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USING THE COMMUNICATION METHODS, TOOLS AND SUPPORT DURING MANAGEMENT OF PROJECT COMMUNICATION IN INDUSTRIAL MANUFACTURING ENTERPRISES

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Abstract

Effective communication is the most significant ability for project manager and successful project. However, during the management of projects communication, it is very often forgotten, often overlooked or taken for granted. In the management of projects, it is principally necessary to deal with communication during all project lifecycle. Within the project communication, it is very important to define the main methods, tools, support of communication and frequency of communication; these belong to the most important elements of the communication channel which is very often forgotten. Therefore, the main aim of the paper is to analyse the utilisation of the communication channel: communication methods, communication tools, communication frequency and to support project communication in industrial manufacturing enterprises in Slovakia. Based on the research, we can conclude that communication channel is not adequately elaborated in international methodologies and standards of project management as well as in industrial manufacturing enterprises. These facts are very negative, conclusion and it is therefore necessary to deal with the problem.

Key words

communication channel, project communication, methods, tools, support of communication

INTRODUCTION

Contemporary dynamic environment, fierce competition, globalization and internationalization of business require searching for new, more effective and efficient approach in the market (Dzopolic, Zubovic, Bradic-Martinovic, 2010). In the last 40 years, we have seen rapid changes in technology and global competition. Based on these changes, the

enterprises have become more complex and dynamic. The companies have begun to distinguish by their products but also by the ways of management. Enterprises increasingly use project management to control and lead project. Slovak enterprises perceive project management as a way to improve their competitiveness (Brieniková et al., 2010). In the activity of present organizations, unique activities – projects are becoming more and more important (Relich, 2010). Project management contains such elements as management of time, cost, communications, procurement, quality, risk or scope of project (Relich, 2012).

If project staff does not know what their tasks are, or how to accomplish them, then the entire project will grind to a halt. If you do not know what the project staff is (not) doing then you will be unable to monitor project progress. And if you are uncertain of what the customer expects of you, then the project will not even get off the ground. Maintaining the open, regular and accurate channels of communication with all levels of project staff and stakeholders is vital to ensuring the smooth flow of instructions from customer to factory floor and sufficient warning of risks and chances to enable early assessment and preparation (Buehring, 2009).

Project management starts with a capital "C" that stands for communication, communication, communication (Gnadt, 2009). Communications are a critical deliverable of every successful project and a key project management soft-skill. Project communications is one deliverable that project managers are personally responsible for and it is one that has a large influence over your project's success or failure (Nielsen, 2009).Project management and communication are important areas which belong inseparably together. All participants (stakeholders) on the project have to comply with the principles, and therefore, it is necessary to have a certain level of communication which influences the success of the project.

The communication channel as a main area of project communication management

In this paper, we selected four main areas that should be the part of the project communication management. In each area, we defined the typical elements of project communication management (Figure 1).

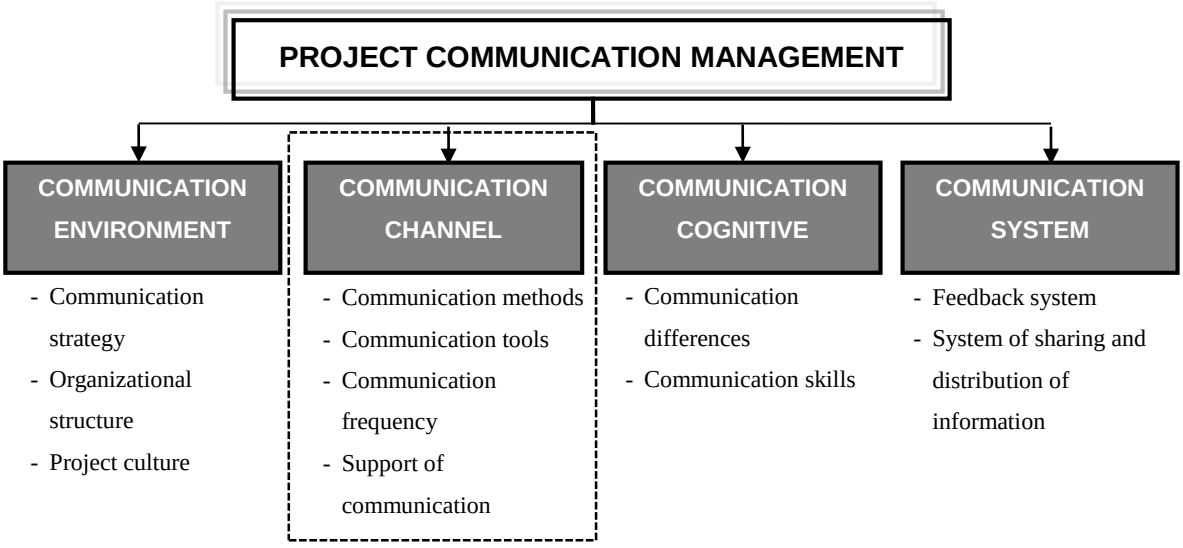


Figure 1: *The main areas of project communication (own processing)*

This paper deals with the second (highlighted) part, which is very important in the management of project communication. It is a communication channel which includes mainly: communication methods, communication tools, communication frequency and support of communication. This paper will focus mainly on the methods, tools and support of communication and frequency of communication.

For the purposes of this paper, we defined the basic distribution methods, tools and support of communication for the effective management of project communication, which are shown in Table 1. The methods, tools and support of communication in the table are arranged in order of their application in projects in industrial manufacturing enterprises in Slovakia.

Table 1: Methods, tools and support of communication (own processing)

Synchronous and asynchronous communication methods	Communication tools	Support of project communication
Synchronous – straight - Meeting - Personal interview - Phone call - Workshop - Conference - Social Activities **Synchronous - virtual** - E-conference *teleconferencing* *videoconferencing* *tele-videoconferencing* - Internet forum **Asynchronous** - Newsletter - Project documents - Letter - Board - Website	- E-mail, - Telephone - Presentation - Video call - Fax - Paper - Unified communication - Chat - Internal chat - Social network - Video recording	- Microsoft Outlook - Microsoft Net Meeting - Calendar from company Google - Microsoft Office Communicator

Note: The table in part of "Support of project communication" published the products of Microsoft (www.microsoft.com) and Google (www.google.com)

Within the project communication, it is necessary to define the support of communication (software) that helps to effective and rapid communication during the management of project in industrial manufacturing enterprises.

MATERIALS AND METHODOLOGY OF EXPERIMENT

In this part of paper, we will describe the main aim of the paper, partial goals of the paper, research questions which were asked in the survey, and also methodology of the survey - theoretical research and empirical research.

The main aim of the paper is to analyse the utilisation of the communication channel: communication methods, communication tools and support of project communication in industrial manufacturing enterprises in Slovakia.

The main aim was analysed on the basis of the objectives of elaborating the research questions:

1. To analyse communication channel regarding the international methodologies and standards of project management ((ICB®, PRINCE2®, PMBoK®, ISO 1006 STN));
2. In industrial manufacturing enterprises in Slovakia to analyse methods, tools and support of project communication;

3. To analyse the basic methods used during managing the project communication in industrial manufacturing enterprise;
4. To analyse the basic tools used during managing the project communication in industrial manufacturing enterprise;
5. To analyse the support of communication used during managing the project communication in industrial manufacturing enterprise;

The given partial goals of the paper serve as a basis for elaborating the research questions. In the contribution, we chose two **research questions**, which will be pursued in the following practical part of the article – Attained results:

1. Is the area of communication channel which includes methods, tools and support of communication sufficiently developed in the international methodologies and standards of project management (ICB®, PRINCE2®, PMBoK®, ISO 1006 STN)?
2. Do the industrial manufacturing enterprises in Slovakia (functional, processes and project-oriented) deal with planning the methods, tools and support of communication during managing project (small, medium-sized and large)?

Research methodology

Before describing and analysing one of the most important areas of communication channel comprising communication tools, communication methods and support of communication in industrial manufacturing enterprises, we will start with analysing the area of communication channels on the basis of the theoretical research of international project management methodologies and standards.

The aim of the theoretical research was to analyse whether the international methodologies and standards of project management deal with communication channels, i.e., if they have defined communication methods, communication tools and support of project communication.

For comparison, we selected: standard ICB® (IPMA® Competence Baseline) issued by IPMA® (International Project Management Association®), methodology PMBoK® (Project Management Body of Knowledge®) issued by PMI® (Project Management Institute®), methodology PRINCE2® (Project in a Controlled Environment®) issued by OGC (Office of Government Commerce) in UK and standard STN ISO 10006 (Quality management systems – Guidelines for quality management in projects).

Beside theoretical research, we also made the empirical research which was carried out through qualitative and quantitative research of communication channel as a main area of project communication. The sample of research was prepared by industrial manufacturing enterprises in Slovakia.

Qualitative research of communication channels contains the following elements: communication methods, tools and support of communication. The aim of this part of research was to analyse whether the project managers in practice deal with the area of communication channel during the management of projects.

In the research, we interviewed and selected three medium-sized industrial enterprises (number of employees from 50 to 249) and one large industrial enterprise (over 250 employees). Information about communication channel was identified through in-depth individual interviews - semi-structured.

Quantitative research of communication channel was chosen because it is very good and easily quantifiable. Information about communication channel was surveyed by questionnaire. The research involved 128 industrial manufacturing enterprises which use project management. The aim of questionnaire was to analyse whether the industrial manufacturing enterprises in Slovakia deal with communication channel during the management of projects.

The survey was carried out in 85 small, medium and large industrial enterprises in Slovakia (128 respondents).

REACHED RESULTS

The following part of the paper describes the basic results of theoretical and empirical research.

For comparison, we selected: standard ICB®, methodologies PMBoK® and PRINCE2® and standard STN ISO 10006. The most important elements that make up the communication channel are: communication methods, communication tools, support of project communication and communication frequency. These four elements were examined in international methodologies and standards of project management.

Comparison of the above-mentioned project management methodologies and a standard is very difficult because of their different concepts and objectives. Moreover, they differ also in terms and vocabulary. They apply different areas of knowledge, tools, techniques, procedures, material presentation and other aspects of project communication. The main results are shown in Table 2.

Table 2: Comparison of communication channel according to the selected project management methodologies and standards (own processing)

Monitored elements	Project management methodologies and standards			
	ICB®	PMBoK®	PRINCE2®	STN ISO 10006
Communication channel				
Communication methods	☑	✓	☑	☑
Communication tools	☑	✓	☑	☑
Support of communication	☒	☒	☒	☒
Communication frequency	☑	☑	☑	☑

Explanatory Notes
- ☒ *methodology or standard does not include a specific element*
- ☑ *methodology or standard describes the element only briefly*
- ✓ *methodology or standard describes in detail, what the specific element addresses*

Based on Table 2 we can state that the international methodologies and standards of project management describe these elements only briefly. In methodologies and standards, most often tools and methods are prescribed. However, in selected methodologies and standards, they are defined only very briefly. Specific procedure for their use in the management of project communication is not defined. Very often, communication channel and its basic elements are engaged in PMBoK® methodology, which is the one of the best theoretical methodologies. However, practical application of the elements is not defined there. Support of communication is not developed in the international methodologies and standards. Based on the above-mentioned theoretical results of this survey we can conclude that it is necessary to deal with this area.

Qualitative research of communication channel

According to the qualitative research which was carried out through semi-structured in-depth individual interviews, we can state the following results (Table 3):

- The industrial manufacturing enterprises which use their own methodology or the ICB® methodology for managing their project deal with all elements (methods, tools and

frequency), which is a very positive finding. These enterprises do not deal with the support of communication.

- The medium-sized industrial manufacturing enterprises using the PMBoK® methodology deal with the methods, tools and frequency of communications only descriptively.

Table 3: Processing of qualitative research (own processing)

GENERAL INFORMATION				
	Enterprise A	**Enterprise B**	**Enterprise C**	**Enterprise D**
Size of enterprise	Large (over 250 employees)	Medium-sized (50-249 employees)	Medium-sized (50-249 employees)	Medium-sized (50-249 employees)
Sector	automotive industry	engineering industry	engineering industry	chemical industry
Job position	Project manager	Project manager	Project manager	Project manager
Analysed project	Large project (duration minimum 12 months)	Large project (duration minimum 12 months)	Medium-sized project (duration min 3 months)	Small project (duration minimum 2 months)
Methodology/standard of project management	own methodology	own methodology	PMBoK®	ICB®
Using the management of project communication according methodology/standard of project management	yes	yes	only partially	no

Does your document – methodology of project communication management content following elements of communication channel?				
Communication methods	✓	✓	☑	✓
Communication tools	✓	✓	☑	✓
Support of communication	☒	☒	☒	☒
Communication frequency	✓	✓	☑	✓

Explanatory Notes
- ☒ *methodology or standard does not include a specific element*
- ☑ *methodology or standard describes the element only briefly*
- ✓ *methodology or standard describes in detail, what the specific element addresses*

Quantitative research of communication channel

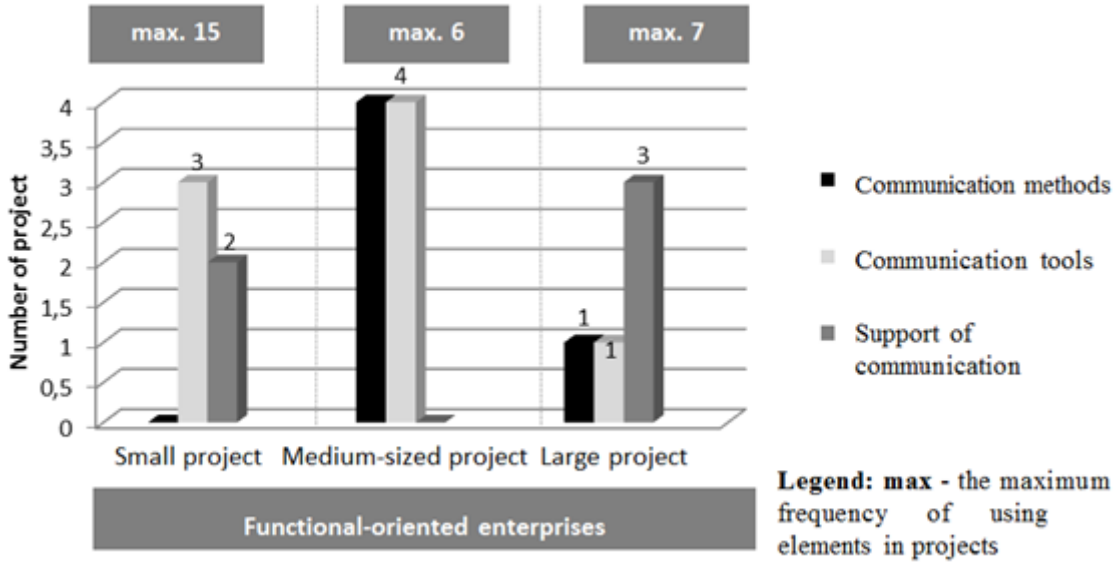
Based on Table 4, we can state that functional, process and project oriented industrial manufacturing enterprises with areas as communication methods, tools and support of communication deal only little.

Table 4: Percentage of enterprises engaged in the communication environment (own processing)

	Functional-oriented enterprises		Process-oriented enterprises		Project-oriented enterprises	
Are you dealing with communication channel during management of project?	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
COMMUNICATION CHANNEL						
*Percentage	**22 %**	78 %	**27 %**	73 %	**28 %**	72 %
**Confidence interval	<13 ; 31>	<69 ; 87>	<16 ; 38>	<62 ; 84>	<20 ; 36>	<64 ; 80>

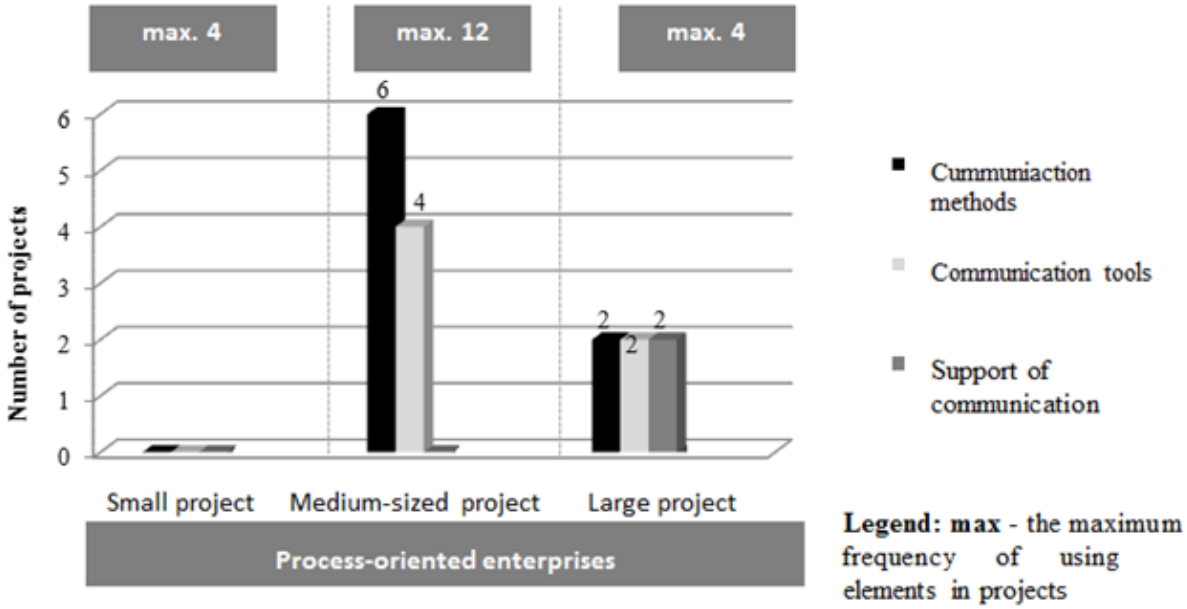
The level of using communication channels in small, medium-sized and large projects is shown in the following graphs (graph 1-3).

Graph 1 shows the area of communication channel and its main elements: communication methods, tools and support of communication in functional-oriented industrial enterprises in Slovakia. Based on this graph, we can conclude that functional-oriented enterprises use mainly communication method during management of project, but only a little.



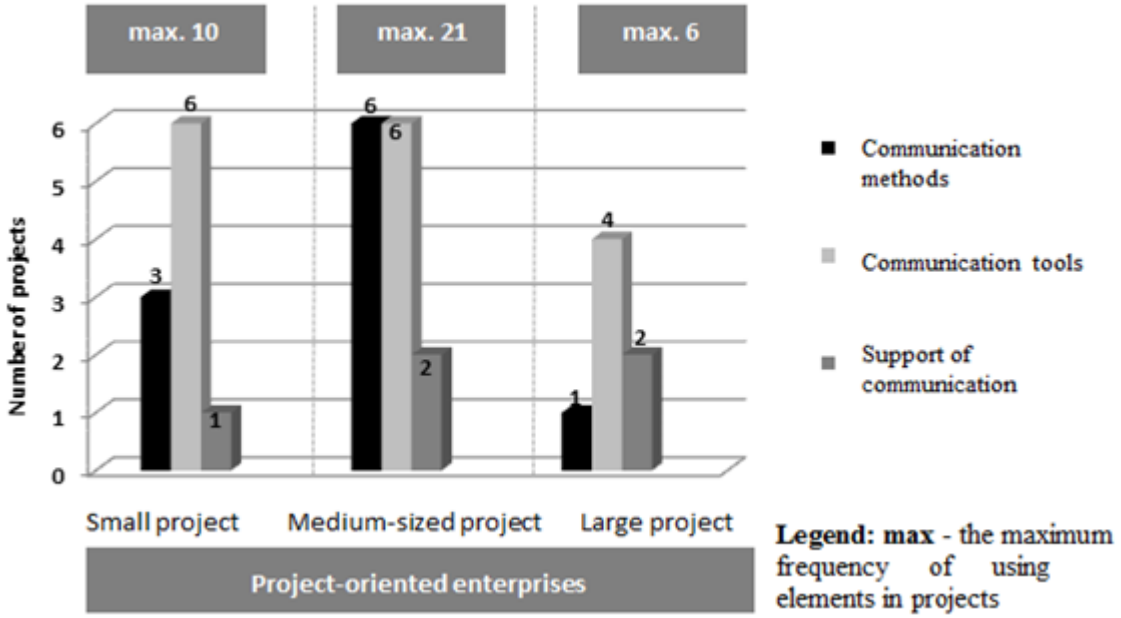
Graph 1: *Analysis of communication channel in function-oriented enterprises (own processing)*

Graph 2 suggests that medium-sized and large projects in process-oriented enterprises in Slovakia most often involve mainly communication methods and communication tools.



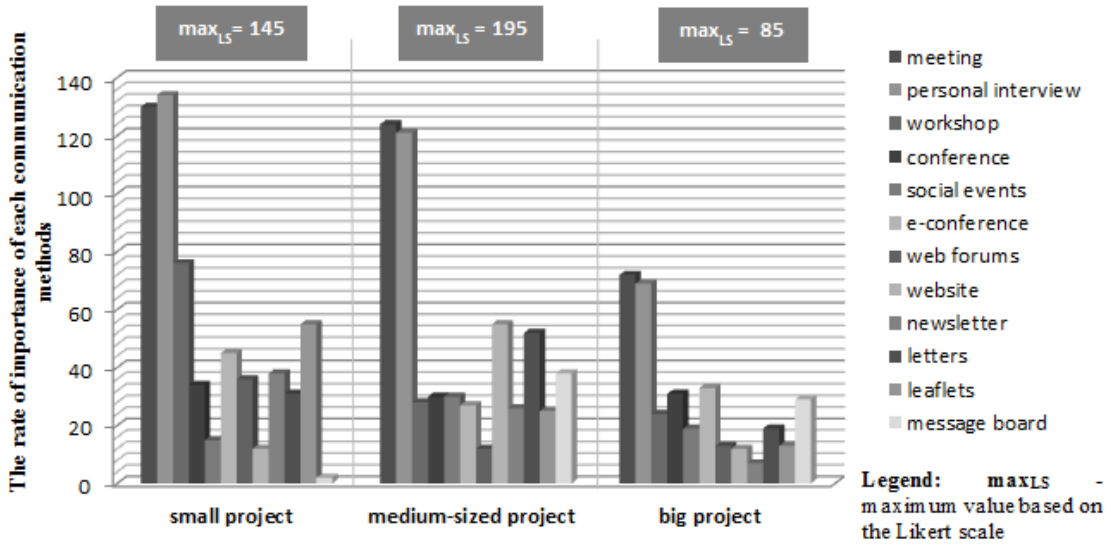
Graph 2: *Analysis of communication channel in process-oriented enterprises (own processing)*

The best results were attained in project-oriented enterprises where industrial manufacturing enterprises use the communication methods, tools but also support of communication. Medium-sized projects should use these elements much more.



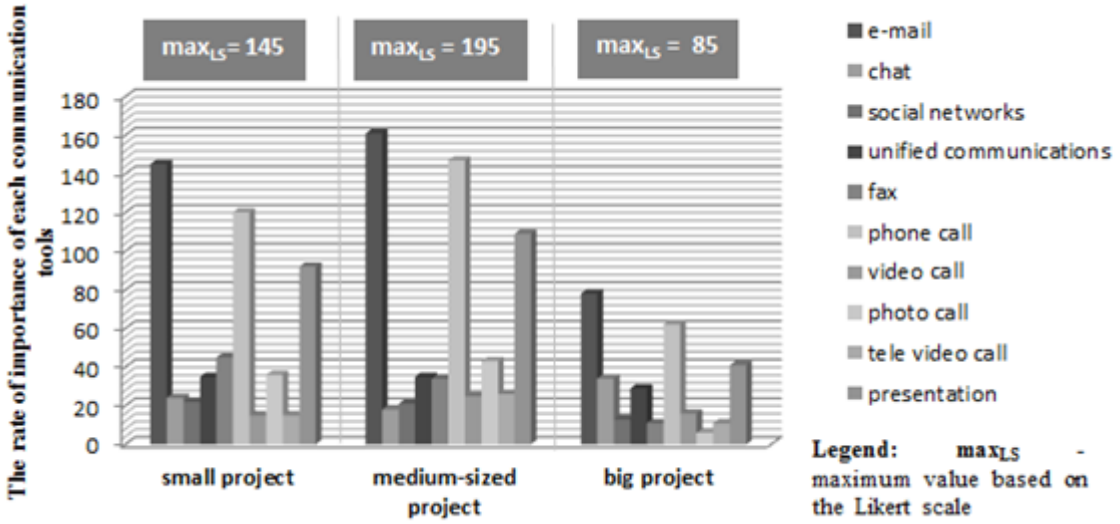
Graph 3: *Analysis of communication channel in project-oriented enterprises (own processing)*

The following part of the paper deals with using the methods, tools and support of project communication during the management of small, medium-sized and large projects. Graph 4 shows meeting and personal interview prevails as the most important method in all types of projects.



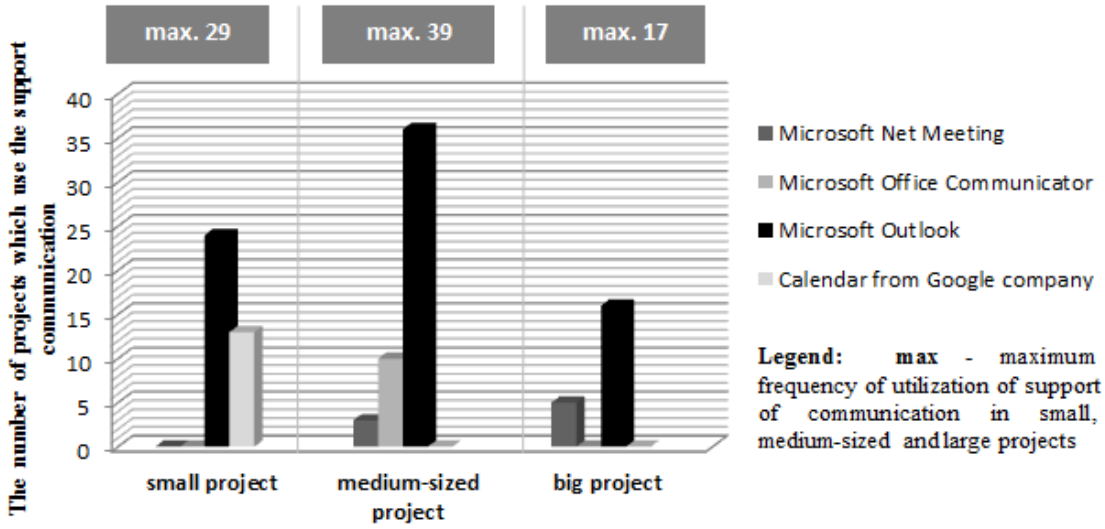
***Graph 4**: Communication methods (own processing)*

The most widely used tools during of all types of project are: e-mail, phone call and presentation (see Graph 5).



***Graph 5:** Communication tools (own processing)*

Microsoft Outlook (Graph 6) is very often used in all types of project to support communication. The medium-sized projects use also Scheduler and Redmine, and large projects use Lync and Google Doc.



Graph 6: *Support of communication (own processing)*

DISCUSSION

The suggestion of Communication channel should be a part of Planning the project communication. The project communication management plan should be part of the project plan, and therefore its preparation and processing is very important. In addition to identifying stakeholders and identifying communication content, we propose to include to the process also identification of methods, tools and support of communication. The proposal is shown in Figure 2.

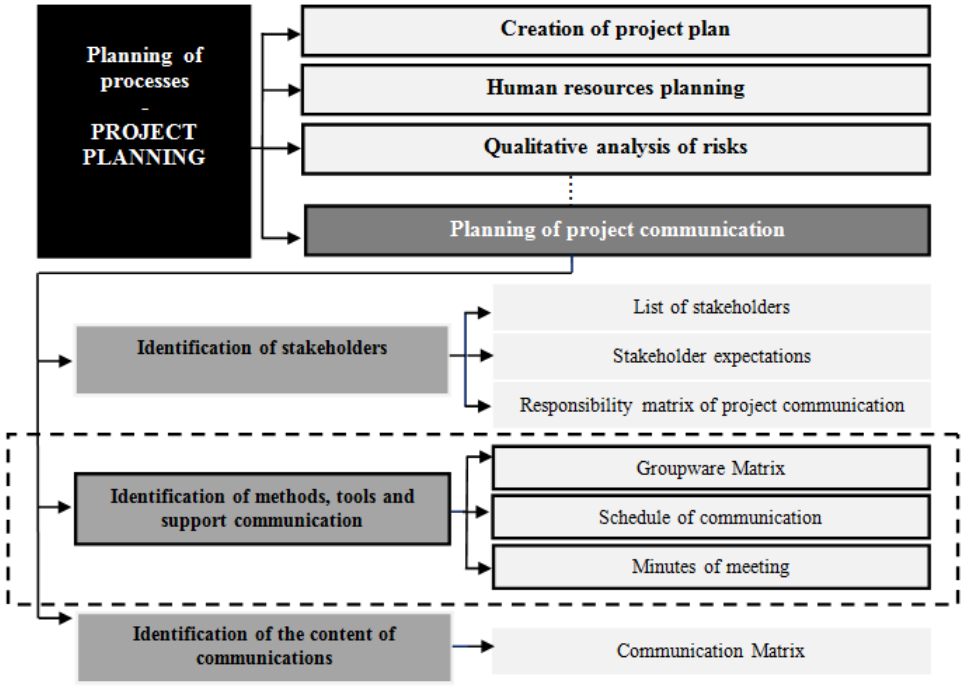


Figure 2*: Planning of project communication – Identification of methods, tools and support of communication (own processing)*

Proposed sub-process defines the main communication methods, tools and support of communication which are used throughout the project lifecycle. When compared to international methodologies and standards of project management, this sup-process proposes the specific tool "Time schedule of communication" and individual synchronous (ongoing in real-time) and asynchronous (ongoing in different times) methods and tools processed at Matrix Groupware. They are complemented by support of communication.

CONCLUSION

The present economy is full of turbulent changes, both social and technological, which create completely new conditions for company activity (Cagáňová, et al. (2014), Čambál et al. (2012), Relich et al. (2012). Communication in project management and in the project is a very important point. The common management skill of effective communication is crucial to project access because project management involves formal and informal communication at different levels in the organization (Verma, 1996). A communication channel belongs to the main areas of the project plan and project communication management, and therefore it is necessary to deal with communication channel during management of project. A very important point in the project communications is communication channels and their main elements. This area includes communication tools, communication methods, communication frequency and support of communication which have a significant impact to project communication and for plan of project communication. The industrial manufacturing enterprises in Slovakia during the project communication management deal mainly with methods of communication. These enterprises very often forget to support communication, which has significant impact on the quality of information and the entire project and project management.

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