QUALITY MANAGEMENT OF RESEARCH PROJECTS: CASE STUDY OF ONE LITHUANIAN UNIVERSITY

Greta Kuzmickytė[1]

Kaunas University of Technology

Eglė Kazlauskaitė[2]

Kaunas University of Technology

Sonata Maciulevičiūtė[3]

Kaunas University of Technology

Neringa Gerulaitienė[4]

Kaunas University of Technology

Abstract. This article analyses the concept of quality management of research projects and provides insights on research support services and their usage in one Lithuanian university. In the article, a literature analysis is presented on the definition of quality management of research projects and their scope. With the help of the analysis of quality management of research projects and the survey of one Lithuanian University staff, it is determined what support services the university provides to its project teams. This paper

1   **Contact:** Greta Kuzmickytė; greta.kuzmickyte@ktu.edu; School of Economics and Business, Kaunas University of Technology, K. Donelaičio g. 73, 44249 Kaunas, Lithuania.

2   **Contact:** Eglė Kazlauskaitė; e.kazlauskaite@ktu.edu; School of Economics and Business, Kaunas University of Technology, K. Donelaičio g. 73, 44249 Kaunas, Lithuania.

3   **Contact:** Sonata Maciulevičiūtė; sonata.maciuleviciute@ktu.edu; School of Economics and Business, Kaunas University of Technology, K. Donelaičio g. 73, 44249 Kaunas, Lithuania.

4   **Contact:** Neringa Gerulaitienė; neringa.gerulaitiene@ktu.lt; School of Economics and Business, Kaunas University of Technology, K. Donelaičio g. 73, 44249 Kaunas, Lithuania.

provides conclusions and yields recommendations on how to maximise the efficiency of support services currently available at the university.

Keywords: Lithuania, quality management; research project; support services; project management.

Introduction

In the academic world, research plays an important role in creating not only theoretical, but also practical knowledge about certain topics. A large part of how well the research is conducted is quality management within the research, which is usually based on principles of quality planning. To help project managers conduct the project and achieve the best possible results, academic institutions offer support services that help researchers to manage projects in a way that helps them achieve the best quality results. To understand how quality management affects research projects, one must define quality management and realize its scope in the academic field. After that, one can conduct research to find out what kind of quality management procedures are being used in certain academic environments. While conducting research, one can see which quality management methods have the biggest impact on academic research and offer recommendations for future research projects' quality improvement.

The aim of the paper is to investigate what services are provided in one Lithuanian University to project managers to ensure the quality management of research projects and provide recommendations.

Objectives are as follows:
1) To analyse the concept of project quality management.
2) To identify the stages of quality management of research projects.
3) To carry out empirical research in order to identify how the quality management of research projects in one of the Lithuanian universities is ensured.
4) To provide theoretical and practical implications.

Research method: this paper is based on a survey research method. To clarify the practical application of project quality management, one Lithuanian university was selected to conduct the research.

The analysis of survey results revealed that project management services at this university are provided in five areas: budget management, data management, ethical issues, law, people management, and/or conflict resolution. All these areas have been analysed in more detail.

Greta Kuzmickytė, Eglė Kazlauskaitė, Sonata Maciulevičiūtė, Neringa Gerulaitienė
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This article is structured as follows. First, we begin with a literature review on quality management. Second, we discuss the methods used for the conducted quantitative research. Third, we review the research findings of the mentioned quantitative research. Fourth, we draw conclusions and implications while highlighting future research directions.

Defining the quality management of research projects

The concept of quality management is widespread yet not specified, meaning it could be interpreted differently in certain fields. One definition is proposed by Ebrahimi and Sadeghi (2013) that quality management is an integrative management philosophy aimed at the continuous improvement of performance. Siva and others (2016) define quality management to be a philosophy consisting of principles, practices, and tools that include principles or values such as customer focus, continuous improvement, and fact-based decisions. Both authors comply that quality management is a philosophy that is composed of practices, principles, and tools which contribute to overall performance and continuous improvement.

Quality management is no easy task when it comes to a comprehensive assessment of research projects with it being a complex definition. By consistently reviewing and editing errors that occur, it is further solidified that quality management in research projects is a crucial part within the development process. The use of quality management in research and development is a strong tool enabling exploitation and maximization of the value of research work – when done in the right way and fit for purpose (Robins, Scarll, Key, 2006). Donabedian (1996) describes quality management as a procedure that consists of obtaining information about performance and based on an analysis of performance in any given situation, leads to modification in behaviour: directly, through educational and motivational activities, and indirectly, through adjustments in system design. Another approach to further decipher quality management is that quality management is the validation and verification of the research material (Håkansson, 2013). It is apparent, that all authors have a familiar view on quality management in research projects – by using familiarized and effective tools such as auditing, procedural adjustments and performance analysis or a combination of a few aids in producing a remarkable research project that withholds validity.

Research projects are a collection of information in different formats and available in different places (García Holgado, Marcos Pablos, García Peñalvo, 2020). A research project can be defined as a scientific endeavour to answer a research question. As to how research projects differentiate from other forms

of projects, Payne and Turner (1999) state that research projects tend to be managed through the life cycle and the achievement of go/no-go decisions, whereas organisational change projects tend to be managed through a Bill of Materials or product-based milestone plan. For a successful research project to be established, project quality management must be enforced through three key stages: Plan Quality Management, Perform Quality Assurance, Quality Control.

As stated in PMBOK 5th edition, Project Quality Management employs rules and procedures to integrate the quality management system of the company into the project's environment and, when there is a need, to assist with ongoing process improvement activities on behalf of the performing organization. Project Quality Management guarantees that all project criteria, including product requirements, are satisfied and validated.

Processes covered in PMBOK 5th edition under Project Quality Management include:

1. *Plan Quality Management* – the process of identifying and documenting the project's and deliverables' quality requirements and/or standards, as well as how will the project demonstrate adherence to those criteria.
2. *Perform Quality Assurance* – the process of evaluating quality standards and quality control measures' results to facilitate the implementation of accepted quality standards and operational definitions.
3. *Quality Control* – the procedure for observing and documenting the outcomes of quality operations to evaluate performance and make required changes.

Plan Quality Management (also known as Quality Planning) is the process of determining the project's and outcomes' quality criteria and/or standards as well as a description as to how the project will show adherence to quality criteria and/or standards (Eshete, 2021). Choosing an appropriate development method and defining goal values for internal qualities are all part of quality planning (Boegh and others, 1999). As noted by Reddan (2015), this process is valuable because it is at the heart of giving governance and control over quality management throughout the project. It enables quality to be built into the project well before it begins. Defining standards and guidelines is part of quality planning as well.

Another process covered in PMBOK 5th edition is Quality Assurance. In research and development, quality assurance is a powerful instrument for maximizing the value of research effort and allowing it to be used (Krapp, 2001). Quality Assurance entails gathering data on performance and modifying behaviour depending on that data (Donabedian, 1996). Modifications on this process can be done either directly, via activities that are both informative and motivating, and indirectly, by modifying the system's design (Donabedian, 1996).

The third component of project quality management is quality control. Project quality control is very important as it ensures that all activities are carried out in accordance with the requirements. One of the quality management tools is control quality. Control quality includes performance monitoring, registration, compliance, and other actions required to ensure the quality of the project (Tom Alby, 2022).

This article seeks to examine what services are provided to research project managers at one Lithuanian University to help ensure all three stages of quality management of research projects. The empirical research is presented below.

Method

To achieve the aim of the paper, quantitative research (survey) has been done in one Lithuanian University.

To investigate research project support services in one Lithuanian university, there were identified five fields of project services: *budget management, legal matters, data management, ethical issues, and people management and/or conflict resolution*. These services can be provided to researchers at the university. Support in mentioned five project fields gives opportunities to researchers that received funding for project implementation to increase the quality of the project.

The survey was held between staff of one University Faculty. Respondents were divided into four categories: PhD students; Junior researchers (Post-docs and Assistant professors); Senior researchers (Associate professors, Senior lecturers); and Full Professors. An "Other" category was also available. The surveys were published on an intranet page accessible for staff at one University Faculty. The number of potential respondents in the selected faculty was 116 (66 academic staff and 55 PhD students), who were informed and allowed to complete the questionnaire.

Ten responses were collected from this entire population. The distribution of respondents by occupational rank was as follows: two full professors, three senior researchers, two junior researchers, two PhD students and one respondent that has chosen "Other" (project coordinator).

Below are the main demographic characteristics of all the ten respondents that were taking the survey:

The age range of the respondents was from 26 to 55 years. Three of them were 26–35, five between 36 and 45 and two were between 46–55.

There were seven women and three men that took the questionnaire.

Eight received their PhDs from KTU, two from other universities in Lithuania.

Nine of ten respondents understood Lithuanian fluently and one "only a little bit".

Half of the respondents have been visiting scholars abroad. Three report being visiting scholars' multiple times, often within Europe and to North America. Durations vary from two weeks to six months at a time.

The collected survey data were anonymized and summarized. Data analysis and results are provided in the research findings section.

Research findings

The empirical research showed that analysed university gives five forms of support in research projects management. This support is offered to staff running research projects at the university. Assistance is given in some specialized areas of research project management, such as budgeting, ethics, legal, data management, people management, and/or conflict resolution. The assistance provided by the university in mentioned areas can be provided through three stages of project quality management: planning quality management, performing quality assurance, and quality control. As can be seen from Table 1 below, help to manage the project budget is given in all three quality management stages. The analysed university may advise the project team during planning their budget management quality steps as well as help to assure and control quality successfully during the project. With legal matters, ethical issues and people management and/or conflict resolution the university assists while planning and assuring project quality. In these project management fields university does not help to control planned project quality. However, data management assistance from one Lithuanian university is provided only in performing project quality assurance. There are no services to help plan project data management quality or control it during the project.

Table 1. Research project managing support that is given at one Lithuanian University

	Managing budgets	Legal matters	Data management	Ethical issues	People management and/or conflict resolution
Plan quality management	✓	✓		✓	✓
Perform quality assurance	✓	✓	✓	✓	✓
Quality control	✓				

All subsequent areas of project management in which the University provides support to researchers will be discussed in more detail below.

First of all, the one Lithuanian University is ready to offer help with managing budgets of research projects. This assistance is given to projects at the university. Staff involved in research projects can contact the University's Project Centre if they have issues with budget management. This university unit provides budget preparation assistance to projects, depending on their funding method and field of study. If necessary, project promoters can be consulted on budgeting, unforeseen budget changes and its control during the project. All support measures are flexible and can be provided according to the needs of the project team.

The second area in which one Lithuanian University provides assistance is legal issues. This type of support is available at University. The lawyers of the analysed Lithuanian University are actively involved in the concluding financing agreements with suppliers of services or raw materials required for the project, other partners. University staff preparing research projects can turn to a legal professional for advice or even to prepare a full contract. At the time of signing the contract with the funders, the lawyer may also be involved with the project team to defend the interests of the university and staff as needed.

The university also provides support in the field of data management. Project promoters can receive a wide range of assistance in data management activities. This type of support can be provided during the planning, perform and control phases, through a variety of tools provided by the university. Depending on the direction of the research and the type of data being analysed, the university provides advice and may even assign a person to data management during the project. Issues related to project data management are handled by specialized university staff who work on the data analysed by the project.

Moreover, research project managers can contact the university for help with ethical issues. Tools to address ethical issues can be used to improve the quality of research projects. The University Science Ethics Commission may provide ethical support to project teams if they conduct research involving people. This unit also evaluates the ethics of research when collecting and/or processing personal data. Based on the evaluation, the panel may provide recommendations, advice or other assistance to the project team in correcting ethical issues.

Finally, the university provides assistance related to people management and conflict resolution. Professionals provide people with management support tools and can be used for project management. The initial problems encountered by the project team or with other people at the university are addressed by the project manager. If the project manager fails to control people or resolve conflicts, HR specialists from the project team faculty join in. In practice, help in managing

people and/or resolving conflicts is rarely needed, so the range of measures is small.

Survey participants were asked in which areas of project management they had used assistance from the University and, if so, whether they would use it again. The results of these questions are given in the Table 2 below.

As can be seen in the Table 2, the majority of respondents, that is seven, are satisfied with the services provided by the university for project budgeting and would like to use it again. However, three out of ten respondents noted that they had not heard of the availability of such services at university so far.

Legal assistance had been used by six respondents and they would agree to use it again. This result shows that more than half of the participants are satisfied with the services provided by the analysed university related to the legal matters of the project. Nevertheless, four questioned university employees had not heard about the legal aid provided for research projects.

Moving on to data management support services, the majority of respondents were unaware that the services existed. It is worth mentioning that this type of aid measures had been used only by three of ten respondents. All of them were happy with the results and would like to use these services again.

The results of the survey were more widespread in terms of helping the project address ethical issues. Two respondents knew about such support given by university and said that they would use it again. One of study participants never felt the need for this type of service to be used. Unfortunately, six respondents had never heard of access to assistance from the university to deal with ethical issues.

The last area of research project support examined was people management and conflict resolution. Half of the survey participants were unaware that such measures existed at the university. Three respondents never felt the need for people management and/or conflict resolution service. Only two researchers had availed themselves of assistance in this area and remained satisfied with it.

Table 2. Responses from staff of one Lithuanian University

Support service regarding	Would use it again	Would not use it again	Unaware that the service existed	Never felt the need for the service
Managing budgets	7	0	3	0
Legal matters	6	0	4	0
Data management	3	0	6	0
Ethical issues	2	0	6	1
People management and/ or conflict resolution	2	0	5	3

To sum up, all available services at the analysed Lithuanian university in research project managing support have been used by at least two people. All participants who used these services once would like to use them again. It is worth to be mentioned that the majority of respondents who said that they never used support measures from mentioned five areas did not do it because they did not know they exist. The smallest need of support is required from research project teams is ethical issues. Three of ten respondents said that they never felt the need for this type of support in any project stage.

Conclusions

In conclusion, the definition of quality management can be interpreted in various ways, but most authors comply that quality management is an integrative management philosophy aimed at the continuous improvement of performance with the usage of numerous tools to produce a high-quality research project that withholds validity. Quality management can be expressed through three main stages: quality management, quality assurance, and quality control.

In this article, five fields of project services were identified (budget management, data management, ethical issues, law, people management, and/or conflict resolution) which help to ensure quality management of research projects. One Lithuanian University was selected for the research. This university offers assistance to researchers during the quality planning, assurance, and control stages of each project management field. Most services are provided to researchers on budget matters in the project and least services are provided on data management issues in the project.

The results of the survey showed that all the researchers who used the analysed services provided by the university were satisfied and would be willing to use them again. However, it is disappointing to learn that a large proportion of respondents had not heard of such project management support services in their environment and the analysed university has not made it quite well known that such assistance exists.

Based on the findings of the empirical study, it is recommended that the university communicate in a more efficient way about its project management support services to university researchers. Respondents who used the analysed services rated them positively and want to continue using them. This finding shows that the dissemination of the services provided by the university is important to increase the quality management of research projects. Greater use of these services would contribute to improving the quality of projects at the university.

It is also recommended to provide more services for the management of research projects. These services would contribute to improving the quality of research projects.

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