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# RESEARCH ON THE NEEDS OF METHODOLOGICAL SUPPORT IN PROJECT MANAGEMENT

## 1. Introduction

Increasing dynamics in the environment and rising demands of the market, in order to reach perfection in carrying out internal processes, are the main reasons why organizations now face many new challenges. In the present state of the Economy, the occasional project implementation, based only on experience and intuitive actions, leading to mediocre success of the venture is not satisfactory. In order to gain and maintain a high level of competitiveness, modern organizations have to ensure that the success of the implemented projects will be permanent and repeated. To achieve that aim, the organizations are reaching up for the best practices and trusted methods that would be of widest use in solving complex problems in the field of project management. In other words, they are looking for methods and project management methodologies.

The scientific achievements and experience, gained over many years, in the field of project management, contributed to the existence of a wide range of methodological support solutions. Activity of international organizations, government agencies, professional organizations and associations, universities, and global enterprises helped to devise many detailed, differentiated (in various aspects) and complex methods of project management. Organizations that want to benefit from them, at first, have to make an important and, at the same time, difficult decision. They have to assess their own needs and choose the right methodological support for the ongoing projects.

These arguments convinced the team at the Department of Project Management, Warsaw School of Economics, to take the initiative and develop a research project

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whose aim was to regulate the process of implementation of project management methodology. To achieve that, it was necessary to conduct a study about the needs and possibilities of methodological support for Project Management in different Polish organizations. The aim of this article is to present a synthesis of achievements and the major conclusions of the carried out research.

## 2. Process and research model

Taking into account the wide-spread popularization of projects as tools to achieve the organizations' and enterprises' goals and the existing variety among methods and methodologies in project management, it is well worth creating a model that would facilitate carrying out research and a selection of the proper methodology support for different organizations. In order to achieve these objectives the following research program was adopted:

1. Initial study with the aim of identifying expectations towards the project management methodology;
2. A detailed analysis of selected project management methodologies and an additional analysis of other standards connected with project management
3. Preparation of a model of assessment and selection of methodological support tools for project management (on the basis of point 1 and 2)
4. Application of the model in the analysis of the needs for the methodological support in project management
5. Application of the model in the analysis of project management methodologies
6. Conclusions from the comparative analysis of the defined needs and the determined range of methodological support.

## 3. Initial study: identification of the expectations towards the project management methodologies and an analysis of the project management standards

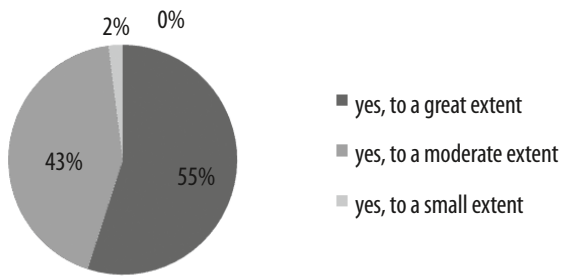
The aim of the initial study was to elaborate a preliminary verification of the studied group expectations and to provide an empirical material which would help to identify, correctly, all the problem areas – criteria for the following analysis of the needs and methodologies. For this purpose a method of statistical survey was chosen. The questionnaire was filled out by a group of specialists from the field of project management that attended the Postgraduate Project Management Studies conducted

by the Department. 134 questionnaires were collected, 106 of them fully completed (with answers to all the questions).

The studied group, in the majority, was formed by the members of project teams (60%) and project managers (30%). There were also 4 members of steering committees and 8 persons with other posts related to project management. More than a half (56%) had experience from 1 to 3 years in project management. The percentage share of respondents having experience less than 1 year and from 3 to 5 years was similar and amounted to 17%. Only one out of ten respondents declared having experience of over 5 years in project management.

All respondents agreed with the fact that the use of project management methodology has a positive influence on successful project implementation (exhibit 1). Over half of the respondents (55%) described this influence as big, while 43% assessed it as average. Only two answers described the influence of methodology on project success as small. At the same time a certain tendency has been noticed: the more experienced in the field of project management respondents were, the less important for them was the influence of methodology. That observation can be a starting point for other more profound scientific research.

Exhibit 1. Does, in your opinion, the use of a project management methodology influence, in a positive way, the possibility of the project success?




Source: own study.

The obtained findings confirmed the relevance of the interest in project management methodologies as a crucial factor of project success.

In order to identify important aspects of project management methodology, the questionnaire contained open questions that enabled the respondents to answer in an unconstrained way. The analysis of the received answers helped to elaborate a synthetic list of the 30 most desired attributes of project management methodology (listed in random order) (exhibit 2).

**Exhibit 2. Important attributes of project management methodology from the point of view of the survey participants.**

1. Adapted to the character of a project (of an enterprise, branch)
2. Easy to understand and learn (easy to implement in the project)
3. That takes into consideration the frequent changes in a project
4. Universal (selection of the right tools for each project)
5. Practical
6. Coherent, consistent
7. That ensures comparability of projects
8. That contains the project management techniques
9. That defines the relation between project and functional management
10. That includes project environment analysis
11. That defines the decision processes in a project (decision-makers, scope of decisions, etc.)
12. Based on project implementation stages
13. That includes the whole Project Cycle Management (with ex post evaluation)
14. That defines clearly the goals and requirements of a project
15. That includes feasibility study and cost-effectiveness of a project (for business motives)
16. That includes project management aspects such as motivating the team, resolving conflicts, etc
17. That includes selection, work organization and leading a project team
18. That facilitates monitoring and control of project implementation
19. That facilitates the control of project costs (budget and cash flow)
20. That includes risk management (analysis of the risk, prevention, reaction to the risk)
21. That includes project scope management
22. That includes planning of the project implementation process (relations among components, schedule)
23. That includes quality aspects in a project
24. That includes resource management in a project
25. That makes the project communication more efficient
26. Based on IT tools
27. That helps to make a clear assessment of project results
28. That facilitates to learn from the project (gain experience, draw conclusions)
29. That includes an unified documentation
30. With an adequate amount of documentation (without redundant bureaucracy)

Source: own study.

The list from the Exhibit 2 contains both attributes connected with the substance of the methodology (problem areas) e.g. "project scope management", and expressions describing its characteristics such as "practical". It is important to take notice of the wide range of areas mentioned in the answers, which shows the high level of project maturity among the respondents. Characteristics such as "adapted to the character of a project (of an enterprise, branch)", "easy to understand and to learn" and "with adequate amount of documentation" strongly correspond with the aim of the study, whose leading motive is to adapt methodology to the real needs of organizations.

The initial study provided empiric material which allowed the construction of a model to commence. However, facing the risk of omitting important elements that were not mentioned by the respondents and in order to add new attributes and enrich the substantial content of the project management methodology, an analysis of the

literature concerning methodologies and other project management standards was conducted. The standards were related to some local and branch project management methodologies, main norms of project management, and some chosen international competence models for project managers. A detailed list of standards, whose scope and content were taken into consideration during the analysis and the construction of the assessment and selection model is shown below (exhibit 3).

Exhibit 3. Project management standards taken into account in the analysis

| No. | Organization | Standard |
|---|---|---|
| 1. | American Society for the Advancement of Project Management | USA National Competency Baseline v1.5 |
| 2. | Associação Brasileira De Gerenciamento De Projetos | *Referencial Brasileiro de Competências em Gerenciamento de Projetos* (Brazilian National Competence Baseline) v1.1 |
| 3. | Association for Project Management | APM Body of Knowledge 5th ed. |
| 4. | Australian Institute of Project Management | Professional Competency Standards for Project Management Exposure Draft V1.0 |
| 5. | British Standards Institution | BS 6079–4 Construction Project Management Processes |
| 6. | European Commission | Project Cycle Management methodology |
| 7. | German Association of Project Management | Project Management Canon |
| 8. | German Institute for Norms and Standards | DIN 69904 Project Management Elements |
| 9. | International Organization for Standardization | Norma ISO 10006:2003 |
| 10. | International Project Management Association | IPMA Competency Baseline 3.0 |
| 11. | Office of Government Commerce | PRINCE2 (version 2005) methodology |
| 12. | Project Management Association of Japan | P2M: Project & Program Management methodology |
| 13. | Project Management Austria | Project Management Baseline v2.3 |
| 14. | Project Management Institute | PMI Project Management Body of Knowledge (third edition) |
| 15. | Stowarzyszenie Project Management Polska | NCB National Competence Baseline - IPMA Version 1.2 |
| 16. | Ten Step | Ten Step Project Management methodology |

## 4. A morphological matrix for the assessment of the needs of methodological support for project management

The morphological analysis was used to create a tool to assess the needs and the offered methodological support. The morphological analysis is a problem-solving technique that uses a systematic analysis of all elements that form part of a solution of

the problem. It was developed in the 1940s and, initially, it was used only in new product projects. Eventually, as it was a universal technique, it started to be used to solve multi-dimensional and complex problems of technical, organizational or other character [14, p. 282]. The selection of a morphological analysis as a research tool was motivated by the multi-dimensional and complex character of the question of methodological support for project management.

Morphological analysis is divided into various stages [10, p. 156–158]:

1. Identification and definition of the problem, for which a solution is being searched
2. Indication and definition of parameters and their constituents that are parts of a solution of the problem. Parameters, also called variables, are marked with capital letters, and their parts (values, characteristics, possible conditions of each parameter) are marked with small letters. An unlimited number of values can be determined for each parameter.
3. Organizing and compiling the variables and their values in a chart, called a table, or a morphological matrix (exhibit 4)

**Exhibit 4. The morphological matrix structure**

| Variable | Variable values | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | ... | m |
| A: | $a_1$ | $a_2$ | $a_3$ | ... | $a_m$ |
| B: | $b_1$ | $b_2$ | $b_3$ | ... | $b_m$ |
| . | . | . | . | . | . |
| . | . | . | . | . | . |
| N: | $n_1$ | $n_2$ | $n_3$ | ... | $n_m$ |

Source: Trocki M., *Morphological analysis* "Przegląd organizacji", 1975, No. 8–9.

4. Creating different solutions to the problem through a combination of different variables' values.
5. An assessment of elaborated variants of solutions and choosing the best ones for further and more detailed analysis.

The initial study, together with the analysis of methodologies and project management standards, allowed the preparation of a unified combination of 18 variables – criteria for the analysis of the needs and for project management methodology support.

The above mentioned criteria included:

1. Stages and Life Cycle of the project – attitude towards a model of a process of project implementation that determines different actions taken in various project stages
2. Project Initiation – initial project phase that includes actions taken in order to develop the idea of the project and obtain the initial acceptation

3. Project definition, setting the goals, defining limits and requirements of the project – elaborating a detailed project conception including goals, premises, benefits, limits and feasibility of the project; obtaining project approval
4. Project environment and context – relating the project to its implementation environment which refers to the strategic level of the organization, programs and portfolio of the projects, enterprise environment, project stakeholders and others.
5. Giving structure to the project and scope management – way of describing and managing the scope of operations and results produced during the project implementation
6. Project time management –attention to scope, detail and scale of emphasis on planning activities in the project
7. Organizing and leading a project team – attitude towards project team building, task assignment, responsibilities and powers
8. Monitoring and control of project – degree of burdening the project with monitoring actions
9. Closeout and project evaluation – attitude towards the last phase of the Project Life Cycle which includes closure of the project activities, reviewing the project, assessing the expenditures, measuring the benefits and eventual post-project activities
10. Risk management – methods of conducting activities connected with risk identification, assessment, prevention and monitoring of situations that could put the successful implementation of the project in jeopardy
11. Quality management – manner of carrying out activities in order to ensure project conformity with the quality requirements
12. Communication management - ensuring that the information flow in the project is well organized, proper and efficient
13. Project cost management – attitude towards the project cost-effectiveness, the budget, monitoring the expenses and project financial liquidity
14. Project resource management – attitude towards management, identification and acquisition of the resources required in the project implementation
15. Project procurement management – method of collaboration with outside partners and suppliers of the project
16. Change management (attitude towards changes, flexibility) – means of perceiving the change in the project, change implementation process and change documentation standards
17. Project documentation – amount of documentation in which the project implementation is reflected
18. IT support for the methodology – degree of using IT tools in project management

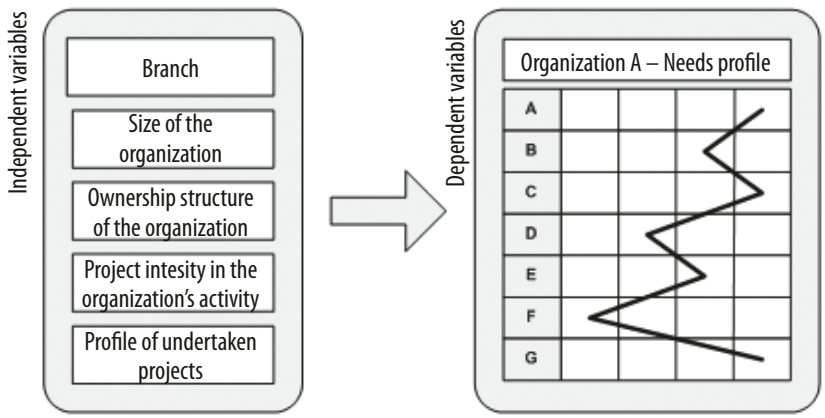
According to the method of morphological analysis, the corresponding values were defined and prepared for each variable. The adopted scale of the assessment of methodological support solutions was based on standardized forms of activities, listed in order of conformity with the increasing scope and accuracy of problem solving methods used in a given area (variable).

Identification of the values of variables that described the stage, complexity and rigor of management solutions included in the given variable, allowed completion of the work with the morphological matrix of problem areas in project management.

The use of a morphological matrix as a research tool permits the carrying out of a complex and detailed analysis of needs concerning particular problem areas in an organization, and a comparison of the profile of needs with the profile of solutions offered by respective methodologies. Thanks to the morphological matrix, it was possible to define combinations of various support levels for each variable, which contributed to the elaboration of all possible variants of solutions to the problem.[1]

## 5. Findings of the analysis of the needs for project management methodological support

Exhibit 5. A research model of the profile of the needs for project management methodological support




Source: own study.

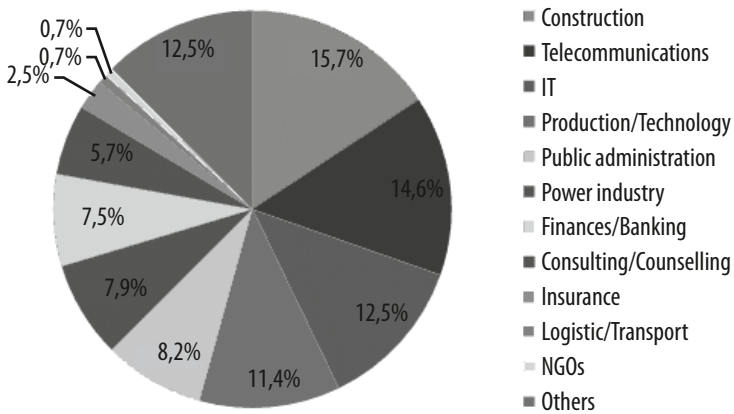
[1] For 18 variables and 4 values of each of them it is possible to define $4^{18}$ = 68.719.476.736 potential variants (profiles) of the needs for project management methodological support.

The analysis was conducted by a method of statistical survey. The main part of it was a morphological matrix. The questionnaire also contained a list of questions that allowed a description of the analyzed organizations to be made, according to the parameters that could possibly influence the profile of the methodological needs (exhibit 5).

The carried out questionnaire analyzed a group of organizations that implement projects. The organizations were represented by project management specialists from the Postgraduate Project Management Studies conducted by the Department of Project Management, Warsaw School of Economics. 282 completed questionnaires were obtained.

The analyzed group showed a relatively equal representation of business activity branches. The biggest group formed construction branch (15,7%), in second place telecommunications (14,6%), then IT branch (12,5%) and production-technology branch (11,4%). Other branches, such as public administration (8,2%), power industry (7,9%), banking and finances (7,5%) and representatives of consulting companies (5,7%) were less popular. Among the branches classified as "others" it's worth mentioning the pharmaceutical industry, indicated by 5 respondents (1.8%; exhibit 6).

Exhibit 6. Business branch profile of the analyzed organizations




Source: own study.

The degree of intensity of project activity provided very important information about the analyzed group (exhibit 7). This degree identified the number and importance of the projects implemented by the organizations. Almost ⅔ of the analyzed organizations described this degree as very high (32,3%) or high (33,3%). Every fifth organization described the intensity degree as moderate (23,0%). For these

organizations, the projects were important but not essential in their business strategy. Approximately, in one out of every eight organizations, the project activity was occasional, on a small scale and of little impact.

Exhibit 7. The profile of intensity of implemented by the organizations projects

| | | | |
|---|---|---|---|
| Very high | Project-oriented organization, all its business activity is oriented towards project implementation | 32.3% | 91 |
| High | Organization carries out many projects that are essential for its strategy realization | 33.3% | 94 |
| Moderate | Projects are considered an important part of organization activity | 23.0% | 65 |
| Low | Few and occasional project implementations | 11.3% | 32 |
| **Total** | | **100%** | **282** |

Source: own study.

Analysis of the data contributed to the creation of a synthetic, general needs profile for methodological support in the studied organizations (exhibit 8). It also permitted a cross-sectional analysis, which created profiles that reflected different needs according to the particular characteristics of the organizations. The percentage indicators inform about the frequency of choosing the particular value within the given variable (values in each line sum up to 100%).

By analyzing the general profile of needs for methodological support in project management, as far as the studied organizations are concerned, one can observe that the fields from the third column of the morphological matrix were definitely more chosen. In spite of limitations for the conclusions, which are caused by analyzing a purposive sample, the obtained results proved that there was a need for developed project management support, but, at the same time, that there was a general reluctance towards very detailed and exhaustive regulations, with only a few exceptions.

Among the domains in which the most detailed support is expected prevails the **project definition (52% of respondents indicated a detailed and precise identification of goals and a basis and requirements related to the project realization).** In second position is **project documentation** (38% of respondents indicated a high level of documentation of the project, full and complex documentation of the project implementation process), then Project cost management (35% of respondents indicated detailed processes of cost management) and Closeout and project evaluation (33% of respondents indicated complex and precise procedures of closing out and reviewing the project).

**Exhibit 8. General needs profile for the methodological support in studied organizations**

| Problem areas / variables | | Profile of the needs for the methodological support | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | 2 | | | 3 | | | 4 | | |
| A | Stages and Life Cycle of the project | a1 | insignificant /not present | 3.9% | a2 | Determining different project stages | 21.4% | a3 | Determining different project stages and a description of the main milestones | 58.6% | a4 | Complete and detailed description of the stages and processes in the Project Life Cycle | 16.1% |
| B | Project Initiation | b1 | insignificant /not present | 6.4% | b2 | General rules of project initiation | 28.5% | b3 | General rules of project initiation with the main decision points | 46.6% | b4 | Detailed procedures and Project Initiation Documentation | 18.5% |
| C | Project definition, setting the goals, defining limits and requirements of the project | c1 | insignificant /not present | 1.4% | c2 | General guidelines for project parameters | 16.1% | c3 | General definition of the project parameters | 30.4% | c4 | Detailed and precise definition of goals, basis and requirements related to project realization | **52.1%** |
| D | Project environment and context | d1 | insignificant /not present | 3.2% | d2 | Low degree of susceptibility to project environment | 22.2% | d3 | Moderate degree of susceptibility to project environment | 45.2% | d4 | High degree of susceptibility to project environment, taking into account correlations and mutual dependence | 29.4% |
| E | Giving structure to the project and scope management | e1 | insignificant /not present | 2.2% | e2 | Defining the general scope and limits of a project and setting general control rules | 29.0% | e3 | Complete identification of the project scope and setting the rules of its verification | 54.5% | e4 | Detailed and precise description of the components of project scope and accurate procedures of its control | 14.3% |
| F | Project time management | f1 | insignificant /not present | 0.7% | f2 | Framework project process planning, on a very general level | 17.5% | f3 | Project process planning with a moderate attention to detail | 53.2% | f4 | Detailed and exhaustive project time management | 28.6% |

| Problem areas / variables | | Profile of the needs for the methodological support | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | 2 | | | 3 | | | 4 | | |
| G | Organizing and leading a project team | g1 | insignificant /not present | 6.8% | g2 | General advice concerning creating and leading a project team | 23.7% | g3 | General rules of creating and leading a project team | 43.7% | g4 | Accurate responsibility rules and procedures of creating a project team | 25.8% |
| H | Monitoring and control of project | h1 | insignificant /not present | 1.8% | h2 | General control over project implementation process | 16.0% | h3 | Current monitoring and control of project implementation process | 67.0% | h4 | Exhaustive and detailed procedures of monitoring and control of project implementation process | 15.2% |
| I | Closeout and project evaluation | i1 | insignificant /not present | 7.1% | i2 | Overall hints concerning closure and review of the project | 25.6% | i3 | General rules and guidelines of closing out the project | 34.5% | i4 | Complex and precise procedures of closing out and reviewing the project | 32.7% |
| J | Risk management | j1 | insignificant /not present | 11.3% | j2 | General rules sensitizing to the risk aspect in the project | **37.9%** | j3 | Framework procedures of risk identification and prevention | 35.5% | j4 | Detailed processes of risk management | 15.2% |
| K | Quality management | k1 | insignificant /not present | 8.2% | k2 | General rules sensitizing to the quality aspect in the project | 32.3% | k3 | Framework procedures of requirements identification and ensuring quality in the project | 40.5% | k4 | Detailed processes of quality management in the project | 19.0% |
| L | Communication management | l1 | insignificant /not present | 6.0% | l2 | General rules sensitizing to the communication aspect in the project | **31.9%** | l3 | Framework procedures of communication and information flow in the project | 41.1% | l4 | Detailed processes of communication and information flow in the project | 20.9% |

| Problem areas / variables | | Profile of the needs for the methodological support | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | 2 | | | 3 | | | 4 | | |
| M | Project cost management | m1 | insignificant /not present | 5.7% | m2 | Very general rules of finances planning and control in the project | 20.9% | m3 | Framework procedures of financial management | 38.3% | m4 | Detailed processes of financial management | 35.1% |
| N | Project resource management | n1 | insignificant /not present | 4.6% | n2 | General rules sensitizing to the aspect of resource management in the project | 34.2% | n3 | Framework procedures of planning and monitoring the use of the resources in the project | 41.6% | n4 | Detailed processes of resource management in the project | 19.6% |
| O | Project procurement management | o1 | insignificant /not present | 9.9% | o2 | General rules sensitizing to the aspect of procurement management in the project | 24.1% | o3 | Framework procedures of procurement management in the project | 39.7% | o4 | Detailed processes of procurement management in the project | 26.2% |
| P | Change management (attitude towards changes, flexibility) | p1 | insignificant /not present | 6.8% | p2 | General rules of implementation and ways of reacting to changes in the project | 31.3% | p3 | Framework procedures of change management | 40.2% | p4 | Detailed procedures and processes of change management | 21.7% |
| R | Project documentation | r1 | insignificant /not present | 1.4% | r2 | Low level of documentation of the project (basic project documentation) | 15.2% | r3 | Medium level of documentation of the project (general project documentation, basic reports) | 45.4% | r4 | High level of documentation of the project (full and complex documentation of the project implementation process) | 37.9% |
| S | IT support for the methodology | s1 | insignificant / lack of IT support | 8.2% | s2 | Fundamental IT support | 40.9% | s3 | significant, considerable IT support | 32.4% | s4 | full and complex IT support | 18.5% |

Exhibit 9. Matrix of a variable correlation in a model of project management methodological needs

| Variable | Rank Correlation Coefficient of Spearman Determined Correlation Coefficients are significant at p <0,05 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Size of organization | Foreign capital share | Project intensity | External Project share | Investment project share | Complexity level | Innovation level |
| A. Stages and Life Cycle of the project | **0.162** | 0.100 | **0.262** | 0.098 | 0.003 | **0.270** | **0.249** |
| B. Project Initiation | **0.198** | –0.013 | **0.125** | –0.034 | –0.045 | **0.196** | **0.122** |
| C. Project definion | 0.015 | –0.018 | 0.095 | 0.055 | 0.066 | 0.112 | **0.118** |
| D. Project Environment and context | **0.160** | –0.069 | 0.017 | **–0.133** | –0.105 | **0.203** | **0.157** |
| E. Giving structure to the project and scope management | **0.145** | 0.076 | 0.097 | –0.039 | 0.004 | 0.101 | 0.100 |
| F. Project time management | 0.114 | 0.098 | 0.041 | 0.044 | –0.012 | **0.148** | 0.035 |
| G. Organizing and leading a project team | **0.179** | 0.084 | 0.041 | –0.080 | –0.093 | **0.145** | 0.079 |
| H. Monitoring and control of project | 0.065 | 0.082 | 0.057 | 0.066 | –0.031 | **0.177** | **0.126** |
| I. Closeout and project evaluation | 0.051 | 0.010 | –0.014 | –0.001 | 0.003 | **0.149** | 0.102 |
| J. Risk management | 0.097 | 0.075 | 0.002 | **–0.145** | –0.021 | **0.239** | **0.155** |
| K. Quality management | 0.070 | 0.097 | 0.072 | –0.003 | –0.020 | **0.193** | 0.098 |
| L. Communication management | 0.064 | –0.001 | 0.034 | 0.039 | –0.109 | **0.145** | 0.108 |
| M. Project cost management | 0.081 | 0.062 | 0.035 | –0.008 | –0.004 | **0.222** | 0.070 |
| N. Project resource management | 0.066 | 0.081 | 0.090 | 0.068 | –0.017 | **0.184** | **0.197** |
| O. Project procurement management | 0.042 | 0.013 | **0.130** | 0.025 | 0.085 | **0.241** | **0.176** |
| P. Change management | 0.092 | 0.043 | 0.078 | –0.034 | –0.048 | **0.240** | **0.137** |
| R. Project documentation | 0.054 | –0.018 | 0.086 | 0.091 | 0.078 | **0.305** | 0.088 |
| S. IT support for the methodology | 0.112 | –0.050 | **0.161** | –0.050 | –0.082 | **0.209** | **0.235** |

Source: own study.

Domains that, according to the respondents, do not require much regulation or support (first column) are: Risk management (11%), procurement management (10%), Quality management and IT support for the methodology (8% each).

A concentration analysis (dispersion analysis) of the given answers helped to identify the fields on which there was a general agreement among the respondents concerning the expected range of methodological support. In order to measure the level of concentration, a standard deviation analysis of an indication frequency for each given variable was applied.

The highest level of concentration that was measured on the basis of the highest value of a standard deviation was observed in:

- Monitoring and control of project (67% of respondents indicated **current monitoring and control of the project implementation process**),
- Stages and Life Cycle of the project (59% of respondents indicated **determining different project stages and a description of the main milestones**),
- Giving structure to the project and scope management (54% of respondents indicated **complete identification of the project scope and setting the rules of its verification**),
- Project time management (53% of respondents indicated **planning of the project process with a moderate attention to detail**), and
- Project definition (52% of respondents indicated **a detailed and precise identification of goals, basis and requirements related to project realization**).

The lowest level of concentration of the answers, measured by the lowest value of a standard deviation was observed in: project procurement management, Closeout and project evaluation and Risk management.

In conformity with the applied research model, an attempt to analyze the factors that influence the needs of methodological support in project management in the studied organizations has been made. For this purpose, tools of statistical analysis were used, including the Rank Correlation Coefficient of Spearman, which presents covariance of an analyzed pair of variables (exhibit 9).

## 6. Analysis and research findings

Application of the model of assessment and selection of methodological support tools for project management permitted the identification and analysis of the organizations' needs for methodological support. Both general profile (of all studied organizations) and cross-sectional profiles (according to the scheme of organizations' characteristics and projects) were analyzed.

Most of the studied organizations expected the project management support to be moderately detailed and based on the use of general management procedures. It

is possible to draw a conclusion that, in the field of project management, there exist two contrary forces that influence the final form of methodological support. On one hand we have the need for detailed solutions and significant support because of the complexity of the projects. On the other hand, there is a reluctance of project staff towards excessive work formalization and overly-rigid action models. There is also the need to leave a certain freedom of choice for the decision-makers concerning the project implementation methods because of the uniqueness and risk of realized ventures.

**In the studied organizations, regardless of the specification of a project or organization, from all the fields of project management, Project Definition proved to be the domain that requires particular and exhaustive support.** In a significant number of analyzed profiles this domain was considered to be an area that requires a detailed and precise definition of goals, basis and requirements related to project realization. We can interpret this conclusion as a realization of one of the main project management principles, that is, goal-orientated management. Project definition is a key element of a project. On its basis, other strategies, plans and conceptions are elaborated. Goals described and defined at this stage are then being achieved during the project implementation and verified after the project closure. From the project managers' and organizations' point of view, project definition is an area that requires special methodological support. In depth analysis of that question is an object of detailed scientific research, including those conducted by organizations that co-ordinate European projects [3],[4]

**Another observation is that, regardless of the specification of a project or organization, three domains: Risk management, Quality management and Procurement management, were indicated by the studied organizations as ones that require little methodological support in project management.** This conclusion was totally unexpected as the importance of these three domains for the project success is often emphasized. Moreover, they are objects of separate standards of risk management and quality management in projects.

This observation corresponds with the analysis of the project maturity of an organization concerning the above mentioned areas of knowledge. Both international and Polish research show that risk management is an area in which the implemented methods are of a very low maturity level [15], [5].

An explanation of the obtained findings can be the fact that solutions from these domains are still relatively new and not known in Polish organizations as a result of their insufficient popularization. The findings demonstrate a poor level of awareness of Polish project managers concerning the role of risk and quality management in projects, relatively poor knowledge of different methods, and, consequently, show a great need of making a bigger effort in order to sensitize project managers to these questions and provide tools adapted to the current project maturity level.

Another explanation of such an assessment can be connected with the more and more frequent processes of transfer of competences in the area of risk management. The transfer takes place from projects to program management structures and project portfolio management e.g. centralized services of Project Management Offices and programs. This is the reason why risk management can be identified with more risk assessment required in order to approve or not approve the possible implementation of a project (portfolio risk level). This attitude leaves the current risk management to project managers who rely mainly on their intuition.

As far as project procurement management is concerned the low level of needs can be caused by considering these areas as supporting, carried out by an organization's functional units. That is the reason why project managers tend to perceive them as less important and peripheral issues that lay beyond basic project tasks. The next interpretation could be the character of implemented projects, in which the relationship with external partners is not essential, thus a significant and complex methodological support is not necessary. These observations and its interpretations should be a starting point for further, more detailed and in-depth research.

**The strongest relationship between variables was shown between the complexity level of implemented projects and project documentation requirements. In second place, there was the accuracy of the description of stages and project life cycle that increased as the project complexity level, project intensity level and project innovation level rose. There was also a strong connection between the complexity level and project procurement management, change management and risk management.**

Together with the growth of organizations have an increased need of methodological support for Project Definition, Organizing and leading a project team, Description of the stages and life cycle of the project, Project Environment and context, and Giving structure to the project and scope management.

The rise in the intensity of project activity in the organizations was accompanied with an increase in the needs of methodological support for Stages and life cycle of the project, Project procurement management and Project initiation.

Alongside the relative increase in the number of realized projects for external use compared to the in-house projects, a decreasing need for methodological support in Risk management and Project environment and context has been observed.

The complexity level of implemented projects was an aspect that influenced extensively and to a great degree on the support needs in the studied organizations. A rise in the complexity level of the projects was accompanied by a growing need of attention to detail in methodological requirements concerning:

- Project documentation
- Description of stages and the life cycle of the project
- Project Procurement management

- Change management
- Risk management
- Project cost management
- IT support for the methodology
- Project environment and context
- Project definition
- Quality management
- Project resource management
- Monitoring and control of project
- Closeout and project evaluation
- Project time management
- Communication management
- Organizing and leading a project team

The innovation level has also influenced, to a large extent, the process of generating the methodological needs. Its rise was accompanied by a growing need of attention to detail in the methodological requirements in the following areas:

- Stages and life cycle of the project
- IT support for the methodology
- Project resource management
- Project Procurement management
- Project environment and context
- Risk management
- Change management
- Monitoring and control of project
- Project initiation
- Project definition

As far as the organization's and implemented projects' characteristics are concerned, **there were no signs of a relationship between the needs for methodological support and foreign capital share in the equity capital of the studied organizations.** Although one could presume, on the basis of the observed project maturity and development of project management in Poland that such relationship exists (being a result of transfer of knowledge), it was not confirmed by the research.

**The relationship between soft projects, investment projects, and methodological support needs was also not revealed in any of the studied project management problem areas.** It can mean that, from the point of view of methodological efficiency, the above mentioned project categories have similar characteristics.

## Conclusion

The project management methodologies have become a key element of the environment of project management. They are a source of knowledge, a road map and a sign-post for the project managers. They are also a set of methods for solving problems during project realization. An implementation of project management standards is, in itself, a complex and unique venture that has a powerful influence on the organization's way of operating. The richness of existing standards means that making the right choice and then adapting the methodological support solutions constitute a great challenge.

A research tool which was presented in the article, a morphological matrix of methodological support for project management, makes possible not only conducting the synthetic population assessment (as it was presented above), but also an individual assessment – an analysis of the needs of a given enterprise or organization in terms of real expectations towards project management methods and tools. Comparing the needs profile with the profiles of support provided by existing project management methodologies provides the basis of the assessment process and the selection of methodological support tools on scientific, rational premises, and to use methods and tools that help to maintain impartiality characteristic of empirical science. That attitude guarantees that the implemented methodology corresponds in the highest degree with the needs of an organization.

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## Abstract

The purpose of this study was to investigate the needs of methodological support to project management in Polish enterprises.

The scope of this study was to develop assessment criteria and comprehensive methodological needs and solutions research frameworks, as well as applying them to investigate the needs of methodological support for project management in Polish enterprises.

The main findings of the study were that the majority of organizations expect methodological support in the form of a framework of regulations. Defining a project seems to be issue which is expected to be supported in the most detailed and precise manner. Project risk management, project quality management and project procurement management are the areas which were the most frequently chosen as those with the least methodological support needs. As far as the correlation between variables was concerned, the strongest tie existed between the project complexity level and project documentation. The project complexity level has been identified as the variable which affected the most of dependent variables (16 out of 18).

**Keywords: Project management methodology, Methodological support, Project management, Standardization**