

# Impact Factors in Implementation of EU-Funded Projects in Bulgarian Higher Education Institutions

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**Abstract**—One of the key opportunities for financing the development of Bulgarian state universities is through the opportunities provided by the programs financed by the EU budget. On the other hand, the right choice of alternatives favors the achievement of efficiency and effectiveness of the financial means used. The imposition of a scientifically grounded approach to generating and selection of alternatives can not be achieved without taking into account and quantifying the factors influencing preparation, implementation and reporting. This paper presents the results of an empirical study conducted among Bulgarian state universities to establish the impact values of each of these factors

**Keywords**— *European programs and projects, project management, project funding for universities*

## I. INTRODUCTION

The present study seeks to answer the questions related to the determination of the degree of influence and interdependence of different factors on the processes of implementation, management and spending of funds from EU funds and programs in the conditions of a state higher education institution (HEI). The aim is to clarify and analyze the internal for the university factors influencing the effectiveness and efficiency of project funding.

In this connection, various analyzes of the data obtained from the survey examined different hypotheses related to the input of the different components of the project capacity on the effectiveness and efficiency of the European project management processes in the public HEIs. The study uses the approach of Anguelov K. for the different components of the project capacity [1]. Respondents in the survey are all potential participants in the above-mentioned processes, and the mark rating assessments they give to the influence of the various factors are statistically summarized and commented on in terms of management science. On the basis of the identified and ranked factors in the next scientific publication, the authors will present a methodology contributing to increasing efficiency and effectiveness in applying and implementing projects under some EU funds and programs.

The object of the present study are the factors influencing the processes of implementation, management and spending of funds from EU funds and programs in the conditions of a state higher school. The aim is to determine their degree of influence and interdependence.

## II. METHODOLOGY FOR THE SURVEY OF IMPACT FACTORS IN THE IMPLEMENTATION OF EU-FUNDED PROJECTS

A classical methodology for empirical study of the degree of affect and interdependence of influencing factors on the processes of implementation, management and spending of EU funds and programs under the conditions of a state higher education institution (public HEI) was chosen, which includes the following stages:

1. Identification of the target groups of respondents in terms of covering the phenomenon from all its sides.
2. Determination of the confidence interval. Determining the number of organizations and respondents in accordance with the representativeness requirements.
3. Identification of potential issues for respondents. Identifying control issues. Open and closed issues.
4. Choice of respondents. A partial random choice was chosen to identify a respondent in a selected organization / enterprise.
5. Conduct a survey of respondents. Time range.
6. Statistical data processing. Verification of the reliability of the results obtained. It was decided to use SPSS software.
7. Performing initial analyzes based on received information. Determination of the weight of each factor. Determining correlation dependencies.
8. Evaluation of the results obtained.

In order to obtain maximum information and study of all possible influencing factors, the study analyzes the experts' opinion of all involved persons related to the implementation, management and spending of funds from EU funds and programs in the conditions of a state HEIs: project coordinator; Rector, Chief Deputy rector, president of HEI; chief accountant of HEI or CFO at HEI; expert from a body of EU audit funds and programs (the National Audit Office, the State Financial Inspection Agency, the EU Funds Audit Executive Agency, the National Fund); Expert from the Managing Authority, Intermediate Body, Central Coordination Unit; Member of a project selection committee; partner of HEI in project implementation; a scientist from the subject area; consultant in the preparation of a project proposal and / or implementation of a project financed by the European Structural & Investment Funds (ESIF).

Each of the respondent group indicates in relation to what activity was acquired their expert opinion on the degree of influence of factors and sub-factors. It is possible and permissible by the method of research to be an expert, when changing his working positions, he has gained experience in more than one quality.

There are 37 state higher schools in the period of the survey. The survey was conducted during the second

programming period for Bulgaria (2014-2020), summarizing the experience for the period 2007 - 2017. During this period, Bulgarian HEIs have implemented projects, as beneficiaries or partners, under the following EU-funded programs: Operational Program Development of Human resources (2007-2013); Operational Program Regional Development (2007-2013); Operational Program Development of the Competitiveness of the Bulgarian Economy (2007-2013); Operational Program Science and Education for Intelligent Growth (2014-2020); Operational Program Regions in Growth (2014-2020); Operational Program Innovation and Competitiveness (2014-2020); ERASMUS +; Horizon 2020.

### III. MAIN RESULTS

Results analysis of the conducted research on the influencing factors on the processes of implementation, management and spending of EU funds and programs under the conditions of a state higher education institution (public HEI) shows that it is expressed in the following:

1. Administrative capacity is defined as the Public HEI's ability to perform all administrative procedures related to the proper execution of the project [3]. Respondents identified this fact as third in significance with a total rating of 5.6. There are sensitive differences between the different groups of respondents in assessing the significance of this factor:

- Representatives of institutions with responsibilities for managing European programs or auditing EU funds provide a significantly stronger rating of 6.3. For this group of respondents this is the second most important factor, approaching significantly to the most significant. This is explained by the fact that the majority of irregularities detected in the process of verification, monitoring or auditing of projects in the Public HEIs are related to unsuccessful procedures, including those relating to public procurement;
- The most powerful sub-factor of the administrative capacity factor for all groups of respondents is namely the choice of a contractor for the public procurement and the execution by the beneficiary of the control of the fulfillment of the undertaken contractual obligations;
- University leaders and chief accountants also appreciate the very strong impact of administrative capacity on the proper implementation of projects (mark rating 5.9). This is justified by the above-mentioned fact about the most frequently found irregularities and the presence of the overall view on all implemented projects. At the same time, it is precisely this group that has the duty to establish an efficient and efficient system guaranteeing administrative capacity;
- Relatively less appreciates the influence of the administrative capacity of project managers (mark rating assessment 5.1), consultants (mark rating assessment 5.3) and scholars in the subject area (mark rating evaluation 5.5).

Figure 1 shows the mark rating evaluation of each of the respondent groups in terms of administrative capacity.

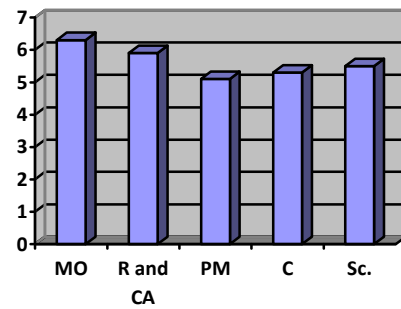


Fig. 1. Evaluation of the importance of administrative capacity by groups of respondents

2. Financial capacity is defined as the ability of the Public HEI to provide financial support for the project during its execution. This is because of the peculiarity of this kind of projects where they are first implemented and subsequently reimbursed. Primary funds received, as advances generally do not cover all costs. This factor is ranked second in importance (a common rating of 5.9), with a distinct difference between the different groups of beneficiaries:

- Representatives of institutions with responsibilities in the management of European programs or the audit of EU funds give a significantly lower rating of 5.1. For this group of respondents, this is the third most important factor;
- The highest estimate of the importance of this factor is given by the management of the universities and the chief accountants (rating 6,5). This is justified by the fact that the management of the universities has a general picture of the university budget, which also ensures the financial capacity of the projects. At the same time, it is precisely this group that has the duty to establish an efficient and efficient system guaranteeing administrative capacity;
- In a close way determine the importance of financial capacity project managers (mark rating assessment 6,4), and scholars in the subject area (mark rating assessment 6,2). This is also understandable. Project managers are closest to the implementation of the various activities, which can be severely hampered by a shortage of funds;
- The influence of this factor is the least appreciated by the consultants - rating 5,1.
- It should be pointed out that this factor has the greatest impact precisely on infrastructure projects or projects with many partner institutions. In small projects this factor is not so significant.

Figure 2 shows the mark rating rating of each of the respondent groups in terms of financial capacity.

3. Team capacity is defined as the ability of the Public HEI to ensure the implementation of the main activities of the project through a qualified, experienced and motivated team. In a very natural way, this factor is defined by all groups of respondents as the most significant (a common rating of 6.5). However, there are differences in the assessment of this factor, on the one hand, according to the groups of beneficiaries, and on the other hand, of the implemented projects:

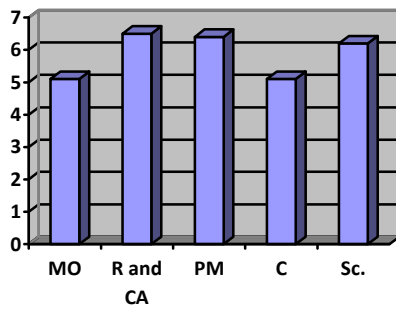


Fig. 2. Assessment of the significance of the financial capacity by groups of respondents

- Representatives of institutions with responsibilities for managing European programs or auditing EU funds provide a lower than average rating of 6.4. For this group of respondents this is the most significant factor, strongly approaching the influence of administrative capacity;
- It should be pointed out that in the case of infrastructure projects, the requirements for administrative and team capacities are largely met, which is totally false in educational and scientific projects;
- The most significant assessment of the importance of this factor is put by the project team leaders (Mark Rating Evaluation 6,7), followed by the management of the universities and the Chief Accountants (Mark Rating Assessment 6,6). This is an easily explanatory fact;
- In a close manner, the importance of team capacity of counselors (mark rating assessment 6,4) and scholars in the subject area (Mark Rating Assessment 6,5) is determined;
- The specificity of the projects greatly affects the sub-factors of the team capacity. In the case of infrastructure projects, the main objective of the project team is the qualification and experience of working with public procurement contractors, scientific and educational projects, scientific and academic competence of the team members, and international projects (such as HORIZONT 2020), besides scientific and academic competence, is also the ability to effectively manage and manage international teams.

Figure 3 shows the mark rating evaluation of each of the respondent groups in terms of team capacity.

4. Rating capacity, defined as the ability of the Bulgarian Public HEIs to build an image at home and abroad at the HEI and the ability to provide partnerships. This factor has significantly less impact on each of the respondent groups (fifth with a total rating of 4.5). There are significant differences in the assessment of this factor, on the one hand, according to the groups of beneficiaries, and on the other, of the implemented projects:

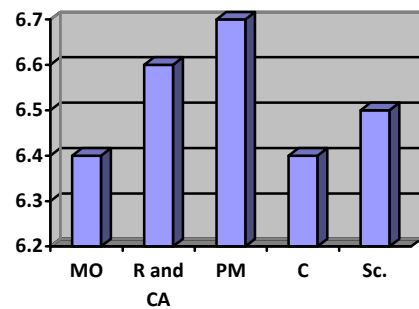


Fig. 3. Evaluation of the importance of team capacity by groups of respondents

- Representatives of institutions with responsibilities for managing European programs or auditing EU funds provide the most up-to-date evaluation - 4. This is to a large extent also explained by the equivalence factor in the evaluation of project proposals and the monitoring and audit of implemented projects, which these institutions carry out;
- The most weighty assessment of the importance of this factor is given by the consultants (mark rating assessment 5,4), and the scientists in the subject area (mark rating assessment 5,4), followed by the project team managers (mark rating score 5,1);
- University and Chief Accountants (MarkRating 4.6) also rank higher than the average mark rating score;
- The specificity of the projects is significantly influenced by the sub-factors of the rating capacity. The formation of effective and efficient teams shows a significant role for this factor in the implementation of international projects.

Figure 4 shows the mark rating rating of each of the respondent groups in terms of rating capacity.

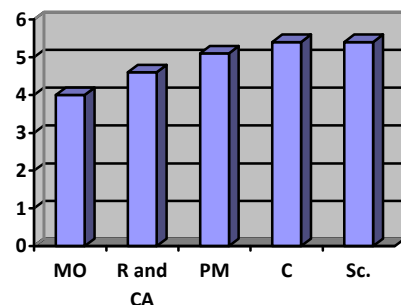


Fig. 4. Evaluation of the significance of the rating capacity by groups of respondents

5. Infrastructure capacity, which is defined as the available HEI infrastructure related to project implementation. This factor is closely related to the rating capacity (fourth place with a common rating of 4.9). There are minor differences in the assessment of this factor, on the one hand, according to the groups of beneficiaries, and on the other, the type of projects implemented:

Representatives of institutions with responsibilities for managing European programs or auditing EU funds give a mark rating of 5.1, which is the highest rating by respondent groups;

- University and Chief Accountants (Mark Assessment 5) also rank higher than the average mark rating score;
- Consultants have the lowest estimate of the importance of this factor (mark rating score 4.4), followed by the

scientists in the subject area (mark rating assessment 4.5) and project team leaders (mark rating assessment 4.6);

- The specificity of the projects is significantly influenced by the sub-factors of the infrastructure capacity: according to the projects, an academic, scientific or other infrastructure is needed which affects the sub-factors of the infrastructure capacity.

Figure 5 shows the mark rating evaluation of each of the respondent groups in terms of infrastructure capacity.

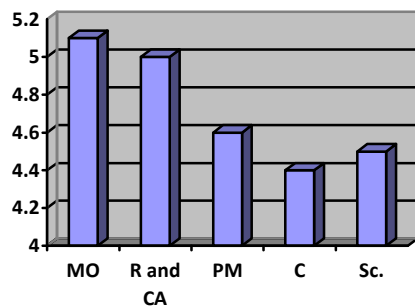


Fig. 5. Evaluation of the significance of the infrastructure capacity by groups of respondents

#### IV. CUMULATED RESULTS AND ANALYZES

The article analyzes the following factors influencing the efficient and effective development of project proposals and implementation of projects funded by EU funds: Administrative Capacity; Financial capacity; Team capacity; Image capacity (image of the country abroad and ability to provide partnerships); Infrastructure capacity. Each of these factors has been extensively commented on its impact on the implementation of EU funded projects. In order to obtain relevant data the types of projects are grouped in the following way: investment projects with scientific and academic purpose; investment projects with academic purpose; human capital development projects. The significance of each factor is different for each project group.

For investment projects with scientific and academic purpose and for investment projects with academic purpose, both the administrative capacity and the qualities of the project team, as well as the financial capacity, have a major impact. On the other hand – for projects concerning human capital development, the administrative capacity and the qualities of the project team have a major impact on their implementation. The data we have received proved that the Image capacity and Infrastructure Capacity factors also have a non-negligible impact. Image capacity plays key role in the process of developing and applying projects under HORIZON 2020. All data collected during research are commented and analyzed.

On the basis of the above mentioned data, the authors of the article have developed a comprehensive methodology through which an assessment of the project capacity of the HEI and the ability of a particular project to be implemented in an efficient and effective way. It gives a numerical assessment of the future project proposal at the stage of generating ideas. This assessment can also be used by universities to assess if project proposal has all possible advantages and quality to receive grants funding or not.

#### V. CONCLUSIONS

This paper presents various factors influencing the processes of implementation, control and spending of EU

funds and programs under the conditions of a state higher education institution. Commenting on the mark rating assessments, a survey of own research summarizing the opinion of all involved groups of people in the implementation, management and control of European projects. The significance of the factors according to the specificity of the types of projects has been taken into account. Conclusions have been made to develop a methodology for preliminary analysis and assessment of the project capacity of the HEIs and the feasibility of a particular project to be implemented in an efficient and effective way.

#### ACKNOWLEDGMENT

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