APPLYING SWOT ANALYSIS FOR EFFECTIVE PROJECT MANAGEMENT IN HIGHER EDUCATION: A CASE STUDY FROM THE UNIVERSITY OF WEST BOHEMIA

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Abstract: It takes planning and consideration to adjust the project management system in higher education in order to distribute resources effectively. Previous research in project management in Czechia (e.g. Vacek & Ircingova, 2014) highlighted the importance to strengthen project management competencies including project portfolio management. It has been indicated (e.g. Lycett et al., 2004; Cervone, 2014) that potential difficulties may arise during the process of project evaluation and results' measurement. Projects are influenced by both internal and external factors which create certain constraints project managers have to manage. As a result, evaluating current strategic project management approach based on the projects that have been carried out successfully over the period of 5 years appears to be important. This article introduces an adjusted SWOT (Strength, Weakness, Opportunity, and Threat) analysis evaluation system to classify potential critical success factors (CSFs) that could influence the results of over 80 projects run by 23 project managers working at various faculties in the University of West Bohemia. Qualitative method was used to carry out a survey for a panel of experts responsible for the projects. A few internal and external factors that affect the efficiency and the results of the projects are selected for elimination using the strategic management (SM) approach. Research results are presented visually and suggest that at this stage addressing external risk management and capabilities of internal risk management may ensure effective project management in the university.

Keywords: Project management, SWOT, critical success factors, project evaluation, case study

JEL Classification: I25

INTRODUCTION

The projects undertaken by the Higher Education Institutions (HEIs) are typically aimed at 1. reaching their strategic targets which often include meeting the demands of the job market in capitalist states and 2. minimizing their internal risks and external threats. Planning of projects may stem from strategic planning and strategic goal-setting which in turn are believed to play an important role in defining various development programs. Project Management (PM) as a separate discipline was created to approach the methodology on how the projects are carried out to ensure they produce the most prominent, efficient and effective economic results. It may be implied that the project management techniques in publicly-owned HEIs in the Czech Republic might differ from the strategies used in privately-owned sector of the economy. However, the complexity and diversity of HEIs, the number of stakeholders, finite financial investments, increases in project size, establishment of independent research institutions have created an urge to develop and implement new project evaluation strategies to ensure project efficiency. The term efficiency in HEI project management would mean that every project stage is completed within the agreed timeline with no delays, or the delays that occur are compensated by the increased productivity during the other project stages, the resources (both financial and human) are used effectively in the amount that was

planned and the strategic goals are reached so that the competitive advantage is retained by a certain HEI.

Therefore, it is seen important to create competitive advantages of HEIs through the means of the project management. In the Czech Republic, project management centers were established in every HEI over the past decade which means that tertiary education organisations intend to monitor and reveal their strength and weaknesses. Quality work and project efficiency is thought to compensate for the downsides of the projects which in turn may increase the risk of falling behind in the global competition. In order to perform a quality research, it might be important to collect crucial success factors (CSFs) that could potentially help not only to determine the strengths of the projects, but also strengthen these advantages.

A systematic approach, comparative analysis and SWOT analysis methods used in this research work help to determine both general and specific characteristics of project management in the University of West Bohemia in order to understand and potentially raise efficiency of future university projects. The aim is to identify processes and CSFs that typically may accompany projects in their successful implementation.

THEORETICAL BACKGROUND

Starting in 1970s, the transition from command and control models to collaborative and initiative-based project models has occurred. Harvard Business Review (2021) states: "In 2017, the Project Management Institute estimated that the value of project-oriented economic activity worldwide would grow from \$12 trillion in 2017 to \$20 trillion in 2027". The 2015 report of the Standish Group claims that the project resolution graph by industry shows that government projects had the highest failure rate at 24%. Therefore, not only it is important to understand the scope of current practical implementation, the historical development and future implications of project management as an independent discipline, but also define processes accompanying transition to design technologies, and corresponding management accents which might be useful to emphasize in order to promote successful project implementation. There are a number of studies that examine the relationship between project management and higher educational institutions (HEIs), e.g. Neary & Saunders attempted to explain why there are few project management offices in universities in 2011. Given the fact that the paper focused on 12 UK's institutions in 2011, it seems to be reasonable to argue that the situation has improved and project management centers have been established in many HEIs ever since.

Various attempts have been carried out by scientists, researchers and business practitioners to establish a general definition, content and context of the practical PM model (Bekker, 2015; Lester, 2017; Richardson & Jackson, 2018). It is important to view projects and project management taking into account special features of every industry as well as national characteristics, unique legislation system and business practices and experience (e.g. Project Management Association of Japan, 2022; PRINCE2, 2022). In the UK, one of the most authoritative definitions for PM is given in BS 6079-2:2000 Project Management Vocabulary (2000). It defines the project as: "a unique process, consisting of a set of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objectives conforming to specific requirements, including constraints of time, cost and resources".

 Based on the current national and international standards, the project is understood as:

• a temporary enterprise aimed at creating a unique product, service or result (PMI, 2017 p.715 as cited in Lester, 2017);

• purposeful temporary activity designed to create a unique product or service (Richardson & Jackson, 2018);

• a unique process consisting of a set of coordinated and managed activities, having a start and end dates of completion, undertaken to achieve the goal, meeting the established requirements, including time limits, costs and resource (PMBOK, 2013).

This list of potential definitions may be carried on, however, a few common aspects (similarities) appear in all three of them, these are: coordination, uniqueness of the result, restrictions (in space, time, financial and human resources). There is a strong view stating that most businesses that have incentives to enter global competitive environment should strive for sustainable development and continuous improvement. The proponents of the invisible market hand could argue that organizational management acquires the ability to select and use the most profitable tools and methods of project management. In times of economic instability, however, this approach may not function well. In order to differentiate between the functional business activities and project management activities, it might be useful to turn to the following table which compares these activities (Table 1):

Tab. 1: Differences between the functional and matrix or project approach to business activities.

Criteria	Functional organisation	Project or matrix organisation
How the process is managed	By a functional manager	By a project manager
How the work is dealt with	Every department is specified in one specific field and assesses its part of the workflow. Typical for mass production or for large time-consuming projects.	The projects are carried out by employees often coming from various departments to participate in projects on various levels of depth in different project phases.
How working hours are distributed	Employees tend to do specific tasks they were hired to do. The same number of people with certain skills perform specific roles.	Critical and creative thinking is often required from the project members to ensure the development of the project planning and execution.
How the outcomes are assessed	The results are well-predictable and are routinely achieved. The outcomes are expected and might be common among various organisations.	The results tend to be unique, special and therefore, unpredictable for a certain type of conditions.
How the risks are measured	Low-risk environment is created due to the workflow which is replicated multiple times.	The risk levels are high due to the fact that the product or the outcome of the project might be novel and not produced before under the same conditions.

Source: Authors' own work.

Project management in the United States and worldwide PMBOK, consists of three functional levels:

• Level 1: Technical aspect – promptly delivered and oriented to effective tools used by project managers in practice.

• Level 2: Strategic aspect – unique alliance of the organization's activities with the goals and vision of top management.

• Level 3: Institutional aspect – project activity management based on standards and rules while interacting with external, global environment (PMBOK, 2013).

Crawford (2006) identifies three areas which tend to have a strong impact on project management adaptation practices in organisations: project office, management control and professional development. These practices are directly related to the integration of project management in the organization (project management office - PMO), project quality management (management control) and human resource management (professional development of current workforce).

METHODS

In order to have diversified data about the projects that were carried out in the University of West Bohemia over the period of 5 years, 2016-2021, the managers in charge of over 80 projects from various faculties in the UWB were contacted and asked to complete a questionnaire designed to analyse these data. Twenty-three replies were received. The following methods were used to carry out the research: systematic approach to gather the necessary information in order to formulate the questions in the survey (Appendix 1), SWOT and comparative analyses to identify general and specific characteristics of project management from the point of view of the Project Center in UWB.

The Project Center of the University of West Bohemia kindly agreed to cooperate and gather all the necessary data. The time period of five years was selected as a relevant and sufficient sample of ongoing and recently completed projects. It seems to be also valuable and relevant to look at the projects carried out during this period because it appears to be important to assess the impact of the pandemic on the project activities within the selected organisation. The managers of all ongoing projects and completed projects were contacted and asked to complete the questionnaire in order to collect as much information about the projects as possible. The strategy which was used to assess the data is considered to be an intelligence case study as it addresses the process of dealing with various projects in the majority of faculties in the UWB within a certain time frame and challenges the standard procedures applied to these projects by the Project center.

In SWOT analysis, strengths and weaknesses typically represent the internal reasons for the project to be successful, whereas opportunities and threats analysis focuses on external factors the project might be facing potentially.

It was decided to use qualitative research method in order to find out how the team leaders evaluate their projects and to estimate to what extent the aims of the chosen projects were reached. The respondents we asked to complete a short questionnaire that contained questions (Appendix 1) to assess internal and external reasons for the projects to be successful and beneficial for the university and its students. Their answers were coded and analysed with the use of Gretl free econometric program using correlation coefficients to anticipate the efficiency of project management approaches, policies and working plans.

RESULTS

As the data was coded, the correlation coefficients were calculated in order to provide a clearer picture of data representation, i.e. to what extent the answers to certain questions influenced the answers to other questions. It seems to be important to interpret correlation for SWOT analysis as it can be valuable to see the following combinations SO (strengths – opportunities) – WT (weaknesses – threats) relations. The first relationship may dispense an idea about how the opportunities could be used in order to strengthen the strengths and how strengths can possibly create more opportunities for successful project development. On the contrary, studying the WT relationship may help to prevent threats occurring due to certain weaknesses and to minimize the effect of weaknesses on the projects which might potentially result in building better strategies to deal with external threats. The correlation matrix is demonstrated in figure 1.

Fig. 1 Correlation Matrix heatmap

Correlation matrix
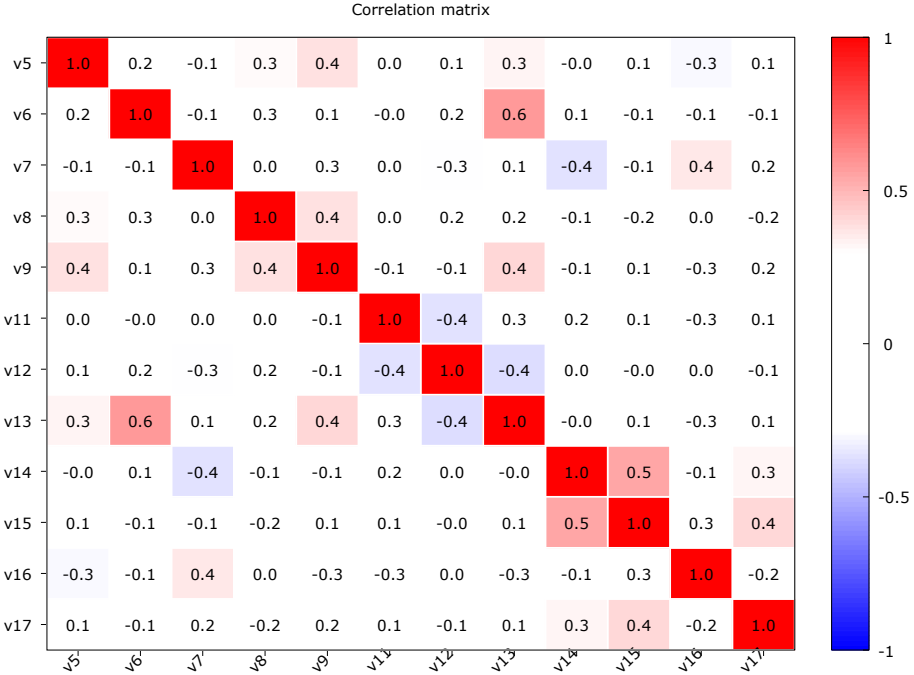
The largest positive correlation coefficient is 0.6 between questions 6 and 13 which represents SO-relationship. It may be inferred that the more important the project is for the faculty, the more opportunities to ask for assistance occurred. Such projects tend to have more people involved, larger budgets, more project stages and more paperwork. It might be concluded that because of the fact that larger projects may require more assistance, such time should be planned ahead by the Project Management center.

The largest negative correlation coefficient is -0.4 between questions 11 and 12, 12 and 13, and 7 and 14. The more obstacles were encountered by project managers, the more help was required. Questions 12 and 13 represent the same quadrant (opportunities) and it is clearly evident that the more help is received in the initial stages of the project, the less assistance is required during the coming stages. The last pair represents the SO-relationship and its correlation coefficient might be interpreted in the following way. The majority of the teams were meeting with their team managers formally or informally once the projects were finished and exchanged feedback. The more feedback comes from the team, the smaller extent of assistance might be required as the team members think proactively of the changes they can make to improve their performance.

Some other pairs with a larger positive correlation coefficient include questions 14 and 15, 5 and 9, 8 and 9, and 9 and 13. The first set of questions comes from Opportunities and Threats segments, which represent external factors. In this case, the more opportunities to receive assistance and advice from the project management center, the more chances to lower the risks of not considering people to leave the project earlier or pandemic effects. It might be advisable to create a training session to provide teams with the necessary tools and knowledge on how to assess these external risks and work with the timeline. The following pair (5 and 9) stands for strengths and weaknesses and outlines the importance of considering possible internal risks. The next pair (8 and 9) comes from the same segment of weaknesses, therefore, correlates well. The more trained people are to identify and assess possible internal weaknesses and risks, the more likely they are to finish their projects according to the designated timeline. Questions 9

and 13 represent weaknesses and opportunities. Its positive correlation coefficient may suggest that the higher the internal risks and the more weaknesses there are, the more quality assistance should be provided.

CONCLUSION

The analysis of questionnaire results helped to infer the following points:

1. As teams and their managers generally focus on what can go well, how to carry out certain tasks, how to follow the plan, they seem to be more likely to unconsciously use opportunistic approach while planning the project routine, stages, and timelines. Therefore, risk management and capabilities/skills of dealing with internal risks or foreseeing downsides might be the most important issue to be addressed.
2. More quality assistance might be required for larger projects.
3. External risks like the pandemic or project delays caused by moving human capital should be included into the projects and the project management center can think of techniques to share with project teams so that they can bring in and develop their critical thinking skills to exchange opinions on what may potentially go wrong.
4. The teams should be encouraged to check their suggestions and opinions to what really happens later during one particular project stage. The more feedback comes from the team, the smaller extent of assistance might be required as the team members think proactively of the changes they can make to improve their performance.

Despite the fact that the abovementioned inferences may be used to coordinate the projects in the future, current research is not short of limitations, which include 1) a limited number of years the project were selected from, 2) research scale – a case study of the results from a single university, 3) the number of projects included into the research. Nevertheless, once the project management center carries out such training programs for larger and smaller teams separately, it is anticipated that stronger teams are built, more assistance provided during the initial project stages minimises help provided during the following project stages. Quality assistance may also compensate for lengthier, time consuming explanations once the project was started. The following list of recommendations might become a starting point to create an effective training program to suit the needs of project teams within the UWB:

1) a detailed plan: a clear strategy of how the project manager and his team will maintain the quality standards throughout the project cycle.

2) quality communication: communication between the project manager, team members and project management center is key. It is highly recommendable for the project managers to have communication and critical thinking skills listed as their strengths to assess external risks and potential weaknesses within the project.

3) project stakeholder management: It is suggested to identify who the stakeholders in the project are and then prepare a strategy to suit the needs of this audience.

4) clear output and outcome indicators: evaluation of various project stages should happen regularly and timely in order to measure progress both qualitatively and quantitatively and detect issues at an early stage to ensure preventive measures are taken.

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Appendix 1 – Questionnaire

The questionnaire provided to project managers on faculties on the University of West Bohemia in April – May 2022 in order to gather the data to perform SWOT analysis and suggest strategies for enhanced working plans, policies and approaches for the Department of Project Management in UWB.

1)   The project was carried out at the faculty….

(all faculties of UWB given as a single-choice option)

2)   The project was funded from ….

(four sources of regular project finding were provided as a single-choice option)

3)   The project was finished in …

(2019, 2020, 2021 as single-choice options).

Strengths:

4)   Please estimate to what extent was the funding provided for the project?

In full (as planned)

Sufficient (not in full, however it was sufficient to meet the main goals of the project)

Insufficient (the goals were not reached/were not reached as planned)

5)   Was the project carried out according to its initial plan and timeline?

Yes, every stage was completed on time

Yes, but a few parts of the project unexpectedly took longer

No, all parts of the project took much longer than planned.

6)   Please evaluate the project: how useful was it for the development of your department (faculty)?

It was vital

It was rather useful, even though it was expected to be more beneficial

It appeared not to have played such an important role

7)   Did you have a final meeting with the team to evaluate the project and finalize the results?

Yes, we had an extensive meeting with all team members

Yes, we had an informal meeting with a few team members

No, we didn't discuss the project once we finished it.

Weaknesses:

8)   Were the risks of not completing the project or any of its stages evaluated and well-managed?

Yes, careful planning helped us to prevent the risks from happening

Yes, however, some of the risks were not anticipated beforehand.

No, it was not necessary.

9)   Did you have a regulatory check list to ensure all project objectives are targeted?

Yes, we used this checklist after every project stage

Yes, but we used this checklist only once in the end of the project.

No, we didn't have any specific checklist.

10)   Did you encounter any difficulties with documentation and/or transfer of project experience?

Yes, there were some difficulties.

No, we didn't experience many problems with the project.

No, there were no difficulties at all.

11)   Was there some special training for project supervisors and/or for team members in the beginning of the project?

Yes, we had an extensive training.

Yes, but this training was insufficient.

No training was necessary.

Opportunities:

12)   Were there any additional help and support provided by the Project Management Department during the stage of application/preparation for the project?

Yes, we were supported regularly and systematically.

Yes, we could get a consultation if we needed to.

No, no additional help, support or assistance was offered.

13)   Were there any additional help and support provided by the Project Management Department when the project was started?

Yes, we were supported regularly and systematically.

Yes, we could get a consultation if we needed to.

No, no additional help, support or assistance was offered.

14)   Is there a need and/or an opportunity to continue the current project and improve its efficiency? Or would you like to continue with the project if there was additional funding opportunity?

Yes, we will continue with the project.

Yes, we would continue with the project but there is no funding for it at the moment.

No, there is no need to continue with the project.

Threats:

15)   Are there visible financial, human resources or technological threats?

Yes, some of the people left the team before the project was completed.

Yes, we were not able to carry out the project in full.

No, the project was carried out according to the plan.

16)   To what extent was the project and its results affected by external policies, changing economic conditions and coronavirus pandemic?

The project didn't meet its targets due to external threats.

The project was greatly affected by the pandemic.

The project was not affected by external factors in any way.

17)   Have you encountered any difficulties in the support provided by the Project Centre that would jeopardise the smooth running of the project?

No, our communication went well.

Yes, some of the answers took longer to be provided.

Yes, we didn't receive the information we needed.