bulletin	4	3.50	3.00	0.50
Department meeting	4	3.75	3.50	0.25
Email	4	3.75	3.50	0.25
Databases	4	3.00	2.75	0.25
Intranet	4	3.00	2.75	0.25
Group meetings	4	4.25	4.25	0
Memos	4	2.50	2.75	-0.25
Phone	4	2.25	2.50	-0.25
Co-workers	4	3.25	4.00	-0.75
Internet	4	2.25	3.00	-0.75

Software engineering

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	7	2.14	1.14	1.00
Group meetings	7	4.43	3.86	0.57
Email	7	4.43	4.00	0.43
Superior's bulletin	7	3.57	3.14	0.43
Phone	7	2.86	2.57	0.29
Personnel magazines	7	2.43	2.14	0.29
Department meeting	7	3.57	3.43	0.14
Co-workers	7	4.43	4.43	0
Intranet	7	2.86	2.86	0
Memos	7	3.14	3.29	-0.15
Databases	7	2.86	3.43	-0.57
Internet	7	2.86	3.43	-0.57

18-40 years old

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	11	2.45	1.55	0.90
Personnel magazines	11	2.64	2.09	0.55
Department meeting	11	3.55	3.18	0.37
Group meetings	11	3.91	3.64	0.27
Superior's bulletin	11	3.09	2.91	0.18
Intranet	11	2.91	2.82	0.09
Co-workers	11	4.27	4.18	0.09
Email	11	3.91	3.82	0.09
Phone	11	2.55	2.55	0
Memos	11	2.91	3.09	-0.18
Databases	11	2.91	3.09	-0.18
Internet	11	2.91	3.27	-0.36

Over 41 years old

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	25	2.80	2.20	0.60
Personnel magazines	25	2.32	1.96	0.36
Superior's bulletin	25	3.00	2.76	0.24
Department meeting	25	3.28	3.16	0.12
Memos	25	3.40	3.28	0.12
Intranet	25	2.76	2.68	0.08
Group meetings	25	3.76	3.68	0.08
Phone	25	3.04	3.00	0.04
Email	25	3.96	3.96	0
Databases	25	3.40	3.48	-0.08
Co-workers	25	3.48	3.64	-0.16
Internet	25	2.52	2.68	-0.16

Less than 10 years

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	9	2.33	1.22	1.11
Personnel magazines	9	2.78	2.22	0.56
Group meetings	9	4.22	3.67	0.55
Co-workers	9	4.44	3.89	0.55
Department meeting	9	3.89	3.44	0.45
Phone	9	2.67	2.22	0.45
Email	9	4.11	3.67	0.44
Superior's bulletin	9	3.22	3.00	0.22
Intranet	9	2.89	2.78	0.11
Memos	9	3.00	3.22	-0.22
Databases	9	3.00	3.22	-0.22
Internet	9	3.00	3.22	-0.22

More than 10 years

Channels for decision information	N	Wanted information	Received information	Cap
Core meeting	27	2.81	2.26	0.55
Personnel magazines	27	2.30	1.93	0.37
Superior's bulletin	27	2.96	2.74	0.22
Department meeting	27	3.19	3.07	0.12
Memos	27	3.33	3.22	0.11
Intranet	27	2.78	2.70	0.08
Group meetings	27	3.67	3.67	0.00
Databases	27	3.33	3.41	-0.08
Phone	27	2.96	3.07	-0.11
Email	27	3.89	4.00	-0.11
Internet	27	2.52	2.74	-0.22
Co-workers	27	3.48	3.78	-0.30

Appendix 10

The best communication channels in daily work

Group	N	Email	Group meeting	Co-worker	Databases	Memos	Phone	Personnel magazines	Intranet	Internet
Concept & product engineering	15	11	8	7	6	6	4	2	3	1
Hardware engineering	10	9	9	7	4	3	2	1	1	1
Fluid power engineering	4	3	4	1	1	0	0	0	0	1
Software engineering	7	6	4	6	2	1	0	0	0	1
Total	**36**	**29**	**25**	**21**	**13**	**10**	**6**	**3**	**4**	**4**

Working experience	N	Email	Group meeting	Co-worker	Databases	Memos	Phone	Personnel magazines	Intranet	Internet
Less than ten years	9	7	6	6	2	2	0	1	1	2
Over ten years	27	22	19	15	11	8	6	2	3	2
Total	**36**	**29**	**25**	**21**	**13**	**10**	**6**	**3**	**4**	**4**

Age	N	Email	Group meeting	Co-worker	Databases	Memos	Phone	Personnel magazines	Intranet	Internet
18 to 40 years	11	10	8	9	2	2	0	1	1	3
Over 41 years	25	19	17	12	11	8	6	2	3	1
Total	**36**	**29**	**25**	**21**	**12**	**10**	**6**	**3**	**4**	**4**

Appendix 11

Feedback

Group	N	I give feedback about decisions of my superior or co-worker	I get feedback about my decisions
Concept & product engineering	15	3.27	2.80
Hardware engineering	10	3.00	2.70
Fluid power engineering	4	3.25	3.25
Software engineering	7	3.14	2.86
Total	**36**	**3.17**	**2.83**

Age	N	I give feedback about decisions of my superior or co-worker	I get feedback about my decisions
18 to 40 years	11	3.36	2.91
Over 41 years	25	3.08	2.80
Total	**36**	**3.17**	**2.83**

Experience	N	I give feedback about decisions of my superior or co-worker	I get feedback about my decisions
Less than ten years	9	3.22	3.17
Over ten years	27	3.17	2.78
Total	**36**	**3.17**	**2.83**

Appendix 12

Decision making in group

Group	N	Do you find that you can participate the decision making in group?	Do you find that you can influence the decision making in group?
Concept & product engineering	15	3,13	3,27
Hardware engineering	10	3,40	3,10
Fluid power engineering	4	3,25	3,25
Software engineering	7	3,14	3,14
Total	**36**	**3,22**	**3,19**

Age	N	Do you find that you can participate the decision making in group?	Do you find that you can influence the decision making in group?
18 to 40 years	11	3.73	3.64
Over 41 years	25	3.00	3.00
Total	**36**	**3,22**	**3,19**

Experience	N	Do you find that you can participate the decision making in group?	Do you find that you can influence the decision making in group?
Less than ten years	9	3.56	3.33
Over ten years	27	3.11	3.15
Total	**36**	**3,22**	**3,19**

Appendix 13

Superiors' decision making

Group	N	Is your superior making enough decisions related to his managerial duties?	Is your superior making the decisions fast enough?
Concept & product engineering	15	3.53	3.73
Hardware engineering	10	3.50	3.90
Fluid power engineering	4	3.50	3.75
Software engineering	7	4.43	4.00
Total		**3.69**	**3.83**

Age	N	Is your superior making enough decisions related to his managerial duties?	Is your superior making the decisions fast enough?
18 to 40 years	11	3.91	3.82
Over 41 years	25	3.60	3.84
Total		**3.69**	**3.83**

Experience	N	Is your superior making enough decisions related to his managerial duties?	Is your superior making the decisions fast enough?
Less than ten years	9	3.89	3.89
Over ten years	27	3.63	3.81
Total		**3.69**	**3.83**