Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 150 (2014) 678 – 689

Procedia
Social and Behavioral Sciences

10th International Strategic Management Conference

Project Management and Its Tools in Practice in the Czech Republic

Jana Kostalova[a], Libena Tetrevova[b*]

[a,b] *University of Pardubice, Studentska 95, 532 10 Pardubice, Czech Republic*

Abstract

The paper deals with the problems of project management and project management tools in practice in the Czech Republic. The introduction describes the essence of project management and characterizes its key tools. Special attention is paid to the analysis and evaluation of the current level of project management and exploitation of the project management tools in the Czech Republic. The paper presents and compares the outcomes of the research carried out by organization Spolecnost pro projektove rizeni with some other global researches from the points of view of project outcomes monitoring, success of project implementation, awareness of project management tools, utilization of project management tools, including software tools, project management knowledge and the reasons why some project implementations fail.

Peer-review under responsibility of the International Strategic Management Conference.

Keywords: Project management; Project management tools; Project management methods; Project management knowledge

1. Introduction

Project management plays an irreplaceable role within management of each modern private, public and not-for-profit organization. It makes it possible to carry out various activities within the defined range and quality, within the required period and without exceeding the budget or even with better results than expected. According to the Project Management Institute (2004), „Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements. It is accomplished through the application and integration of the project management processes of initiating,

* Corresponding author. Tel.: +0-420-466-037-789.
E-mail address: jana.kostalova@upce.cz.

Peer-review under responsibility of the International Strategic Management Conference.
doi:10.1016/j.sbspro.2014.09.087

planning, executing, monitoring and controlling, and closing.“. According to the National Standard Competences of Project Management (Pitas et al., 2010), “Project management is the planning, organizing, monitoring and controlling of all aspects of a project and the management and leadership of all involved to achieve the project objectives safely and within agreed criteria for time, cost, scope and performance/quality”. The success of project management is significantly dependent on application of suitable project management tools. Project management involves a number of tools and techniques, where those mentioned in the project management standards by the three biggest branch organizations, Project Management Institute (PMI), International Project Management Association (IPMA) and PRojects IN Controlled Environments 2 (PRINCE 2), can be considered as generally accepted. However, the range of project management tools is growing, while the attention is paid to the tools that help implement the basic project parameters effectively, i.e. the project objective, quality, period and budget, and minimize the related risks, but also the tools that make it possible to manage implementation of more parallel projects (project programs or portfolios). Together with the trend of change and innovation implementations in the form of projects, what is also more and more important in practice is the knowledge and application of project management and its tools. The fact is that the higher the rate of the project management expertise, the higher the probability of successful completion of such projects by its application in practice and the higher their effectiveness; see more in e.g. Patanakul, Iewwongcharoen and Milosevic (2010). However, the level of utilization of project management and its tools is different in different countries, national economy sectors or organization types. The paper aims to analyse and evaluate the current level of project management and utilization of project management tools in the Czech Republic.

2. Literature Review and Hypotheses

2.1. Project Management Tools

The efforts to increase the probability of a project completion, to implement a project within the shortest possible period, in the top quality and with the lowest costs together with elimination of any other possible risks have led to development of a number of project management tools. From wider perspective, it is possible to obtain a detailed knowledge of project management tools, not only in literary sources focused on project management (Gareis, 2005; Meredith and Mantel, 2006; Project Management Institute, 2004), but also in literary sources focused on other connected disciplines as personnel management (Morris and Pinto, 2010), risk management (Chapman and Ward, 2009; Hillson, 2009), change management (Blake and Bush 2008), strategic management (Milosevic and Srivannaboon, 2006; Levin, 2010) and logistics management (Vlckova, 2011; Vlckova, Exnar and Machac, 2012, Vlckova and Patak, 2012).

The project management tools have been developed one by one, and they are subject matters of interest of both the theory and practice of project management, where they are fine-tuned and modified, and new tools are created. In view of the continuous process of changes, it is not possible to provide an exhaustive list of project management tools, but it is possible to mention the best-known and most wide-spread ones. These tools specialize in various project management areas. While some of them are only used in some phases of the project life cycle, others are used in the whole course of project implementation.

The important project management tools include, among others, the Triple Constraint of Project, which represents management of the three basic elements affecting the success or failure of a project: the project scope, time and cost. According to the Project Management Institute (Project Management Institute,

2004), „Project quality is affected by balancing these three factors. High quality projects deliver the required product, service or result within scope, on time and within budget. The relationship among these factors is such that if any one of the three factors changes, at least one other factor is likely to be affected.“. Management of these three elements is often extended by management of risks representing another factor affecting the success or failure of a project.

The project management tool used before starting a project is the Pre-Project Study with Formalized Structure, consisting of an opportunity study and a feasibility study. An opportunity study deals, within the appropriate project purpose, with the questions and answers relating to the expected development of the market and the conditions in the solver's organization. It analyses the initial situation and evaluates the fact whether it is suitable to implement the purpose in question. It usually includes a SWOT analysis. A feasibility study compares suitable ways of the project purpose implementation. It includes estimation of costs, time and requirements concerning the sources, including assessment of availability of individual sources, and potential risks for each possible way of implementation. In conclusion, a feasibility study selects and recommends the most suitable way of project implementation. The above studies serve for detailed assessment of the fact whether the project purpose is viable and whether it is in compliance with the project solver's general strategy. They form the basis both for the initial evaluation of the project and for the final decision on the project implementation under the defined conditions. (Haponava and Al-Jibouri, 2009).

Another project management tool used at the beginning of project implementation within its basic definition is the Logical Framework Approach (LFA). LFA is „an analytic tool for objectives-oriented project planning and management, it helps clarify the purpose, and the justification for a project, identify information requirements, clearly define the key elements of a project, analyse the project's setting at an early stage, facilitate communication between all parties involved and identify how the success or failure of the project should be measured." (Norwegian Agency for Development Cooperation, 1999). This tool is continuously modified in accordance with the current needs of the project solvers, where the LFA modification examples include the Logical Framework Approach – Millennium (LFA-M), which extends the structured definition of the project by the definition of responsibilities in the initial phase of the project (Couillard, Garon and Riznic, 2009).

The project management tool used in the phase of detailed project planning is the Work Breakdown Structure (WBS). The WBS makes it possible to break the project hierarchically down into individual activities in such a detail to make it possible to assign each activity with responsibilities, labour-intensity and time demands. The WBS structure can be, from the point of view of the project complexity and scope, diversely segmented ranging from simple activity lists to a multi-level structure of grouped activities into comprehensive work packages. The WBS thus enables systematic planning, limits the possibility of omitting key activities or carrying out some activities more times or in unsuitable periods. (Norman, Brotherton and Fried 2008) This tool contributes to better project planning and easier monitoring of the plan, and it is also the basis for further detailed planning of time estimates, costs and committed sources in the form of the resource breakdown structure. (Rad and Cioffi, 2004)

Defining of the individual activities in the form of the WBS is closely followed by another project management tool: the Time Planning Using Schedules and Critical Paths, e.g. in the form of Gantt charts. This part of planning includes defining of the time demands of individual activities, their mutual succession and dependence, also in view of availability and performance of individual resources and available technological procedures. To achieve a quality estimate of the time demands of individual activities, it is possible to use estimates on the basis of similarities, standards, professional opinions, or on the basis of simulation (e.g. using the Monte Carlo technique) (Dolezal, Lacko, Machal et al., 2012). A

more sophisticated method of planning the time demands of individual activities is represented by the Program Evaluation and Review Technique (PERT), which does not look for only one project implementation timeline, but it determines optimistic, realistic and pessimistic alternatives of the time demands with different probability of implementation for each activity (Hillier and Lieberman, 2005; Trietsch and Baker, 2012).

A potential tool that can be used for optimization of the project time plans is the Critical Chain Method. The Critical Chain Method works, among others, with the time buffers, which make it possible to adapt the project plan to potential changes better (Goldratt, 1997). This tool is also used in connection with the Theory of Constraints – the method that presumes that each activity has its weak points and limits that slow down the continuous course of activities. This tool helps to search for and identify just these weak points and, at the same time, it helps to seek solutions enabling changes in the problem areas. (Dettmer, 1997)

Once the activities are planned and their time demands and suitable successions are determined, there comes the step where the individual activities are assigned with responsible persons. The project management method of the Responsibility Assignment Matrix (RACI Matrix) or the Linear Responsibility Chart is the method used for assigning and displaying different types of responsibilities for implementation of the appropriate activities to the respective persons in the project. The basic roles that are assigned to the individual activities in this method are as follows: responsible, accountable, consulted and informed. (Melnic and Puiu, 2011; Yang and Chiu-Wen, 2009)

For planning in the area of human resources, it is not only necessary to determine responsibilities, but also to specify the rules of communication within the project. The tool that must be prepared at the very beginning of the project implementation is the Formalized Project Communication Plan. Although communication is a so-called soft part of the project only, the project can face a number of complications without a formalized communication plan and keeping the set rules within the course of the project implementation. The communication plan includes specification of all communication channels and communication participants both inside and outside the project team, and also the types of information, the frequency and forms this information should be transferred in. (Dow and Taylor, 2010; Pitas et al., 2010)

For successful project management, it is necessary to solve not only the content, time and human dimension of the project, but also the financial dimension. The project financial management offers a lot of tools for Financial Evaluation of the Project proposal and implementation. An important part of project financial management is selecting and ensuring the project financing sources and their evaluation from the point of view of the return and effectiveness. Furthermore, financial management includes activities connected with planning the project costs and yields (by budgeting), cash flow planning and their continuous monitoring and evaluating, or ensuring remedial measures. A key part of project financial management is evaluation of their economic effectiveness in planning, during implementation and also evaluation at the end of the project life cycle, where, apart from the static methods (disrespecting the time value of money), e.g. the Payback Period, the dynamic methods (i.e. the methods respecting the time value of money) are used; e.g. the Internal Rate of Return, the Net Present Value (Tetrevova, 2006), or better-founded methods taking social and economic effects of the projects into consideration; e.g. the Social Return of Investment (SROI) (Kratky and Tetrevova, 2012).

In the project implementation phase, it is desirable to have as detailed overview of the course of the project and its compliance with the plan as possible to be able to solve any potential deviations in the appropriate way and as soon as possible. The method enabling the project progress monitoring from the

points of view of its scope, time schedule and expended costs is the Earned Value Management. (Storms, 2008) This method compares the work done with the planned value (Dolezal, Lacko, Machal et al., 2012).

Before its commencement and for the whole course of the project implementation, it is necessary to have an overview of any potential risks related to the project. A Formalized Risk Analysis is an integral part of the proper project management. It includes identification of all such risks, assessment of their possible impacts and probability of their occurrence, and a plan of their elimination. (Benta, Podean and Mircean, 2011)

The method of Agile Project Management belongs to the newer project management methods, defined initially in 2001 for the area of software development projects (Beck et al., 2001) and subsequently extended to projects generally (Koerner, 2005). It is an alternative approach to project management placing a greater emphasis on an individual than on processes, prefers creation of project outcomes to work on documentation, and is open to a higher rate of changes during the project implementation. This approach is mainly focussed on the contributions of individuals and stakeholders, a close cooperation with the project customers, and is based on the willingness to adapt to any potential changes with a higher rate of flexibility, lays stress on the feedback and the checking system.

When the project is finishing, it is possible to apply another project management tool for which it is necessary to collect data for the whole period of the project implementation called the Lessons Learned (also called the Project or Post-Implementation Evaluation). This tool provides, on the basis of structured preliminary and final evaluations of the project, the solver with a source of information for more accurate planning and preparation of next projects, it makes it possible to find and repeatedly apply or improve the project practices. As a result, it brings active utilization of the acquired information in the following projects, cost savings and continuous creation of the know-how in the area of project management. (Jugdev, 2012; Carrillo, Ruikar, and Fuller, 2013)

2.2. Level of Use of Project Management Tools in the Czech Republic

The entrance of foreign investors, the pressure of the economic environment on introduction of innovations across all branches and also the possibility of drawing funds from the sources of the European Union have led in the Czech Republic to the enhancement of the managers' cognizance of project management as an effective tool of managing time-limited one-off changes. Since the beginning of the 21st century, the project approach has been used more and more in our country and projects have started to be solved using the project management tools (Bredillet, Yatim, and Ruiz, 2010; Ernst & Young, 2011; Ernst & Young, 2013).

Application of the project approach is visible in the private, particularly foreign, but also domestic, companies. However, the situation is problematic in this area in smaller companies and also public administration organizations, where the project approach is still in the phase of commencement. From the branch point of view, project management is the most widely spread in the area of development and deliveries of information technologies and telecommunications, and also in the construction industry (Hrazdilova Bockova, 2009).

The situation should be improved both through the activities of newly established branch associations in the area of project management and through the activities of consulting firms offering not only counselling but also education or external project management. In the course of time, not only as a result of the above activities, there is a positive development where we can see an expanding scope of project management leading from management of individual solitary projects to management of project programs and portfolios (Dvorak, Repal and Marecek, 2011).

2.3. Development of Hypotheses

The level of expansion of project management in the Czech Republic can be deduced from the scope of project outcomes monitoring and project implementation success rate. If, in the case of comparison of the course of the project and the plan, the project objective has been met, the time schedule and the project budget have not been exceeded, it is possible to speak about a successful project. Generally, it is mostly expected that the project budget will be exceeded for the reason that it is a smaller problem if the budget has been exceeded than if it is necessary to solve delayed project implementation (Newton, 2008).

H1: The most frequent problem in project implementation is exceeding of the planned budget of the projects.

Together with the expansion of project management in practice, it is possible to expect that the Czech Republic will see a higher level of the knowledge of the basic project management tools and a higher rate of their utilization.

H2: The defined project management tools are familiar to more than 75% of respondents.

H3: The defined project management tools are used in practice by more than 50% of respondents.

Software tools are considered as important project management supporting tools affecting their success. The fact is that the market provides a wide range of software applications. Therefore, it is possible to expect relatively extensive utilization of these tools by the respondents within the performed research.

H4: Software tools for project management support are used by at least 50% of respondents.

The success of project implementation is largely dependent on the level of knowledge of project management problems and on the rate of experience of the responsible persons. A low project success rate is closely connected with the level of qualifications of the human resources involved in project implementation.

H5: The key factor for improvement of the level of project management in the Czech Republic is an increase in the human resources qualifications.

3. Project Management in the Context of Its Tools in the Czech Republic

3.1. Research Goal and Methodology

The present situation in the area of project management and utilization of its tools in the Czech Republic can be illustrated with the outcomes of the research carried out in the first half of 2012 by Spolecnost pro projektove rizeni mapping the period of 2011; see more in (Kratky, et al., 2012), on which the first author of the paper as a member of organization Spolecnost pro projektove rizeni was participating. Spolecnost pro projektove rizeni is a not-for-profit organization representing the International Project Management Association (IPMA) in the Czech Republic, guaranteeing the IPMA certification and providing counselling in the area of project management.

The research was conducted in the form of a survey. The questionnaire consisted of 14 questions mapping the rate of success of projects in practice, utilization of project management tools and the respondents' approach to education in the area of project management. The questionnaire also included identification questions. The questionnaire was drawn up on the basis of proposals and discussion of experts in the area of project management. Subsequently, it was piloted within a one-time training event intended for project managers. In April 2012, an online version of the questionnaire was placed on the website of Spolecnost pro projektove rizeni and subsequently its hard copies were distributed among the

participants of the conference of Projektovy management 2012, Zlin, the Czech Republic. The respondents of the above research were 178 mostly project managers and portfolio managers working across all branches, with experience with implementation of financially more demanding projects with budgets exceeding CZK10 million in organizations with more than 100 employees.

From the outcomes of this research, it is possible to draw conclusions concerning the current form of project management, the project success or the level and scope of application of the project management tools in different types of organizations in the Czech Republic. Outcomes of this research are compared with outcomes of other surveys in area of project management and utilization of its tools: 2012 Enterprise Project Management (Feldman, 2012), Project Management in the Czech Republic (Ernst & Young, 2011) and PMI's Pulse of the Profession (PMI, 2012).

3.2. Project Outcomes Monitoring and Project Implementation Success Rate

The first part of the research carried out by Spolecnost pro projektove rizeni (Kratky, et al., 2012) was focussed on project outcomes monitoring and on the success rate of project implementation from the point of view of keeping the project triple imperative, i.e. meeting the target, not exceeding the time schedule and the budget. 57% of the respondents were not able to judge whether these indicators had been achieved as they did not evaluate the mentioned criteria. As for the respondents who evaluated the rate of success on the basis of these criteria, 36% of the respondents stated that, in 2011, all their projects met the set targets, 17% of the respondents stated that the planned time schedule was not exceeded, and almost 30% of the respondents stated that their projects did not exceed the planned budgets. This implies that keeping the project time schedule seems to be the most problematic indicator. The highest rate of success in the above criteria was achieved by the respondents implementing no more than 3 projects. The obvious reason is the possibility of better concentration on the project management.

In comparison with the worldwide research of the Project Management Institute (PMI, 2012) carried out at the end of 2011 processing answers from 1000 project management specialists from various activity areas, the success rate of the projects carried out in the Czech Republic is relatively low. Within the PMI research, 73% of the projects met the set targets, 67% of the projects were implemented in compliance with the planned time schedule, and 68% of the projects were implemented with the planned budget. (PMI, 2012)

A survey called 2012 Enterprise Project Management run by the Information Week evaluating the level of project management in North America (508 respondents) in 2011 was only focussed on meeting the time schedule of the implemented projects. The respondents of Enterprise Project Management run by the Information Week survey state 50% share of timely implemented projects, which significantly exceeds the figure achieved in the Czech Republic (Feldman, 2012).

3.3. Cognizance of Project Management Tools and Their Utilization

The main part of the survey carried out by Spolecnost pro projektove rizeni (Kratky, et al., 2012) was focussed on the cognizance of individual project management tools and their utilization.

The cognizance of project management tools is relatively high. The Pre-Project Study with Formalized Structure, the Logical Framework Approach, the Time Planning Using Schedules and Critical Paths, the Project Financial Evaluation and the Formalized Risk Analysis are familiar to 90-98% of the respondents. Even most other project management tools are known to more than 75% of the respondents. The only tool

that is not very well-known is the Agile Project Management methods, which have not been encountered by 43% of the respondents.

While the awareness of these tools is relatively high, their utilization in practice is lower. The most widely used project management tools are the Time Planning Using Schedules and Critical Paths (67%), the Work Breakdown Structure (66%), the Project Financial Evaluation (62%), the Responsibility Assignment Matrix and the Formalized Risk Analysis (61%). By contrast, the least widely used tools are the Earned Value Management and the Critical Chain Method (17%).

It is interesting to see how project management tools are used in relation to the number of projects, the budget size and the respondent's working position. The higher the number of solved projects, the wider the use of the Pre-Project Study with Formalized Structure, the Time Planning Using Schedules and Critical Paths, the Critical Chain Method, the Earned Value Management and the Formalized Risk Analysis. The higher the budget, the lower the utilization of the Logical Framework Approach but the wider the use of the Earned Value Management. Project management tools are utilized mostly by project managers themselves, portfolio and program managers and mainly by those managers who have achieved any of the project management certifications.

Figure 1 shows cognizance of project management tools and their utilization in the Czech Republic.

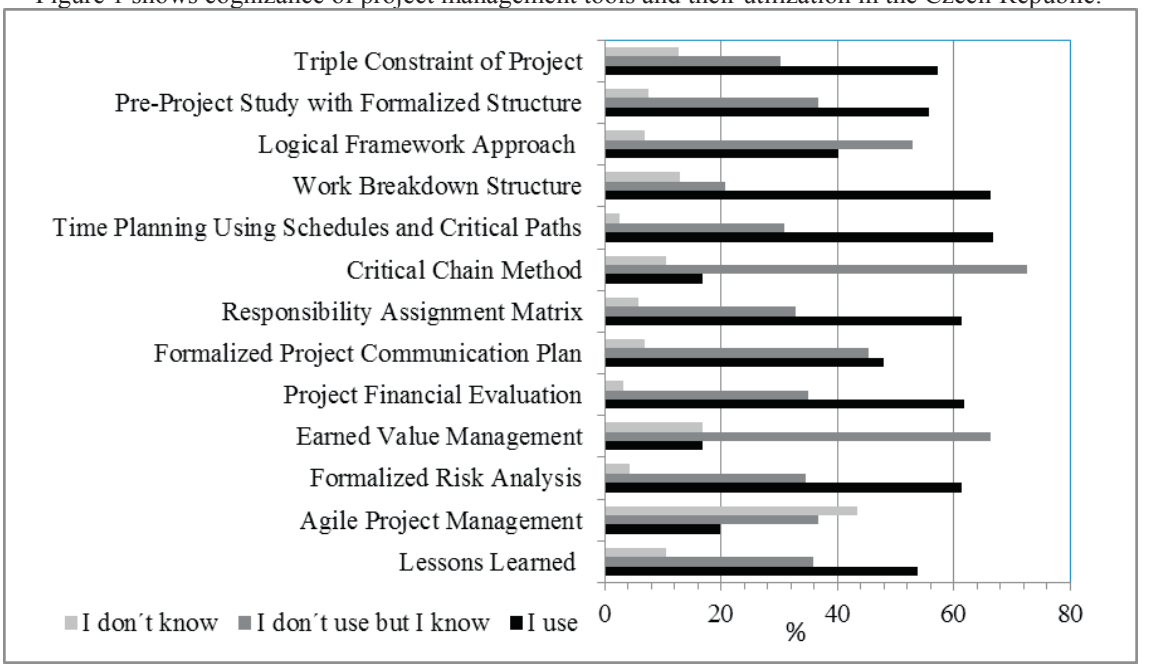

Figure 1 – The cognizance of project management tools and their utilization in the Czech Republic
Source: Created on the base of (International Project Management Association CZ, 2012).

3.4. Software Tools

Software tools are considered as important project management supporting tools affecting their success. The fact is that the market provides a wide range of applications from freeware applications for management of small projects to sophisticated applications for program and portfolio management. However, the survey run by Spolecnost pro projektove rizeni (Kratky, et al., 2012) implies that 38% of

the respondents do not use any software tools for project management. This negative result is affected by the fact that it is the average value. A detailed analysis found out that utilization of specialized software tools increases together with the prolonging practice of project managers, the growing size of budgets and the number of solved projects. As for the type of specialized software, more than 83% of the respondents, who declared use of some software tool, use Microsoft Project.

For comparison, the Information Week´s 2012 Enterprise Project Management survey (Feldman, 2012) found the share of organizations using specialized software for project management of 98.8%. As for the type of specialized software, the situation is similar to the situation in the Czech Republic. Microsoft products - Microsoft Project and Microsoft Project Server - are predominating in project management.

3.5. Level of Project Management Knowledge

The mentioned survey (Kratky, et al., 2012) was also focused on the level of project management knowledge and on the possibilities of its extension. The respondents evaluated the level of knowledge of individual groups of the organization employees involved in project implementation. The rating scale was as follows - 1 (the best knowledge) to 5 (the worst knowledge). The groups with the best rated knowledge were the group of project managers and project management office workers with mark 2. The project team members' and the line managers' knowledge got mark 3. As the most widely used ways of extending their knowledge, the respondents mentioned studying professional literature and specialized articles, attending courses and trainings (80%).

According to an Ernst & Young survey carried out on a sample of 40 important mostly international companies operating in the Czech Republic, 78% of the respondents evaluate the knowledge of project managers in the Czech Republic in the area of project management tools as sufficient (Ernst & Young, 2011).

The level of knowledge in the area of project management is closely connected with project management certification. Project management certification is considered, according to the survey carried out by Spolecnost pro projektove rizeni (Kratky, et al., 2012), as important by 82% of the respondents. From the total number of the respondents, almost 50% were certificate holders and 15% were holders of more than one certificate. The most widespread was IPMA certification and PRINCE 2 certification. The number of certification holders rose together with the length of their practice and the number of implemented projects.

3.6. Reasons for Unsuccessful Project Implementation

The survey carried out by Spolecnost pro projektove rizeni (Kratky, et al., 2012) also implies that the main reason for failed project implementation is seen in the problems connected with insufficiently qualified human resources. The other mentioned problems included problems connected with changes in the implemented projects, a wrong definition of the target and scope of the project and problems connected with processes (e.g. failing to follow the procedures, inaccurate project planning or problems in communication).

The Ernst & Young survey (Ernst & Young, 2011) came to similar conclusion according to which the main reason for a project failure in the Czech Republic is a change in the project scope, either for the reason of subsequent changes during implementation, or for the reason of inaccurate project definition in the initial phase. The other reasons for a project failure were seen in different project output expectations

and low support from the side of the management. According to the Information Week´s 2012 Enterprise Project Management survey (Feldman, 2012), the main reasons for a project failure are insufficient human resource capacities, poor requirements planning, problems in communication and insufficient budget. The Project Management Institute survey (PMI, 2012) came to a similar conclusion according to which it is possible to see the main reasons for a project failure in underestimation of project preparation, insufficient support from the side of executive sponsorship, inaccurately set project benefits and failing to manage changes.

Conclusion

The paper documents the knowledge and utilization of project management and its tools in the Czech Republic on the basis of a survey performed by Spolecnost pro projektove rizeni. The survey outcomes imply that the most frequent issue in project implementation in the Czech Republic is the failure to comply with the project schedule, which occurred in 83% of the monitored projects. However, the failure to meet the planned budget is also a frequent problem (it occurred in about 70% of the projects). So, H1 (The most frequent problem in project implementation is exceeding of the planned budget of the projects.) can be rejected. H2 (The defined project management tools are familiar to more than 75% of respondents.) is supported. Most defined project management tools are familiar to more than 90% of the respondents, with the only exception of the Agile Project Management, which was familiar to 57% of the respondents only. H3 (The defined project management tools are used in practice by more than 50% of respondents.) was not proved true. More than 50% of the respondents use only 8 of the 13 defined project management tools in practice. H4 (Software tools for project management support are used by at least 50% of respondents.) is fully supported. Some software tools for project management support are used by 62% of the respondents. And as the foreign experience (Feldman, 2012) imply, it is possible to expect that their utilization will continue to grow. H5 (The key factor for improvement of the level of project management in the Czech Republic is an increase in the human resources qualifications.) is also supported. The respondents consider insufficiently qualified human resources as the main cause of project failures.

On the basis of the above, it is possible to state that project management is well known and used in the Czech Republic. However, neither the cognizance of project management, nor its utilization in practice reach the dimensions found in the West European countries or the USA. Although the area of project management in the Czech Republic still faces a lot of problems, it is possible to state that the positive view of the situation is prevailing, and apart from the problems, the situation is also affected by a number of positive trends. Most project managers consider enhancement of their knowledge in the area as essential, and they also act this way in practice. Through branch associations representing international organizations dealing with standardization of the project management processes, it is possible to acquire high-quality study material, professional literature and training, and also achieve project manager certification on various levels of the knowledge scope. The hands-on experience is being extended together with the rising number of implemented projects. The growing cognizance and wider use of the project management tools will result in growing quality and effectiveness of implemented projects.

Although this survey was focussed on the knowledge and utilization of project management and its tools in organizations of different lines of business, its findings cannot be generalized for all types of organizations as it was directed at medium-scale and large-scale organizations. This means that another survey in this area should be aimed at small-scale organizations. Another limitation of this survey is that it was focussed on the solvers of financially demanding projects. That is why it is possible to recommend

that further researches take account of the given problems taking a differentiated approach depending on the financial demands of the projects solved by the respondents.

References

Beck, K. et al. (2001), Manifesto for Agile Software Development, retrieved July 20th 2012 from http://www.agilemanifesto.org/.

Benta, D., Podean, I. M. and Mircean, C. (2011), On Best Practices for Risk Management in Complex Projects, Informatica Economica, Vol. 15, No. 2, pp. 142-152.

Blake, I. and Bush, C. (2008), Project Managing Change: Practical Tools and Techniques to Make Change Happen, Harlow: Pearson Education.

Bredillet, Ch., Yatim, F. and Ruiz, P. (2010), Project Management Deployment: The Role of Cultural Factors, International Journal of Project Management, Vol. 28, No. 2, pp. 183-193.

Carrillo, P., Ruikar, K. and Fuller, P. (2013), When Will We Learn? Improving Lessons Learned Practice in Construction, International Journal of Project Management, Vol. 31, No. 4, pp. 567-578.

Chapman, Ch. and Ward, S. (2007), Project Risk Management, Processes, Techniques and Insights, Chichester: John Wiley & Sons.

Couillard, J., Garon, S. and Riznic, J. (2009), The Logical Framework Approach – Millennium, Project Management Journal, Vol. 40, No. 4, pp. 31-44.

Dettmer, H. W. (1997), Theory of Constraints, Milwaukee: ASQ Quality Press.

Dolezal, J., Lacko, B., Machal, P. et al. (2012), Project Management according to IPMA, Prague: Grada Publishing.

Dow, W. and Taylor, B. (2010), Project Management Communications Bible, Indianapolis: Wiley Publishing.

Dvorak, D., Repal, M. and Marecek, M. (2011), Project Portfolio Management: the Best Practise of Porftolio Management, Brno: Computer Press.

Ernst & Young (2013), Project Management in the Czech Republic, retrieved February 28th 2014 from http://www.ey.com/Publication/vwLUAssets/Pr%C5%AFzkum_%C5%99%C3%ADzen%C3%AD_2013/$FILE/EY_Pruzkum%20rizeni%20projektu%20v%20CR%20a%20SR%202013.pdf.

Ernst & Young (2011), Project Management in the Czech Republic, retrieved June 15th 2012 from http://www.projectman.cz/en/dodavatele/19-ernst-young.

Feldman, J. (2012), Enterprise Project Management Survey, retrieved August 25th 2012 from http://reports.informationweek.com/abstract/83/8656/it-business-strategy/research-2012-enterprise-project-management.html.

Gareis, R. (2005), Happy Projects! Vienna: Manz.

Goldratt, E. M. (1997), Critical Chain, New York: North River Press.

Haponava, T. and Al-Jibouri, S. (2009), Identifying Key Performance Indicators for Use in Control of Pre-project Stage Process in Construction, International Journal of Productivity and Performance Management, Vol. 58, No. 2, pp. 160-173.

Hillier, F. S. and Lieberman, G. J. (2005), Introduction to Operations Research, New York: McGraw-Hill.

Hillson, D. (2009), Managing Risk in Projects – Fundamentals of Project Management, Farnham: Gower Publishing.

Hrazdilova Bockova, K. (2009), Future Scenarios of Czech Project Management, E+M Economics and Management, Vol. 12, No. 3, pp. 6-18.

Jugdev, K. (2012), Learning from Lessons Learned: Project Management Research Programme, American Journal of Economics and Business Administration, Vol. 4, No. 1, pp. 13-22.

Koerner, M. (2005), Declaration of Interdependence, retrieved July 21st 2012 from http://pmdoi.org/.

Kratky, J. et al. (2012), Project Management in the Czech Republic, Report of Research Results, Brno: Spolecnost pro projektove rizeni.

Kratky, J. and Tetrevova, L. (2012), Social Return on Investment Analysis in the Context of Corporate Social Responsibility, 1st WSEAS International Conference on Economics, Political and Law Science, Zlín, Czech Republic, 20-22 September 2012, pp. 241-246.

Levin, H. A. (2010), Project Portfolio Management a Practical Guide to Selectiong Projects, Managing Portfolios, and Maximizing Benefits, San Francisco: John Wiley & Sons.

Melnic, A. and Puiu, T. (2011), The Management of Human Resources within Projects: the Structures of the Project Team, the Responsibility, Economy Transdisciplinary Cognition, Vol. 14, No. 1, pp. 476-484.

Meredith, J. R. and Mantel, S. J. (2006), Project Management a Managerial Approach, Hoboken: John Wiley & Sons.

Milosevic, Z. D. and Srivannaboon, S. A. (2006), Theoretical Framework for Aligning Project Management with Business Strategy. Project Management Journal, Vol. 37, No. 3, pp. 98-110.

Morris, P. and Pinto, J. K. (2010), The Wiley Guide to Project Organization and Project Management Competencies, Hoboken: John Wiley & Sons.

Newton, R. (2008), Successful Project Manager, Prague: Grada Publishing.

Norman, E. S., Brotherton, S. A. and Fried, R. T. (2008), Work Breakdown Structures: The Foundation for Project Management Excellence, Hoboken: John Wiley & Sons.

Norwegian Agency for Development Cooperation (1999), The Logical Framework Approach, Oslo: NORAD.

Patanakul, P., Iewwongcharoen, B. and Milosevic, D. (2010), An Empirical Study on the Use of Project Management Tools and Techniques across Project Life-Cycle and Their Impact on Project Success, Journal of General Management, Vol. 35, No. 3, pp. 41-65.

Pitas, J. et al. (2010), National Standard Competences of Project Management Version 3.1, Brno: VUT.

Project Management Institute (2012), PMI's Pulse of the Profession, retrieved June 14th 2012 from http://www.pmi.org/~/media/PDF/Research/2012_Pulse_of_the_profession.ashx.

Project Management Institute (2004), A Guide to the Project Management Body of Knowledge, Newton Square: PMI.

Rad, P. F. and Cioffi, D. F. (2004), Work and Resource Breakdown Structure for Formalized Bottom-up Estimating, Cost Engineering, Vol. 46, No. 2, pp. 31-37.

Storms, K. (2008), Earned Value Management Implementation in an Agency Capital Improvement Program, Cost Engineering, Vol. 50, No. 12, pp. 17-40.

Tetrevova, L. (2006), Project Financing, Prague: Professional Publishing.

Trietsch, D. and Baker, K. R. (2012), PERT 21: Fitting PERT/CPM for Use in the 21st Century, International Journal of Project Management, Vol. 30, No. 4, pp. 490-502.

Vlckova, V. (2011), Reasons of Insufficient Cooperation in Information Sharing within Czech Entrepreneurial Environment and Its Impact on Supply Chain, METAL 2011 – 20th Anniversary International Conference on Metallurgy and Materials, VSB-Technical University of Ostrava Brno, Czech Republic, Ostrava: TANGER, pp. 1259-1264.

Vlckova, V., Exnar, F. and Machac, O. (2012), Quantitative Methods for Support of Managerial Decision-Making in Logistics, 7th International Scientific Conference "Business and Management 2012", Vilnius Gediminas Technical University, Vilnius, Lithuania, Vilnius: Selected papers, pp. 1015-1022.

Vlckova, V. and Patak, M. (2012), Outsourcing and its Impact on Demand Planning, METAL 2012 – 21st International Conference on Metallurgy and Materials, VSB-Technical University of Ostrava, Brno, Czech Republic, Ostrava: Tanger, 2012, pp. 1687 – 1694.

Yang, T. and Chiu-Wen, Ch. (2009), An Incentive Pay System for Project Management Based on Responsibility Assignment Matrix and Fuzzy Linguistic Variables, Expert System with Applications, Vol. 36, No. 10, pp. 12585-12591.