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„Doctoral (Ph.D.) dissertation thesis”

**EXAMINATION OF PROFESSIONAL, ORGANIZATIONAL AND
LEADER COMMUNICATION IN AGRICULTURE**

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1. INTRODUCTION, PROGRAMME

Choosing my doctoral and research theme was an important aspect to tend to the examination and analysis of leader activities in case of fitting in the functional principled, modularly constructed empirical research program of the Department of Management Sciences.

In my opinion I can make statements and bare correspondences about leader activities, execution of these exercises and the influential factors on these activities by the examination and analysis of leader communication. In this dissertation I undertake to demonstrate the research I made in the theme of agricultural communication examinations as part of the research programme of Department of Management Sciences while I was a Ph.D. student.

First of all in my dissertation I review the idea, the role and the importance of communication in management and then I explain the idea of professional, organisational and leader communication. In the chapter of Precedence and Applied Methods I demonstrate the starting point of the research, the examination methods based on general management interview and the particular examination methods. The chapter of Results and Evaluations is started with demonstration of general examinations, and in the subsection of particular examinations I evaluate the research results of professional, organisational and leader communication. Finally I summarize the main statements and new, modern results of the dissertation.

Programmes

- ✓ The aim of my doctoral dissertation is to examine and research the communication influential factors in agricultural organisations by processing professional literature and by own observations.
- ✓ My aim was to define and explain the idea of professional, organisational and leader communication by literatural datas and theoretical approximation.
- ✓ I examined the role and importance of communication in leader activities, the factors that obstruct or support communication and sources of information, based on wide ranged data collection and analysis.
- ✓ I examined the communication influential factors in consultant systems and agricultural extensional networks. This research circle gives the chance to analyse and demonstrate the flow of professional information defined and explained by myself.
- ✓ The aim of organisational communication examinations are to open up the role and position of communication in productional and organisational processes of companies. So I made communication exercise, meeting and informational examinations. I analysed communication forms and communication influential factors.

- ✓ The aim of leader observations was to analyse and evaluate leader activities, the composition of leader activities, the structure and rates of leader activities by the time-study and content analysis of communication. My aim was to form a research method by interaction examinations that can be suitable to make management examinations. Based on the data I had I made cluster analysis and possibility estimations.
- ✓ The final aim of examinations was to examine and analyse the influential factors of professional, organisational and leader communications.

2. PRECEDENTS AND APPLIED METHODS

I did my researches as the part of “Functional examination of agricultural corporate management” research programme that was worked out in 1994 by the Department of Management Sciences at University of Debrecen. My research area was the part of examinations of organisational management, called organisational communication. I made examinations as part of this theme about professional and leader communications.

The method of “*general management interview*” was based on questionnaire examinations and data collection from companies. The used questionnaire based data collection has three parts:

- To collect company data a separate data form was made called “general data collection”
- The data form called “interview identifying data” were to collect the data of interviewee
- The structure of the questionnaire called “interview” was suit to the subjects of research programme. In a question I defined 8 or 10 problem categories and I gave the factors that had to be evaluated by their importance, effect and influence on a scale from 1 to 5 by the interviewee. So this examination method was a closed, oriented interview. Interviews give the base data of the examination, but to evaluate and group those data of “general data collection” and “interview identifying data” are needed.

The management interview contents 17 questions but just 4 questions are in connection with my research theme. I summarised all evaluation of factors in every question category, and then I evaluated them by the company (form of activity, number of employees, field of activity) and interviewee (age, education level, position, sex) data of general data collector data form. As the names of the managers were signed on questionnaires I could eliminate the opportunity of mistake to evaluate one leader’s answers more times. After the correct filtering and selection the results of the dissertation demonstrates data of 345 questionnaires, and these are from the evaluation of 83 organisation’s leaders from different managing levels.

Preparations and analysis' based on general examinations:

- ✓ With descriptive statistical methods: division and precedence examinations by classifying criteria's, analysis of variance.
- ✓ Main component analysis: analysis of factors listed at the 1st question of management interview, comparing analysis of factors listed at questions 9-10-11.
- ✓ Cluster-analysis: made on the factors of 1st question and 9th -10th -11th questions of management interview jointly.

I made my **detailed examinations** at professional and organisational communication too with the method of questionnaire. The questionnaire is closed and oriented, because I determined the possible answers for every question. Interviewees had to evaluate factors on a scale from 1 to 5. Interviewees make free pointing.

At the creation of **professional communication** examination's questionnaire I took the methods used in "general management interview" into consideration. These methods were the base, but I made some changes and simplification that were demanded.

In the dissertation I worked up the datas of totally 100 questionnaire interviews (30 consultants and 70 agricultural extensional questionnaires). The exercise examinations ask for the everyday activities (informal and administrative activities) of interviewees. The groups of factors were defined by professional literature, by the activities that were defined for consultants and agricultural extensionals by the homepage of Ministry of Agriculture and Rural Development, and by my own experiences. In information examination I asked information demands of producers, and the role of different information sources now and in the future. In communication examinations I evaluated the role of communication forms that are used for successful working now and in the future. I examined the factors that have influence on upwards (institutional sector) and downwards (to producers) communication. I examined what factors appear in upward and downward communication of agricultural extensionals.

Preparations and analysis based on professional communication examinations:

- ✓ With descriptive statistical methods: division and precedence examinations by classifying criterias, analysis of variance.
- ✓ Main-component analysis: for the factors of consultants and agricultural extensionals questionnaires, comparing analysis based on the factors of consultants and agricultural extensionals questionnaires.
- ✓ Cluster-analysis: for the factors of consultants and agricultural extensionals questionnaires.

I worked up 365 questionnaires to examine *organisational communication*. These communication activity examinations shows the frequency of organizational and management communication activities. In communication forms analysis I analyse the frequency and efficiency of these forms. In sitting examinations I demonstrate how much time the leaders spend on sittings, what kind of sittings are these and what are the sittings they must obligatory take part on. Besides these I demonstrate the factors that cause the effectivity or uneffectivity of a sitting. The communication influential factors examination analyses the factors that obstruct or assist of communication, the usage of communication technologies and the factors that have basic influence in the efficiency of orders. In information examinations leaders of organizations qualified the informations they think important and the sources of getting information.

Preparation and analysis based on organizational communication examinations:

- ✓ With descriptive statistical methods: division and precedence examinations by classifying criterias, analysis of variance.
- ✓ Main component analysis: for all variables.
- ✓ Cluster analysis: for all variables.

I made my observations about *leader communications* at 6 six corporations in the North Great Plain Region from 2002 to 2005. The selection of examined corporations was based on two points:

1. **Owner** must be the superior leader of the organization. From the examined organizations five has just one owner and in one organization the biggest part owner leads.
2. Other important viewpoint was the **income**. The examined corporations are medium sized corporations in the county by the income and result. The income of the corporations almost reaches or passes the 2 milliard Forints.

In leader communication examinations I measured and analysed the time period of communication parts. The state of time period was based on time-work study. In the observations my aim was to examine the prevailation of communication activities by the time value analysis and time period analysis of communication parts. I made my time period analysis in both the superior, both the subordinate leaders five workdays. Total observation time was 36 359 minutes, what is more than 600 hours.

Grouping the communication elements by time period does not give good chance to examine leader activities realized by communication. So I realized the analysis of all communication interactions by the datas of workday recording. I called this “interaction examination”. The aim of these examinations to identify the most important realized activities of observed leaders, to

make conclusions that can be used to make leader activities more rationalized and more effective. By the observations I identified 4797 interactions at the six corporations.

Preparation and analysis based on leader communication examinations:

- ✓ With descriptive statistical methods: time value analysis of superior leaders' communication, time value analysis of subordinate leaders', comparing analysis of time value in superior and subordinate leaders' communication, characterize the interactions of superior and subordinate leaders, comparing the number of interactions in superior and subordinate leaders communication.
- ✓ Cluster-analysis: for all variables: analysis of superior leaders' communication ways by time values, analysis of subordinate leader's communication ways by time values. Cluster-analysis of superior and subordinate leader's interactions.
- ✓ I made feasibility evaluation by log-linear method and I created the next models from my examination: model set up for communication modes and leader types, model for communication modes and leader types with consideration of organizations, model for interactions and leader types, model for interactions and leader types with consideration of organizations.

Because of the character of the research and used examination methods I made different data collection about different models with different methods. I had to use diverse mathematical and statistical research methods because of the character, the nature, the grouping and evaluating possibilities of collected datas. I did cluster-analysis, main component analysis and analysis of variance besides descriptive statistical methods in case of questionnaires. The datas collected in leader communication examination were evaluated with cluster-analysis and log-linear evaluation.

Descriptive statistics

In work up process I made the ranking of questions by calculated average points. The gradation and distribution analysis were based on average point. I brought the host of models under inductive analysis, I mean results I got were referred to so-called target host. At the analysis I started out from the results I got from the model. The sample was qualified so as to achieve homogenised parts from any point of view. Age, qualification, sex, position and organizational forms were group creating factors. I prepared the datas of questionnaires by main groups. I made my analyses on different questions by arithmetical average, distribution examination and setting answers into groups. I grouped the datas I needed by the examination methods. I used different groups of variables in management interviews and different questionnaire examinations. In the

general examinations I used variables that were grouped by the organisation and by different attributes of respondents. At corporation attributes grouping criterias were function form, plant size (number of employees) and sector form. I made age group, highest school qualification, classification and sex evaluations by properties of interviewees.

In **professional communication** examinations consultants and agricultural extensionals were classified in different groups. Sex, age, school qualification and functioning area (county, city) were criterias of classification into groups.

In case of **organisational communication** examinations I stood up group categories by personal datas like sex, age groups, school qualification, and classification. By corporation datas I made groups by function form and number of employees.

Analysis of Variance

I examined with the method of variance analysis if there is a significant difference in the average values of the answers in given groups, and the standard deviation in case of questions in gone group how significant, and is it more significant than standard deviation between groups. For descriptive statistics examinations and for analysis of variance I used SPSS 12.0 software that calculated the mean, standard deviation, standard error, confidence intervals of the difference of variables and it defined the level of significance at difference of variables by calculated t value at given degree of freedom. (Significant difference is always between two means and it is

confirmed by the SD value ($SD_{5\%} = t_{p5\%} \cdot \sqrt{\frac{2MQ_h}{r}}$). My aim was to make examinations that could show if there is difference from the viewpoint of communication at the groups of examined organisations were classified by different aspects. Additionally I examined if there is a significant difference between the groups of leaders and subordinates that were grouped by school qualification, age, sex and classification. Here I compared the mean of groups in connection with one aspect by the method of one-way analysis of variance on independent samples. It is one-way method, because I grouped independent samples just by one aspect (used factor of making groups). By the normality and homogeneity examinations I could complete the one-way analysis of variance on independent samples. At the evaluation I considered the value of $p < 0,05$ a significant result.

Main component analysis

The purpose of the application of the main component is to carry out diverse structural comparisons considering the judgement of the questions examined. By performing main component analysis, variance analysis can be made on the smaller number of variants with

almost the same information content, too, since measured variants behave the same as main components, if requirements of the analysis are met.

By analyzing main component, such theoretical variants were created, which are in close correlation with real variants, they are independent from each other, and their number is minimal compared to the sample examined. By the application of these main components, the data set can be characterized more clearly, mainly when we want to examine the differences between groups originated from the cluster analysis.

Main components proved to be suitable considering the final communality, the satisfaction content of information and the KMO test. Communalities of the variants are such values, which indicate the rate main components explain that certain variant. The value of communality can equal with one maximally. The more it is, the more main components explain that certain variant. All variants with communality more than 0,5 were considered explained. At the main component analysis, the least value of communality of the variants was 0,409, while the highest was 0,94. During the creation of main components most of the data were kept, considering different cases 62-88% of the information was saved by a main component, which is considered good.

Considering *general examinations*, first question was treated separately, which aimed at the importance of managerial tasks. As a result, tasks were divided into four main components. The other three (managerial interview 9th - 10th - 11th) questions, which deal with communication directly, enable the collective analysis of the relations between communicational factors. Considering these factors, ten main components were created.

Examining the *professional communicational questionnaires*, the data set included 9 and 12 different coherent groups of questions, which I tried to explain by the least main components so that interpretation, communality and other conditions would meet.

As a result, from the data set of consultants, 29 main components were created out of 63 variants, which results in 2,17-fold data reduction (more than half of the data was reduced, while 70-75% of the information could be saved). Out of the data set of agricultural extensionals, 43 main components were created out of 105, which results in 2,5-fold data reduction, while considerable part of the information was saved. I applied KMO-test to determine whether partial correlations would stay within a reasonable scale during the creation of main components. Bartlett-test was made parallel with the KMO-test so as to control whether variant's pairs were uncorrelated.

Processing the *organizational communicational questionnaires* 26 components were created out of 66 variants, considering the general part 34 components were created out of 88 variants, which means one third of the data was saved, while the ratio of the saved of information content

is about 66%. Since there were so many questions, variance analysis was only made on main components, so I only controlled whether analysis made on variants of main components separately, differences arise or not similarly. Difference could not be experienced in most cases.

Cluster analysis

Cluster analysis is a multivariate statistical method that constitutes groups by much kind of classifying variables. We organize the mass of facts on a way to identify the connections hired in them. The aim of cluster analysis to group the observed entities into homogeneity groups on a way that observation units in one group are similar with each other, but different from parts of other groups. I chosen Ward's clustering method, because its conception's base is similar than analysis of variance, so it minimizes the loss of information caused by group concentration.

In my research I used different distance measures and I made analyses on more cluster methods, while clusters became constant. In case of *leader communication examinations* I accepted four variates and six variate cluster solutions. The reason was that there were more significant differences between these two methods, and these could detail connections between datas accordingly.

In analyses' based on management interviews and questionnaire examinations the datas were evaluated with cluster analysis by all of the questions, and than I examined with variance analysis in which components are really different from other groups. At *general examinations* the cluster analysis that were executed by 4 main components were formed in the first question and by the 10 components were formed by the three together handled questions, formed four groups.

In *professional communication examinations* I differentiated 17 main components by the analysis of consultant questionnaires datas. According to the factors 4 groups of the consultants were differentiated. In case of agricultural extensional examinations although consisted more factors, nevertheless by the connections I classified the connected factors into less groups, numerically into 12 main components. By the factors three groups of agricultural extensionals were formed.

By *organisational communication examinations* I made Ward's clustering method on all variables and components. The two categories were similar in 60 % at the three and four clustered solution. Other solutions had lower overlapping rate so I chosen this solution. I have chosen the four clustered solution, because it contented the significantly different groups that were always in the higher number of clusters solutions too.

Reliability analysis

I tested reliability of my data with Chronbach alpha index. The calculation of reliability coefficient:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum_{i=1}^k s_i^2}{s_T^2} \right),$$

where: k = the number of items
 s_i^2 = item variance i of k
 s_T^2 = the total test core variance

The values of the index by the questionnaires are in *table 1*. As the values are much higher than prescribed 0,7 threshold value, so I judged the data correct for further examinations.

Table 1.

Solidity coefficient in questionnaires

Questionnaire	Chronbach Alpha value
General survey	0,7925
Consultant	0.9048
Agricultural extensional	0,9009
Organisational communication	0,8432

Source: own examinations

I made the analysis that shows which question must be selected from questionnaire to make it more reliable, but I haven't found such a question.

Log-linear analysis

I made interaction examinations by leader communication observation, time study and leader communication content analysis. I tried to find the answer that different leader activities how often appear in the job of leaders. I based the log-linear analysis on collected interaction data. I analyzed the time values of communication modes and interaction data of observed organisation and leader with General Log linear Analysis method. I used LEM (Log linear and event history analysis with missing data using EM algorithm) software. Log-linear method is a multivariable frequency table analysis that can determine the probability of a factor getting into cells of the table.

The main aim of log-linear analysis is to find the best model suited for the mass of data that not much different from „full saturation” model. Generally I used few variables in my models, so I used full saturation models where there wasn't any chance and sense of limitation. So this method suited to my aims the best and it revealed the connections I expected appropriately.

In addition log-linear analysis is appropriate to forecast the cell frequency in case of the six organisations by the sample. My aim was to demonstrate the relative importance of different independent variables (communication mod, interaction) by the forecast of dependent variable

values (hours spent on communication modes, number of interactions). The accuracy of models was tested by a reliability test method called „likelihood ratio test”.

Log-linear analysis realizes the analysis of tables without the demand to give a dependent variable. The observed frequencies stand in the centre of the method that is absolutely appropriate to my research and establishes the accuracy and usage of the method. By the analysis we can demonstrate frequencies from the table with parameters we can explain. The aim of the analysis is not to find and explain parameters that are not equal with zero. The general form of the model:

$$\mathbf{Log} m_{ijk} = u + \lambda_i^A + \lambda_j^B + \lambda_k^C + \lambda_{ij}^{AB} + \lambda_{ik}^{AC} + \lambda_{jk}^{BC} + \lambda_{ijk}^{ABC}$$

where: m_{ijk} is the frequency of the ijk cell of the table that consists $i * j * k$ cells
 λ parameters belongs to the effect of appropriate variables
 u constant parameter

In case of leader communication examinations:

A communication modes and number of interactions
 B type of leader
 C examined organisations

Log-linear analysis is not a general method, because it can be established with special softwares and it is difficult to explain parameters especially in SPSS. LEM is one of the most important softwares for probability estimations. In the model we can set the number of variables (lab), how may variables are in the model (man), the number of variable categories (dim) and the model itself. The software calculates the conditional probability by these inputs.

The usage of log-linear analysis can be considered new in this research area, by foreign and domestic studies very few people made this kind of examinations. Domestic studies are mostly methodical innovations and made in economical, biological and social research areas. In my opinion in the area of management sciences until now there wasn't any usage of log-linear method. I couldn't find professional literatures about this.

3. THE MAIN CONCLUSIONS OF THE DISSERTATION

➤ *I made my own definition for the examined professional, organisational and leader communication by the literature and theoretical examinations.*

I mean by **professional communication** the flow of professional information inside the sector, and between the producer and administrative sector.

Organisational communication is defined as information change and flow inside organisation, and ambition to interpret informations on the same way. I included the communication forms

that are used by organisations like order, commission, system of monitoring and the structure of upwards and downwards communication. Generally can be established, that organisational communication is the information system inside the organisation, and its main aim to control, to harmonize and to operate effectively organisational processes.

Leader communication is a determining part of organisational communication, in which the communicational specialities of realizing leader activities are appearing. Leader communication is mainly important from the viewpoint of operating the organisation, because it has centered position in communication, both incoming and outgoing information look for leaders. Information reaches the biggest concentration at the level of superior leader. In the centre of the two communications are superior leaders.

➤ *By the general examination results of manager interviews I established that getting information (communication) is the most important management exercise.*

By the results it can be established that getting information and communication has an important role between leader activities (table 2.). Although by the results of the analysis' made by corporate characteristics and datas of the interviewees the rank of leader activities is a little bit modified, but on the whole it can be established, that leaders ranked getting information inside the corporation with the highest points, and getting information outside corporation got high qualification too. These qualifications and classifications is in some sort modified by organisation's processing form, number of employees, the kind of sector, age of the interviewees, the classification, the sex and school qualifications.

Table 2.

Adjudicate the importance of leader activities

Leader activity	Total average points	Total average rank
A/1 Getting information outside corporation	4,056	7
A/1 Getting information inside corporation	4,492	1
A/1 Planning activities	4,185	3
A/1 Decision making	4,463	2
A/1 Making orders	4,106	6
A/1 Organising	4,169	5
A/1 Monitoring	4,171	4
A/1 Human resource activities	3,569	8

Source: Own examinations, 2001-2004

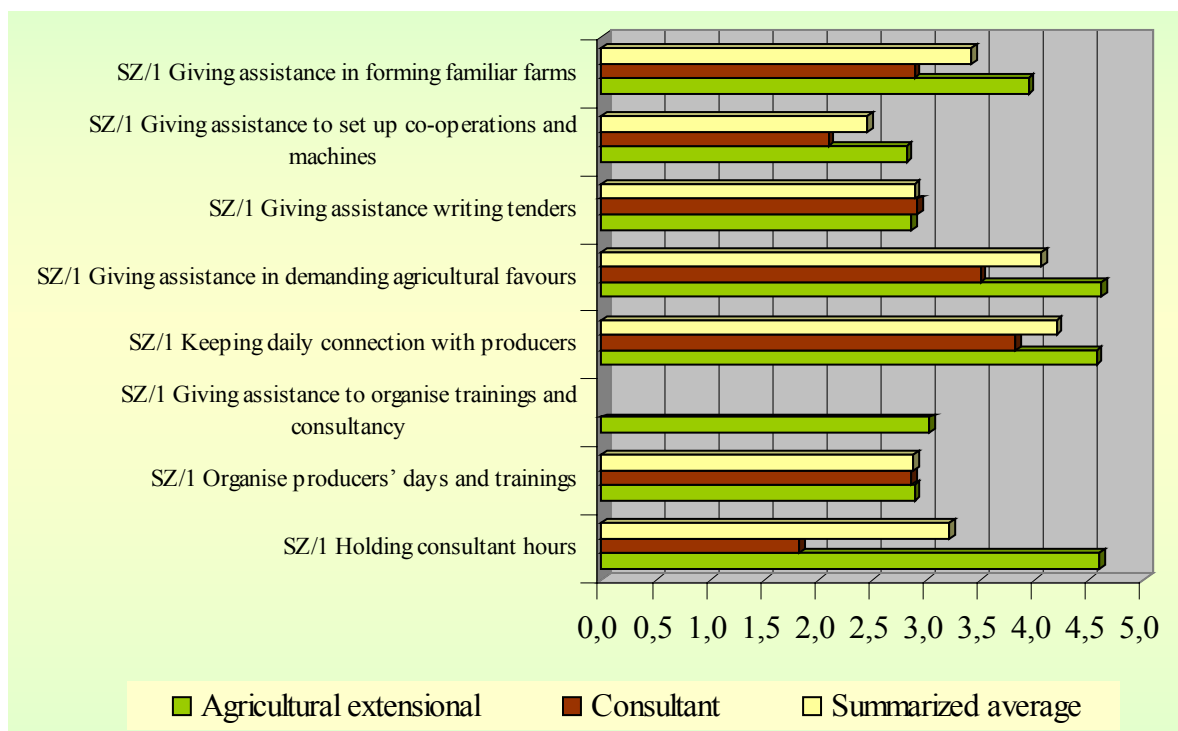
$n = 345$; $SD_{p5\%}=0,411$; $p=0,00$

➤ *By the general examination results managers prefer the official oral communication forms. Professional relationship and experience are one of the most important sources of information by the evaluation.*

➤ *By the examination of professional communication I state that the job of consultants and extensionals have similar characteristics. These two professional communication modes have parallel attributes. In these two ways of communication the exercises are not separated than repeated.*

By examining the activities I tried to find the answer that examined activities how often are presented in the activities of consultants and agricultural extensionals, what is the rank of these activities, and what kind of differences can be experienced in their job (figure 1). By the results of summarized averages interviewees evaluated squarely with the highest points holding daily connection and the role of giving assistance in demanding agricultural advocacy. Giving assistance to make tenders got a lower qualification. By the answers we can jump to the conclusion that in writing tenders producers demand the assistance of consultants and agricultural extensionals less. At consultants holding consultant hours got the lowest qualification. The reason is that a number of persons think it is useless to appoint and hold up a date for this, as people who need help, always can reach them.

Figure 1: Comparing general activities of consultants and agricultural extensionals



Source: Own examinations, 2001-2005

n = 100

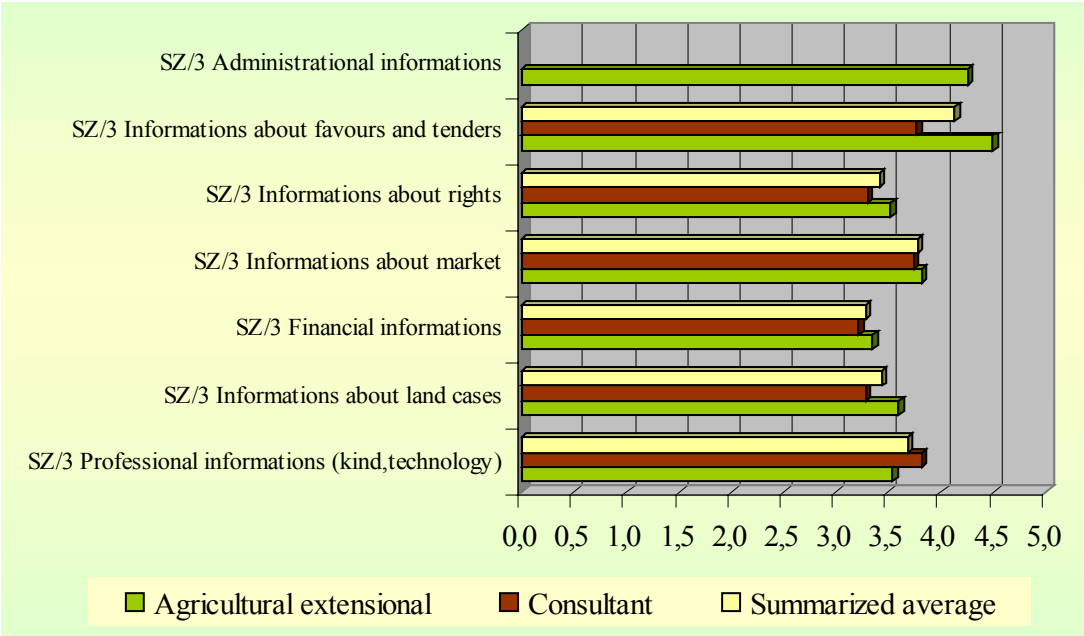
At agricultural extensionals also got the highest qualification the assistance on forming familiar farms, and the lowest qualified was giving assistance in forming co-operations and machinery. So asking for assistance in forming farms came to the front contrary to the assistance in forming co-operations. Organisation of producers' days and courses got a low qualification.

By the comparison it can be established, that agricultural extensionals evaluated these factors to a higher level than consultants, so in their job these activities appearing with bigger weight and more often. But in some activities they gave the same average qualification.

➤ *Producers mostly demand informations in connection with economics, for example economical, application and market informations as the information in the results of the examination show. The demand of professional, technological and technical informations is just secondary.*

In information examinations I tried to find the answer on the question that what kind of informations are the producers interested in and the consultants and agricultural extensionals to give correct answers where to supply the answers and what kind of sources they use for this. Information demand of producers is demonstrated in *figure 2*.

Figure 2: Information demand of producers



Source: Own examinations, 2001-2005

n = 100

By the summarized averages it can be established, that informations in connection with tenders and advocacies are the most interested by respondents. In the ranking informations about market and profession were indicated on the second and third place by the respondents. Producers are well-informed about landcase- and financial informations by the datas, so these informations got the lowest qualification.

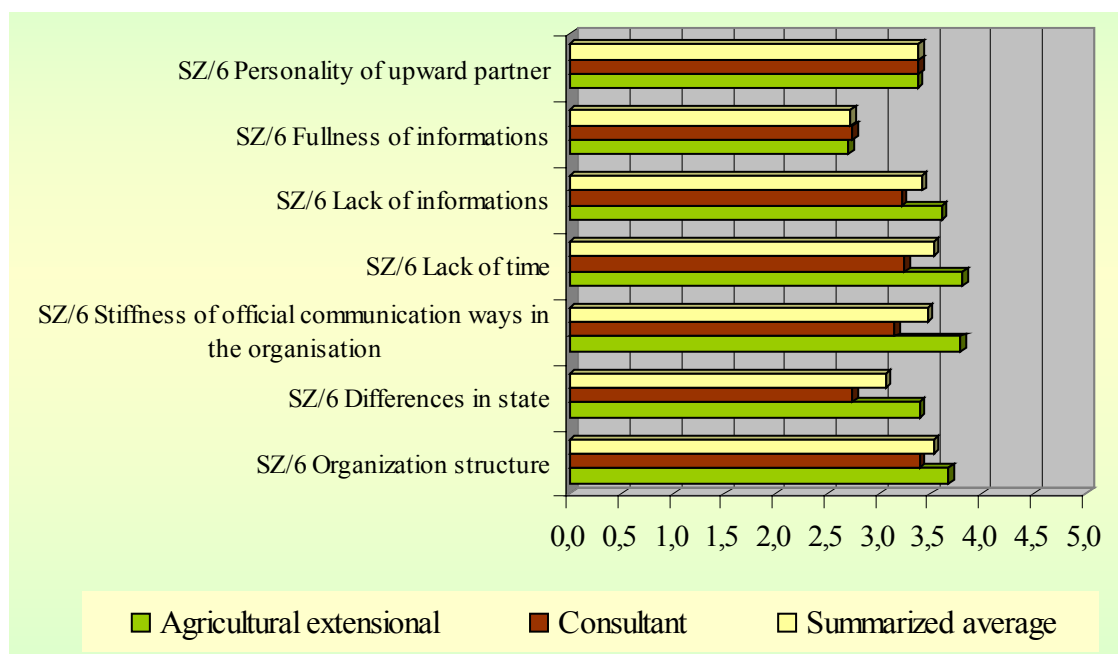
➤ *I established that the upward and downward communication have special position in consultant organisations. In this structure downward communication has the same*

difficulties as upward communication. In the organisational structure of the consultant organisations there is no downward hierarchy and inferior-superior relation. The success and effectiveness of downward communication is determined by the factors of producers' information need and the authenticity of consultant.

- *The structure of organisation and inner ways of organisational communication has a basic role in information flow, as the influential factor analysis of professional communication shows. The stability of consultant structures and the build up and stabilization of communication ways have basic importance in professional communication. The changes of the last few years in agriculture caused the transformation, abolishment of these information and communication systems.*

The examination results of upward (to upper administrative sector) communication influential factors are demonstrated in figure 3. The values of summarized averages are rarely homogeneous. By the results the most important influential factor of communication is the structure of consultant organisation. Not sufficient organisation structure is important obstructive factor in efficient professional communication. Average rank of lack of time, the stiffness of communication ways in organisation and lack of information got not much lower qualification. The stiffness of formal communication ways is usually connected with lack of time factor. In many cases because of less time subordinates can't get correct informations from upper leaders, or the problem will be solved somehow or losing its importance while the superior leader could get the information. Usually this situation guide to the lack of information.

Figure 3: Influential factors of upward communication



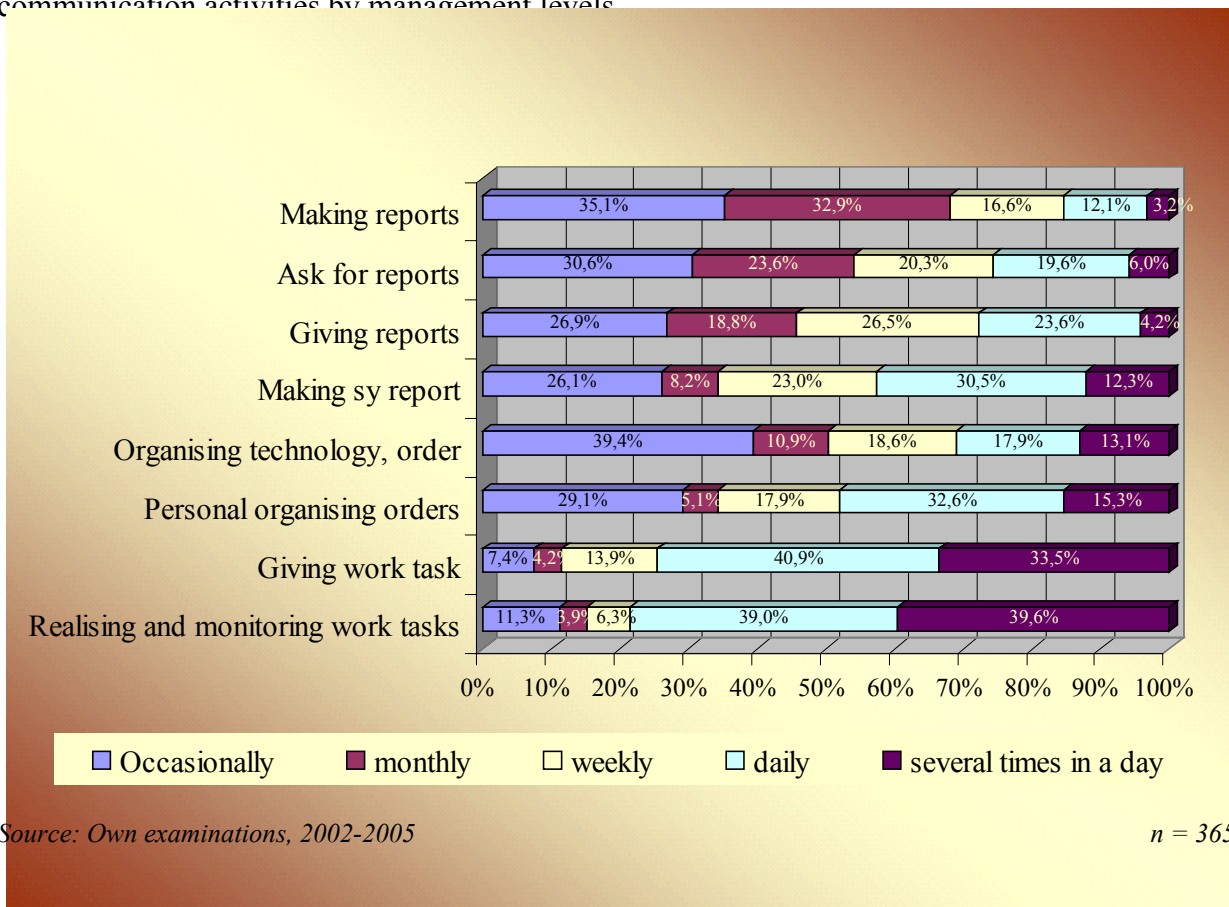
Source: Own examinations, 2001-2005

n = 100

The personality of upward partner and its management style makes his influence mightly on the effectiveness of communication, so it has an indirect effect on the effectivity. Upward communications are obstructed by fullness of information and differences in state the less.

➤ *My organisational communication examination shows that communication exercises are basically affected by the position of the leader in the organisational hierarchy. The rates of ordering, checking, reporting, making somebody account, asking reports and making reports are different in different leading levels. Upward leaders give less than half exercises than they check. Middle class leaders give three times more exercises than those they check. So by the results it can be established that two times more reports are made monthly than making somebody account. There are differences in the rates of frequency of report making and asking. Low level leaders make two times more reports monthly than they ask. Middle and high level leaders ask more reports than they make.*

In organisational communication examinations I started out from the question, what kind of activities must be supplied by leaders of organisation. The summarized results of communication activities frequency analysis is demonstrated in *figure 4*. I evaluated the frequency of communication activities by management levels



By the figure the execution and monitoring of work task is the most frequented communication activity what is occurred in 80 % daily or several times a day. Mainly the execution of this activity is appearing in low and medium leader levels, respondent leaders make this daily or

several times a day with 80 % frequency, but it can't be disregarded at superior leaders, where the frequency is near to 70 %. Giving work tasks has the similar rate than its monitoring. The frequency of giving work tasks daily or several times a day is 80 % at low or medium level leaders, while on superior leader level this rate is 10 % lower than its monitoring. The most significant difference can be observed at assigning occasionally and weekly frequency. Superior leaders less than half work tasks give out occasionally, than they check, but they give out work tasks weekly with the frequency of 21 %, but checking work tasks is just 8 % weekly. Medium level leaders give three times more work tasks out weekly than they check. The personal organising orders are typically daily activities and its rate is similar on every management levels, more than 30 %. Giving orders occasionally is the speciality of low level leaders the rate of this kind of orders is 37 %. Technological organisation and the order how to execute that is occasionally the most frequented and mostly given by low (45 %) and medium (43 %) level leaders, but it is not rare that superior leader gives this kind of order (32 %).

Giving reports and make somebody report shows similar rates occasionally and weekly. But on the whole monthly the rate of giving reports is more than twice than make somebody report. This rate is triple at low level leaders. On daily level the situation is opposite on the whole, it means that make somebody report is three times more frequent than giving report. It means by levels, that the rate of make somebody report on low level is almost twice, on medium level is more than twice and at superior leader level is 8 more times daily than giving reports. This result is not surprising, because superior leaders don't have many events to give reports. He/She has to do this communication activity just on sittings and on owner meetings.

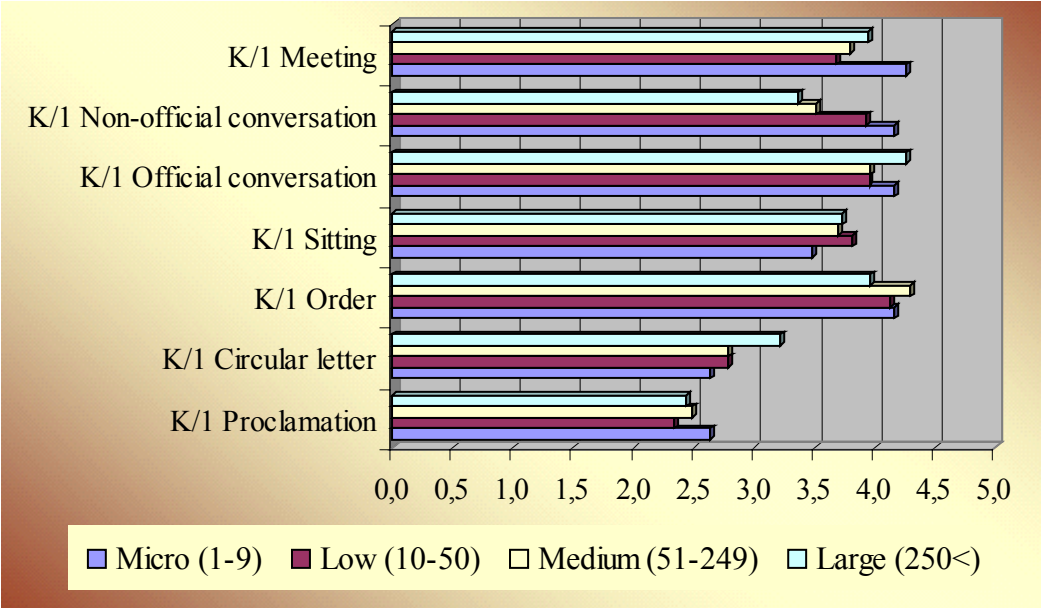
There are differences at the frequency rates of *making report and ask for reports*. Occasionally and monthly more reports are made than superior leaders demanded. The rate is opposite on weekly and daily level. It can be established on different management levels, that low level leaders make two more times reports than they ask for. Medium level leaders ask reports two more frequently a day or several times a day than they make. Superior leaders ask weekly two times more, daily three times more report than they make.

➤ *Examination results show that in organisational communication basically oral communication forms are determining. Leaders evaluated this communication form as the most effective. The frequency analysis shows that there is a connection between the effectiveness and frequency of communication forms. The same oral communication forms are the most effective that are often used at organisations.*

Figure 5 demonstrates the communication form analysis results by plant-size. For the leaders who lead organisations that have more than 250 employees the most efficient communication

form is official conversation, and its qualification is much higher than the others. Its quantification is more than 4,0. After this comes in the efficiency gradation the efficiency of order, meeting and sitting. The role of circulate letter correlated to other organisational sizes is more important, more than 3,0. Presumably at great plant-sized organisations the chance of verbal communication is less, that's why circulate letter is more often used for reporting informations in connection with not really important questions. At middle sized organisations leaders said that squarely order is the most efficient communication form that is the only factor which rank is more than 4, 0. After this come the official conversation, the meeting and sitting.

Figure 5: The role of plant-size in awarding efficiency of communication forms



Source: Own examinations, 2002-2005

n = 365

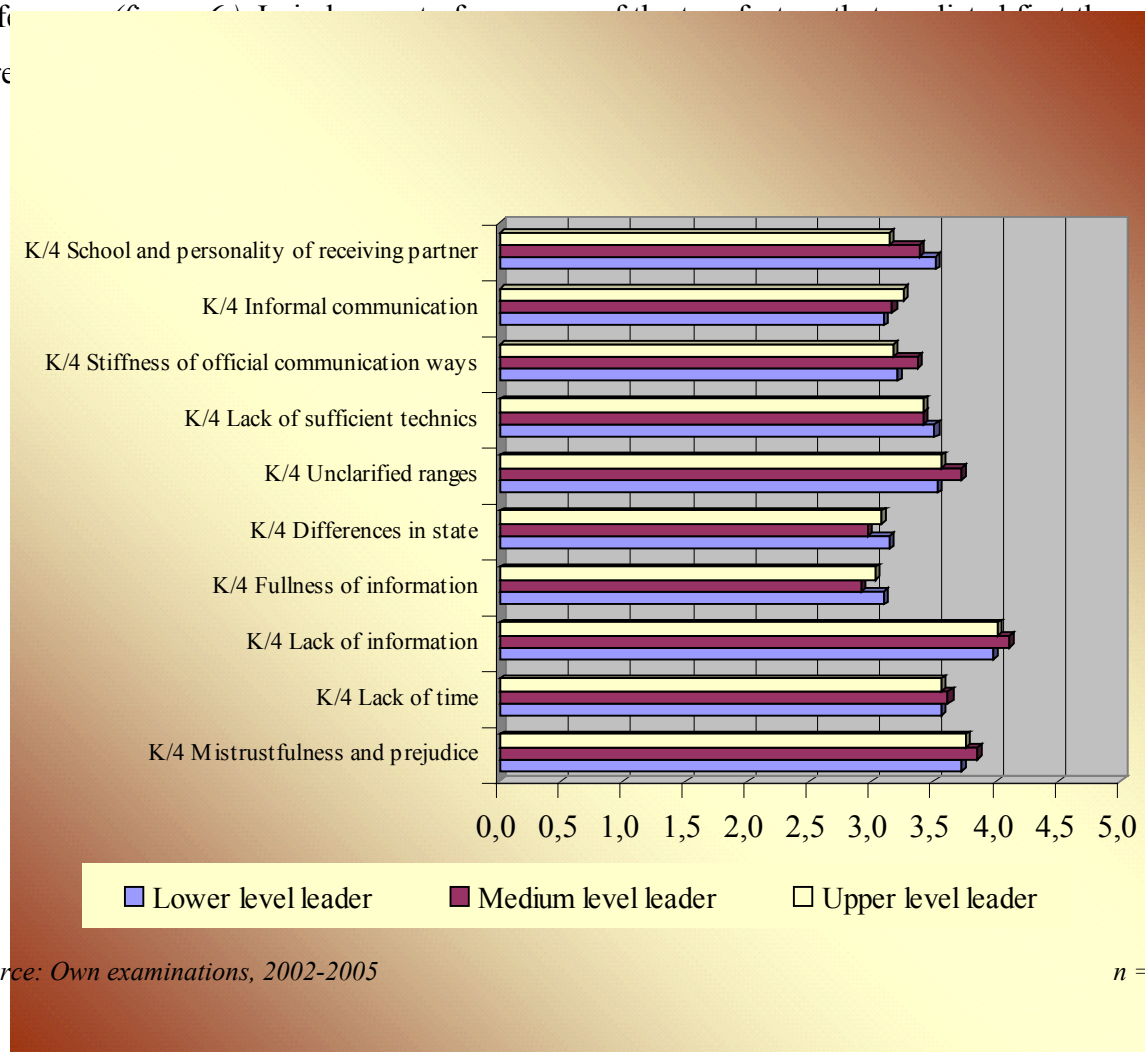
At low sized organisations results show that the two communication forms that were evaluated the most important are the same than at medium sized organisations. The importance of non-official conversations came to the front, it got the third highest qualification. The next in the efficiency ranking is sittings, and the meetings are just on the fifth place opposite other organisation size where it has a higher rank. The leaders of organisations that have less than 10 employees evaluated the factors with average higher points than other respondents. Meeting was justified the most efficient communication form. After this the evaluation value of three factors are the same. Order, official and non-official conversation have an average value above 4,0. In every group independent of plant-size circular letter and proclamation were evaluated the less effective.

By the results it can be established that characteristics of corporation and respondents make their influence on the evaluation of communication forms. By the observation of listed

communication forms we can establish that verbal communication forms have an important role in the life of examined organisations what coincide with the results of general examinations. By the analysis' the most efficient communication forms are orders, official conversations, meetings and the less efficient are circular letters and proclamations.

- *The significant part of interviewed leaders said that they spend less than ten hours on meetings a month. The leaders of examined agricultural organisations spend less time on communication forms than it is written in professional literature or than I assumed in my examination. It means that other communication forms like orders, official conversations, and discussions are more effective than meetings.*
- *The examination results of influential factor analysis of communication show that mistrust, prejudice and miss of informations obstruct mostly the communication.*

The analysis of communication obstructing factors on different leader levels shows little differences. The most significant factor is an agreement.



Source: Own examinations, 2002-2005

n = 365

All three respondent groups qualified the lack of information with the highest values and then came the factors of mistrustfulness and prejudice. There are differences in the following rankings. Low level leaders evaluated lack of time on the third place. For medium level and

superior leaders the second biggest problem is the unclarification of competences. Low level leaders think that the less effect on the success of communication is the fullness of information and the informal communication. By the opinion of low level leaders the success of communication is the least influenced by fullness of information and informational communication like gossip. Medium and high level leaders qualified with the least points the differences in state and fullness of information. Compared the results with the results of general examinations it can be established that the ranking of qualification is similar, and at some factors the same. At general examinations lack of information got the highest qualification, so the most usual communication problem is caused by this just like in organisational questionnaires, and in the opinion of respondent leaders' communication is the least obstructed by differences in state and fullness of information.

- *Highly important promoting factors are empathy, feed-back and sufficient techniques. As the information flow examinations show in case of sufficient information flow leaders prefer professional contacts and they ask for producing, marketing and financial datas.*

Table 3:

Main-component analysis of general communication examinations

Denomination	Main components									
	1	2	3	4	5	6	7	8	9	10
A/10 Lack of information	,764									
A/10 Disturbance effects of non-official informations	,705									
A/10 Mistrustfulness and prejudice	,639									
A/10 Lack of time	,599									
A/10 Different values		,852								
A/10 Different interpretation		,812								
A/10 Lack of sufficient qualification			,914							
A/10 Differences in state			,498							
A/10 Fullness of information				,914						
A/11 Professional administration					,772					
A/11 Daily press and media					,687					
A/11 Rights, laws, regulations					,588					
A/11 Professional press					,583					
A/11 Friendships						,759				
A/11 Professional connections						,736				
A/11 Own experience						,617	,488			
A/11 Events							,850			
A/9 Official conversations								,792		
A/9 Sittings								,777		
A/9 Official (formal) communication								,704		
A/9 Proclamation, circular letters									,824	
A/9 Worker interest advocacy									,809	
A/9 Events									,774	
A/9 Non-formal (informal) informations										,770
A/9 Non-official (friendly) conversations										,673

Source: Own examinations

- *In my questionnaire examination I used main component- and cluster-analysis to show the communication factors that cohere by similar variance and were qualified the same importance and effectiveness by respondents.*

In case of 9th, 10th and 11th question of general management interview I handled the communication factors together. That's why I could make common examination on movement and effects of the three questions' factors, and not just to analyse the correlation between factors in one question. By the analysis I grouped in 10 main components the factors that have correlation with each other, that are similar by their variance (*table 3.*). Table shows that among the factors listed in questionnaires, which factors are in clear connection, by the qualification with each other.

- *My time-study observations of leader exercise gave the chance to make interaction examinations by communications. Communication process can be defined as interaction between participants. Examined the subject of interaction I could identify what kind of leader exercise it tends to. Based on the results of these examinations I demonstrated that in leader activities how often and how importantly leader exercises come forward and what kind of correspondences and differences can be show in the activities of different leader levels.*
- *It can be established by the communication examination results of upper leaders that they are over accused. Their average work time in the examination period was 10-12 hours. The reason of it is that they are not delegate exercises or they do not divide their exercises correctly. In their communication leader exercises are not differentiated suitably to their position, so they take care of each identified leader exercises on the same level. It means the tendency that they take over some exercises from lower levels of management rather than to delegate exercises.*

The distribution of datas and rankings by the average time value of examined methods is shown in *table 4*. The five days I spent on observing superior leaders were substantially longer than the observation time of subordinate leaders. The reason is that while subordinate leaders have bound work time the superior leaders have unbound work time. It means that superior leaders work time is determined by the problems he/she has to solve. The daily 12-14 hours work time is average but 23 hours observation was occurred too. Observed leaders worked average 3216 minutes a week that means 10 hours and 43 minutes work time a day. Hard work zest is the result of owner stake in my opinion. The unofficial communication with subordinates inside organization has the highest rate in the ranking of all the 6 leaders. It is concurred with the theory that for superior leaders the highly important factor is getting information inside the corporation. The unofficial or official verbal communication with clients got the highest qualification at 5

organisations. Owner leaders hold up the primary competency in the range of communication outside the corporation, and it is typical that these activities are delegated on a low level.

Table 4.

Time values in superior leaders communication

Unit: minute

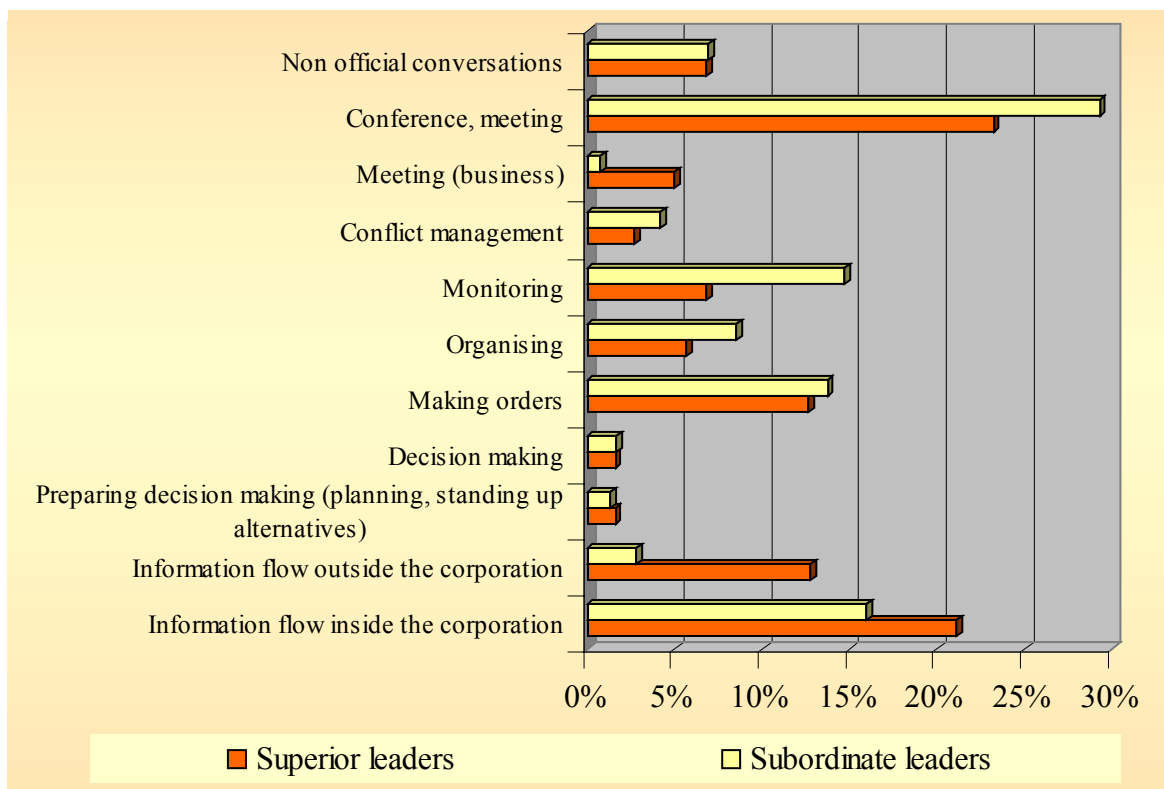
Communication modes	Total minutes	%	In organisational dissociation						Par	Rank
			A1	B1	C1	D1	E1	F1		
Telephone (outgoing)	2175	11%	441	515	132	353	298	436	363	4
Telephone (incoming)	698	4%	110	81	157	112	90	148	116	7
Direct verbal communications (official-inside corporation)	7850	41%	1284	713	1926	1514	998	1415	1308	1
Direct verbal communication (official – with client)	2605	13%	364	757	181	376	529	398	434	2
Direct verbal communication (with other official organisations)	1177	6%	199	265	125	219	239	130	196	5
Direct verbal communication (non-official)	536	3%	102	45	120	95	72	102	89	9
Written communication (writing, electronical, fax)	362	2%	40	97	43	54	72	56	60	10
To grant others	794	4%	212	124	59	139	165	95	132	6
Reading	656	3%	127	127	74	63	146	119	109	8
State without communication	2444	13%	981	141	100	292	569	361	407	3
Totally:	19297	100%	3860	2865	2917	3217	3178	3260	3216	

Source: Own examinations, 2002-2005

By the results it can be established that examined leaders spend the least time with written communication, and non-official direct verbal communication. Watched the pars it is established that they spend the third least time on reading. Examined the rates in organizational dissociation reading has the lowest rate at two organizations and incoming telephone call has the lowest rate at three organizations.

- *As my comparing examination shows, upper leaders provide less exercises but specific time usage of an exercise is much more. Upper leaders provide problems that need more time to solve, but they are strategically important and important from the aspect of the organisation. The activity of subordinate leaders is inverse. It means that they solve more problems but the specific time usage is lower.*
- *In the communication of upper leaders there are low rates and number of interaction, as my examinations show. It means that they make relatively few decisions, but these decisions are very important for the organisation and tend to solve problems. The rates of subordinate leaders' interactions show that their competence is strongly limited to realize technological processes.*

Figure 7: Comparison of superior and subordinate leaders' interactions



Source: Own examinations, 2002-2005

If we compare the interactions of leaders, we can establish, that official conversations have the biggest rate, more than 1/5, independently from assignment (figure 7.). We can observe the biggest difference in comparison of the direction of information flow outside corporation, because it is at superior leaders four times as much as subordinate leaders. The ratio of meeting at superior leaders is five times more but the ratio of information flow inside corporation is more significant at superior leaders too. Non-official conversation has almost the same ratio in leader

communication. The proportion of other interactions was higher unambiguously at subordinate leaders. The biggest difference is observed at the ratio of monitoring, because it is two times more at subordinate leaders as at owners.

It can be established by comparison examinations that there is not such a communication activity that is absolutely the competency of superior or subordinate leaders. By the result of interaction examinations superior leaders' interaction diagram is not in harmony with the activities that came from their assignment. It can be established that there is harmony between decision making, meeting and conflict management interactions and assignment at superior leaders. There is a contradiction at the ratio of getting information inside and outside corporation. The ratio of organisation, monitoring and order interactions are similarly high.

➤ *I am one of those who first used the method of log-linear analysis in the examination of management with LEM software. I tried to find the answer of the question, what is the occur feasibility of leader activities identified by interaction and communication modes in different leading levels. It can be established by the inland and external professional literature, that there were no similar examinations in this part of management studies until now. Inland literature is particularly about methodical innovation, economical-, biological-, and sociological analysis.*

I made log-linear examinations by the datas I collected from the leader communication examination. My aim was to examine by the collected datas what is the probability of leader interactions at different assignment leaders in the six examined organisations. I analysed the number of interaction datas for every observed organisations and leaders with the method General Log linear Analysis. With LEM software I made probability theory for interaction datas.

The program part of the model set up for interactions and leader types:

man 3	where: A	the types of interaction (11)
dim 11 2 6	B	observed leaders (superior, subordinate) (2)
lab A B C	C	observed organisations (6)
mod B A	B/A	connections between leaders and interactions, conditional probability

From the outputs of the running programme we can establish the probability percentage of interactions at different leaders. By the results I made the next statements:

- From the identified 11 interaction types just two have higher probability ratio at superior leaders. The chance of getting information outside the corporation is triple (74,14 %), meeting has four times more chance at superior leaders as at subordinate leaders.

- At an unwaited observation the chance of monitoring interaction is the biggest at subordinate leaders (77,32 %) it means three times more as at superior leaders. After comes the conflict management (71,02 %) than the organisation (70,51 %). For these the chance is twice at subordinate leaders.
- Happening probability other interactions is under 70 % at subordinate leaders. The probability of meeting and sitting is 66,59 %, order and disposal is 63,22 %, decision making is 62,96 % and non-official conversation is 61,63 %.
- The lowest ratio has the information flow inside corporation (54,52 %) and decision planning (56,52 %), so the chance to identify these interactions at subordinate leaders is just 4-6 % higher.

The other model made for interactions and leader types were completed with organisations. The program part is:

man 3	<i>where:</i> B/AC is conditional probability in connection between interactions
dim 11 2 6	and leaders considering organisations, where AC means the common
lab A B C	happening probability.
mod B AC	

The running results of programme show what is the happening probability of identified interactions by organisations and leaders. The log-linear analysis strengthens the results of descriptive statistical methods. By the analysis of observed organisations it can be established that the probability is to find superior leaders at meetings or identifying information flow outside corporation during a visit. The probability of organisation, monitoring and conflict management interactions is bigger at subordinate leaders.

4. NEW AND NOVEL RESULTS OF THESIS

- I made my own definition for the examined professional, organisational and leader communication by the literature and theoretical examinations. In my opinion professional communication is the flow of professional information between the producer and institutional sector. Organisational communication means the information system within the organisation. Its main aim is to coordinate, harmonize and operate organisational processes. The leader communication is the part of organisational communication, and it is to realise leader exercises.
- By the examination of professional communication I state that the job of consultants and extensionals have similar characteristics. These two professional communication modes have parallel attributes. In these two ways of communication the exercises are not separated than repeated.

- Producers mostly demand informations in connection with economics, for example economical, application and market informations as the information in the results of the examination show. The demand of professional, technological and technical informations is just secondary.
- I established that the upward and downward communication have special position in consultant organisations. In this structure downward communication has the same difficulties as upward communication. In the organisational structure of the consultant organisations there is no downward hierarchy and inferior-superior relation. The success and effectiveness of downward communication is determined by the factors of producers' information need and the authenticity of consultant.
- The structure of organisation and inner ways of organisational communication has a basic role in information flow, as the influential factor analysis of professional communication shows. The stability of consultant structures and the build up and stabilization of communication ways have basic importance in professional communication.
- Communication exercises are basically affected by the position of the leader in the organisational hierarchy. The rates of ordering, checking, reporting, making somebody account, asking reports and making reports are different in different leading levels. Upward leaders give less than half exercises than they check. Middle class leaders give three times more exercises than those they check. So by the results it can be established that two times more reports are made monthly than making somebody account. There are differences in the rates of frequency of report making and asking. Low level leaders make two times more reports monthly than they ask. Middle and high level leaders ask more reports than they make.
- Examination results show that in organisational communication basically oral communication forms are determining. Leaders evaluated this communication form as the most effective. The frequency analysis shows that there is a connection between the effectiveness and frequency of communication forms. The same oral communication forms are the most effective that are often used at organisations.
- The significant part of interviewed leaders said that they spend less than ten hours on meetings a month. The leaders of examined agricultural organisations spend less time on communication forms than it is written in professional literature or than I assumed in my examination. It means that other communication forms like orders, official conversations, and discussions are more effective than meetings.

- In my questionnaire examination I used main component- and cluster-analysis to show the communication factors that cohere by similar variance and were qualified the same importance and effectiveness by respondents.
- My time-study observations of leader exercise gave the chance to make interaction examinations by communications. Communication process can be defined as interaction between participants. Examined the subject of interaction I could identify what kind of leader exercise it tends to. Based on the results of these examinations I demonstrated that in leader activities how often and how importantly leader exercises come forward and what kind of correspondences and differences can be show in the activities of different leader levels.
- I am one of those who first used the method of log-linear analysis in the examination of management with LEM software. I tried to find the answer of the question, what is the occur feasibility of leader activities identified by interaction and communication modes in different leading levels.

5. PUBLICATIONS IN THE FIELD OF THESIS

Detail of book, chapter:

1. **Dajnoki K.:** *Szervezeti kommunikáció* (9. fejezet) 102-111. p.
In.: *Vezetéseméleti ismeretek* (szerk.: Berde Cs.) Társszerzők: Berde Cs., Dienesné K.E., Gályász J., Juhász Cs., Szabados Gy., Campus Kiadó, Debrecen, 2003.
2. **Dajnoki K.:** *Kommunikáció* (2.16. alfejezet) 28 p., *Kommunikáció* (3. fejezet) 32-52. p.
Dajnoki K. – Juhász Cs.: *Kommunikációs tréning* (4. fejezet) 53 – 57. p.
In.: *Vezetési esettanulmányok módszertana* (szerk.: Berde Cs.) Társszerzők: Berde Cs., Dienesné K. E., Gályász J., Juhász Cs., Szabados Gy., Campus Kiadó, Debrecen, 2003.
3. **Dajnoki K. – Juhász Cs.:** *Kommunikációs alapismeretek* (1. fejezet) 7-21. p., *Szakmai és szervezeti kommunikáció* (2. fejezet) 22-37. p.
In.: *Vezetési ismeretek* (szerk.: Berde Cs. – Felföldi J.) Társszerzők: Berde Cs., Felföldi J., Szabados Gy., Szűcs I., Campus Kiadó, Debrecen, 2004.
4. **Dajnoki K.:** *A kommunikáció csatornái* (7/I. fejezet) 123-153. p., *Kommunikáció a szervezetben* (7/II. fejezet) 154-178. p.
In.: *Menedzsment nem csak vezetőknek.* (Szerk.: Bácsné Bába É. - **Dajnoki K.**) Társszerzők: Bácsné Bába É. – Berde Cs.– Dienesné K. E. – Juhász Cs. – Szabados Gy., Szaktudás Kiadó Ház Rt., Budapest, 2005.
5. **Dajnoki K.:** *Szervezeti kommunikáció* (15. fejezet) 121-127. p.
In.: *Menedzsment* (Szerk.: Láczy M. – Berde Cs.) Társszerzők: Bácsné Bába É. - Berde Cs. – Bilanics Á. - Dienesné K.E. – Gályász J. – Juhász Cs. – Láczy M. – Szabados Gy. – Szilágyi B., Nyíregyházi Főiskola Gazdasági és Társadalomtudományi Kara, 2005.

University notebook (co-author):

6. Berde Cs. – **Dajnoki K.** - Dienesné K. E. – Gályász J. – Juhász Cs. – Szabados Gy.: Vezetési gyakorlatok és esettanulmányok. Vider-Plusz Bt., Egyetemi jegyzet, Debrecen, 2003. 29. p.

Scientific proceedings:

7. **Dajnoki K.:** A szakmai és szervezeti kommunikáció tartalma. Agrártudományi közlemények (Acta Agraria Debreceniensis), Debrecen, 2002. 43-46. p.
8. **Dajnoki K.:** A vezetés és a kommunikáció összefüggései. Agrártudományi közlemények (Acta Agraria Debreceniensis), Debrecen, 2003. 248-255. p.

Papers in Conference – refereed proceedings:

9. **Dajnoki K.:** Szervezeti kommunikációs vizsgálatok a szaktanácsadók körében. Tartamkísérletek, tájtermesztés, vidékfejlesztés Nemzetközi Konferencia, Debrecen, Nyírlugos, Nyíregyháza, Livada 2002. 123-128. p.
10. **Dajnoki K.:** Connection between professional and organisational communications in agricultural extension. VIII. Nemzetközi Agrárökonómiai Tudományos Napok, Gyöngyös, 2002. 194-199. p.
11. **Dajnoki K.:** Szakmai kommunikációs tapasztalatok a Jász-Nagykun-Szolnok megyei falugazdászok körében. „Innováció a tudomány és a gyakorlat egysége az ezredforduló agráriumban” nemzetközi konferencia kiadványa, Debrecen, 2002. 185-190. p.
12. **Dajnoki K.:** The role of information in organisational communication. „Agrárgazdaság, vidékfejlesztés és agrárinformatika az évezred küszöbén” nemzetközi konferencia CD kiadványa, Debrecen, 2003., összefoglaló: 238. p.
13. Berde Cs. – **Dajnoki K.** – Juhász Cs. – Szabados Gy.: The role of professional communication in the cooperation between organizations. „Aktuálne problémy manazmentu a marketingu vo vyucbe na vysokych skolách” Nemzetközi konferencia CD kiadványa, Nitra, 2003. 28-31. p.
14. **Dajnoki K.:** Fejlesztési lehetőségek a szakmai kommunikáció területén. IX. Nemzetközi Agrárökonómiai Tudományos Napok CD kiadványa, Gyöngyös, 2004. összefoglaló: 254. p.
15. **Dajnoki K.:** Vezetői kommunikáció vizsgálata a mezőgazdaságban. XI. Ifjúsági Tudományos Fórum CD kiadványa, Keszthely, 2005.

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16. **Dajnoki K.:** A kommunikációs formák szerepe falugazdászok körében. XXIX. Óvári Tudományos Napok nemzetközi konferencia CD kiadványa, Mosonmagyaróvár, 2002., összefoglaló:137. p.
17. **Dajnoki K.:** Vezetési funkciók megvalósításának vizsgálata vezetői kommunikáció alapján. „Az Európai Unióban” nemzetközi konferencia CD kiadványa, Mosonmagyaróvár, 2004., összefoglaló: 17. p.

Posters in refereed proceedings:

18. **Dajnoki K.:** Subject-matter of professional and organisational communications considering agricultural extension. VIII. Nemzetközi Agrárökonómiai Tudományos Napok, Gyöngyös, 2002. 200-205. p.
19. **Dajnoki K.:** The role of communication in conflict management. IX. Nemzetközi Agrárökonómiai Tudományos Napok, CD kiadvány, Gyöngyös, 2004. összefoglaló: 282. p.

Posters in non-refereed proceedings:

20. **Dajnoki K.:** Falugazdászok feladatainak összehasonlító vizsgálata. XXIX. Óvári Tudományos Napok nemzetközi konferencia CD kiadványa, Mosonmagyaróvár, 2002., összefoglaló: 138. p.
21. **Dajnoki K.:** Szervezeti kommunikációs tapasztalatok mezőgazdasági szervezetek körében. „Az Európai Unióban” nemzetközi konferencia CD kiadványa, Mosonmagyaróvár, 2004., összefoglaló: 90. p.

Summaries:

22. **Dajnoki K. – Juhász Cs. – Szabados Gy. – Tóth A.:** Első számú vezetők kommunikációjának időérték elemzése. „Közép –Európa mezőgazdasága – lehetőségek és kockázatok” XLVII. Georgikon Napok és 15. ÖGA találkozó kiadványa, Keszthely, 2005., összefoglaló: 262. p.
23. **Dajnoki K. – Szabados Gy. – Tóth A. – Juhász Cs:** Kommunikációs vizsgálatok különböző szervezeti formákban. „Közép –Európa mezőgazdasága – lehetőségek és kockázatok” XLVII. Georgikon Napok és 15. ÖGA találkozó kiadványa, Keszthely, 2005., összefoglaló: 279. p.