ICRESS 2022: International Conference on Research in Education and Social Sciences

The Scene and Importance of Teaching the Project Approach in the Light of the Results of a Hungarian Questionnaire Research

Agnes CSISZARIK-KOCSIR
Obuda University

Janos VARGA
Obuda University

Reka SAARY
Obuda University

Abstract: The project approach, thinking in projects, is becoming increasingly important today. The rapidly changing world, new challenges and new tasks require us to plan and execute a task accurately, then analyze it and learn from our mistakes. It can also be said that our daily lives are not a series of routine tasks, as life presents us with new challenges. No better example of this than the pandemic, which is a new situation for everyone. Thinking in projects can be learned and taught, but it should not be learned on the job, but should become part of our knowledge long before it is needed. There are many methodologies, recommendations and good examples of how to transfer the project approach, but these are not always effective. In our research, we sought to identify the levels of education at which respondents consider project-based education to be effective. We were also interested to find out for what purposes they considered the project approach useful and where they would benefit from it. In this study we seek to answer the question of when it is appropriate to start teaching project-based learning, at what level and why it is important, based on the results of a questionnaire survey conducted in Hungary.

Keywords: Project orientation, Project management, Educational level, Project thinking

Introduction

In today's fast-paced world, a project approach, thinking in projects, is an important competence for all economic actors. The main characteristic of projects is their planning, which can be understood in several dimensions. This planning not only contributes to the success of corporate projects, but is also a highly applicable approach to private projects. However, despite the importance of thinking in terms of projects, its prevalence is not outstanding. The education system, from the grassroots to higher education, can do much to develop this approach and to make project thinking more common. It is not only businesses that can think in terms of projects, but there are also many activities in their private lives that meet these criteria. In this paper we will try to highlight where to start this educational activity, which level of education is best suited to transmit and demonstrate this approach.

Literature Review

The word project has become fully integrated into everyday language in recent years. We call a major investment a project, whether it is a road, a bridge, a public transport system, a housing estate, a company site or even machinery. But it is not only in the life of companies and businesses that projects can occur. If we as private individuals are thinking about buying a television set, or planning to buy a plot of land or a car, we go

through similar processes as a corporate project. On a smaller scale, the same applies to planning a holiday. In all cases, these activities start with the idea, then we plan the necessary steps, get informed, carry out the activities, monitor the implementation, and finally draw conclusions and learn from the project. All this is a series of activities following the logic of project management. Project management, as an emerging field of management discipline, was initially greeted with reluctance by the profession, but the approach and methodology it imparts has now gained unprecedented popularity.

The word project is derived from the Latin projectum, meaning "to put something in front of". The history of projects goes back a long way, to prehistoric times. Pyramid, ship, temple and road building were also considered as projects, but it was only after the industrial revolution that we started to deal with project management (Aranyossy et.al, 2015). A project is always a series of activities designed and implemented in a given environment to achieve some desired, predefined goal, with time, cost and outcome criteria. These activities are carried out along specific objectives, with specific resources and with attention to changes and risks. There are many definitions of the concept of projects in the literature, ranging from the process approach to the organizational approach.

Table 1. Understanding the concept of project

Aggteleky & Bajna (1994)	"Projects are time-limited, practical or abstract plans which, because of their size, complexity, novelty and importance, cannot be satisfactorily solved by routine management methods."
ISO (1994)	"A project is a unique set of processes that start and a set of coordinated and controlled activities undertaken to achieve a specific objective in terms of time, cost and resources, with start and end dates."
Gorog (1996)	"A project is any activity that represents for an organisation a single and complex task with a defined duration (start and finish) and cost (resources) of completion, and which is intended to achieve a defined objective (result)".
Verzuh (2005)	"A project is an activity that is carried out only once. Whether it's designing an aircraft, a logo or setting up a bakery counter, every project has an outcome and a start and finish date. The significance of projects can only be understood when we realise that each one of them is a unique product."
Wysocki (2019)	"A project is usually defined as a unique experience that has never happened before and will never be repeated under the same circumstances."
PMBOK (2020)	"A time-limited effort to create a unique product, service, or outcome."

All authors agree that a project is definitely a specific activity that has not been encountered before by an organization or individual. It can be clearly stated that a project can be broken down into well-defined phases that can be planned, monitored and controlled. It is also important to note that the success factor is very important for projects. Project success is measured along the classic project triangle.
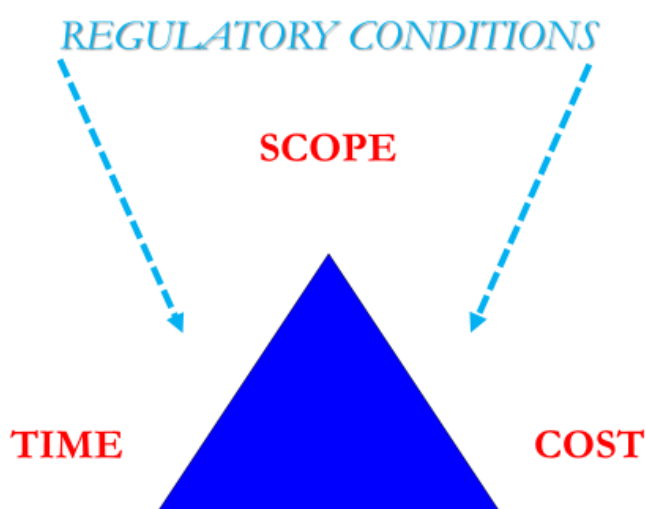

Figure 1. The iron triangle of projects

The triangle is an isosceles triangle, which shows that you cannot change one leg without damaging the other (two). The project triangle shows the project's constraints and limitations in the context of each other. In all

cases, a project has three characteristic goal elements that define the project in its essence. The triple balance of time - efficiency - cost is the key to a well-functioning project.

The success of projects is measured and interpreted by many organizations. A successful project is one that meets all the elements of the triangle. Based on the PMBOK recommendations, there is room for change, so a project that needs a change in one of the three legs can be successful. Along these lines, Wellingtone carries out an annual survey of the success of projects. Their survey reveals that the success rate of projects is below 50% year after year, due to design errors and inadequate assessment and interpretation of risk factors. The graph below shows that the success rate of projects ranges between 45% and 50%. It can also be seen that during the pandemic period, the success rate of projects fell significantly, due to increasing uncertainty and a rapidly and often negatively changing environment (Wellingtone 2016; 2017; 2018, 2019; 2020; 2021).
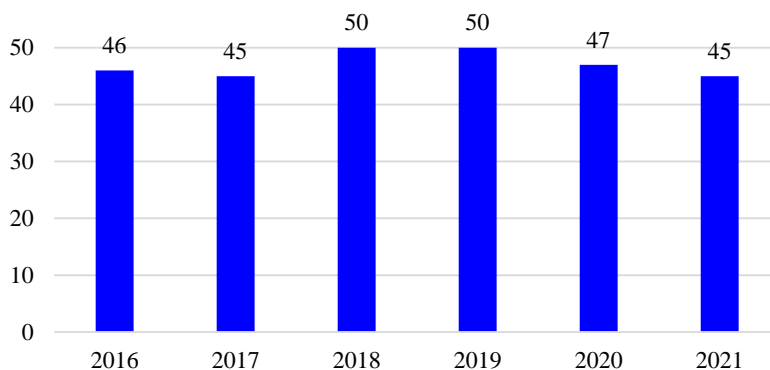
Figure 2. Percentage of successful projects in enterprises (%)

The above-mentioned organization has extended its research to the stems of the project triangle. For the successful projects along the triangle, it can be seen that the greatest variation is found in the effectiveness factor, where the proportion is lowest in relation to the other factors. The data also shows that budget is the biggest constraint, with all project managers focusing on keeping projects within budget, as obtaining additional resources or failing to do so often leads to project failure (Wellingtone 2016; 2017; 2018, 2019; 2020; 2021).
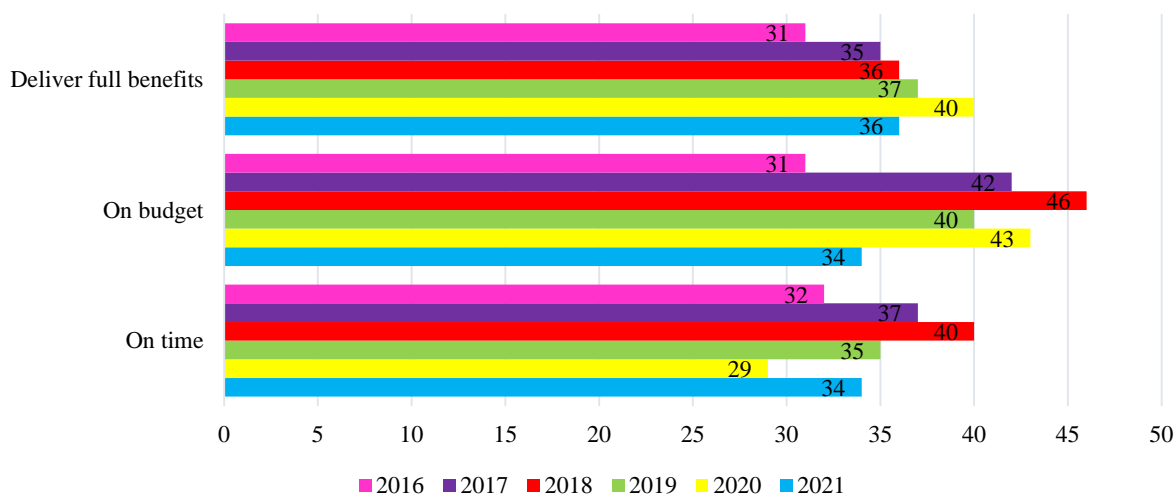
Figure 3. Completion of the elements of the Iron Triangle in projects (%)

A similar measurement is carried out by PMI every year, with a higher percentage of successful projects than in Wellingtone's measurement. This organization assesses projects on several dimensions, along different factors. It also cites a higher success rate along the triangle factors, but also looks at the proportion of projects that are modified and those that are doomed to failure (PMI, 2021).
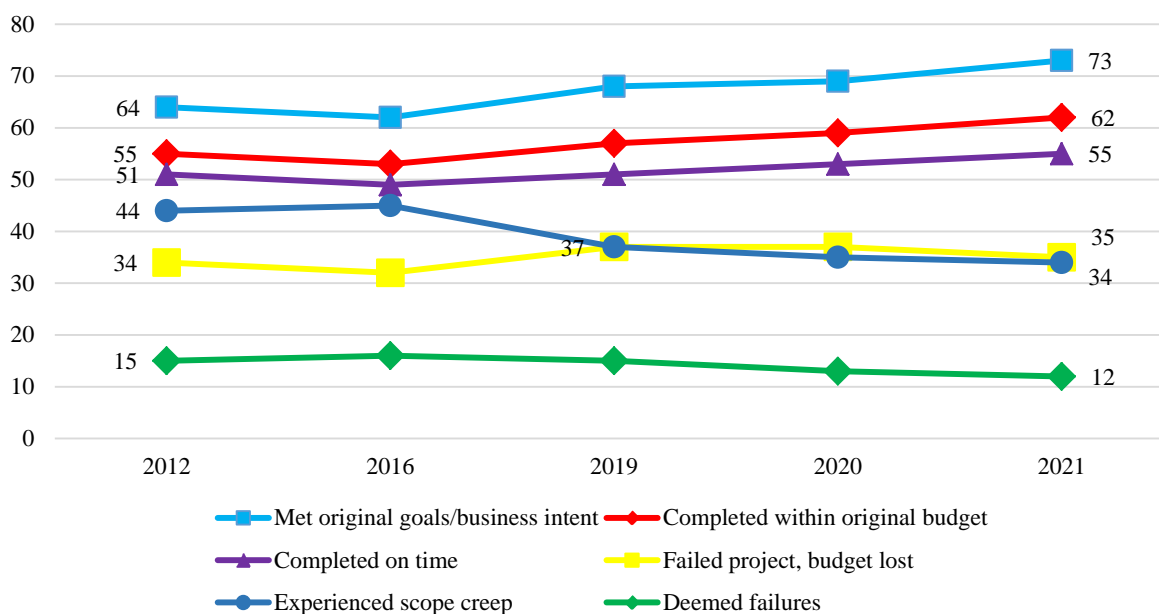
Figure 4. Project outputs (%)

The above analyses refer to company projects, no similar aggregation has been made for individual projects, although it would be worthwhile to examine both the awareness and the success factor behind them. When looking at the success of projects, it is important to remember from whose point of view we are looking at and measuring them. Due to the increased project orientation in recent years, we tend to call all activities projects out of fashion, on a whim, without the appropriate methodology. It is important to emphasize that a project is not successful if it manages to raise and spend the money needed for it, but if it solves a problem, if it provides an answer. In a 2008 paper, Kremer presents a curved mirror of this process.

A correct understanding of the concept of projects and the ability to understand and monitor the factors that guarantee success can be important in all walks of life, both as an entrepreneur and as a private individual. Learning the methodology of conscious project planning as early as possible, making it part of our thinking, even part of our culture, will avoid the consequences of hasty decisions. The earlier we start to adopt and transfer the approach, from planning to implementation and redesign, the earlier we will radically change our attitude and mindset when it comes to making major decisions (Lakatosne et al., 2017).

In her paper (2018), Ms Lakatosne analyses internal and external controllers according to who is most affected by the project mindset in their everyday decisions. The former group of persons are those who make decisions based on their own convictions and competences, consciously planning their lives and actions. Project thinking helps them in their everyday decisions. They do not wait for solutions from others, but prepare them themselves, redefining them if necessary by learning from their mistakes. Project thinking should therefore be embedded in the education system to help us plan consciously and support the success of our decisions as individuals.

Material and Method

The study is based on primary research conducted in Hungary in 2020 using a pre-tested, standardized questionnaire. The questionnaire was finalized after an in-depth interview prior to the finalization of the questionnaire, and then based on the results of the qualitative survey. The questionnaire contained only closed questions to allow for a clearer evaluation of the sample and the responses. The questionnaire was completed completely anonymously by the respondents, who were not identified in any way. 44.3% of the respondents were female and 55.7% were male. In terms of generation, 65.4% of the respondents were from Generation Z, 19.4% from Generation X and 15.2% from Generation Y. It was also important to examine whether respondents had previously studied project management. Only 28.7% of the respondents indicated that they had received previous project management training, so the majority of the sample (71.3%) had not previously studied project management. The results obtained are not considered representative, but they provide an opportunity to design and ground a future representative study. The sample presented above was evaluated using SPSS 22.0 and subjected to basic statistical tests. The questions asked solicited respondents' views on the importance of project-

based learning and the effectiveness of project-based learning on a four-point Likert scale, with a negative endpoint of 1 (strongly disagree) and a positive endpoint of 4 (strongly agree).

The following hypotheses are formulated in the research:

1. primary education is the best setting for the transmission of the project approach
2. the importance of the project approach is felt not only at organizational level but also at individual level

Results

As a first step, we were interested in the importance of project management as a discipline and approach. We wanted to explore why project management is important and at which level it is important: at the individual level, at the managerial level or at the corporate level. We split the responses into two groups according to whether or not the respondents had previously studied project management. The results show that, from the respondents' point of view, project management is most important at the corporate level, and less important at the individual and managerial level. It is also an interesting conclusion that respondents who have not studied this type of knowledge also consider it more important than those who have previously studied project management.

The most important area identified by the respondents was the corporate level, with an overall average score of 2.49. It is interesting to note that respondents who had previously studied project management felt less important the project approach at the enterprise level (2.56) than respondents who had not previously studied this type of knowledge (2.31), a very marked difference in terms of values. A surprising result in relation to this question is that project management was not considered as important at managerial level by respondents as at corporate level, even though managers make the corporate decisions (1.86 - a very significant difference). Again, respondents who had not previously studied project management (1.95 vs. 1.66) placed a higher value on the importance of the managerial level in relation to this question. However, the most important message of the question is that at the individual level, project management is hardly considered important by the respondents. The value obtained for the total sample is 1.51, and there is little difference between the sample of respondents who have previously studied project management and those who have not (1.53 vs. 1.47). All this shows that it would be very important to emphasize the importance of a project approach in individual decisions. After all, business decisions are made by managers, based on their individual experience. It is therefore essential that people understand the importance of a project approach in all aspects of their lives and work.
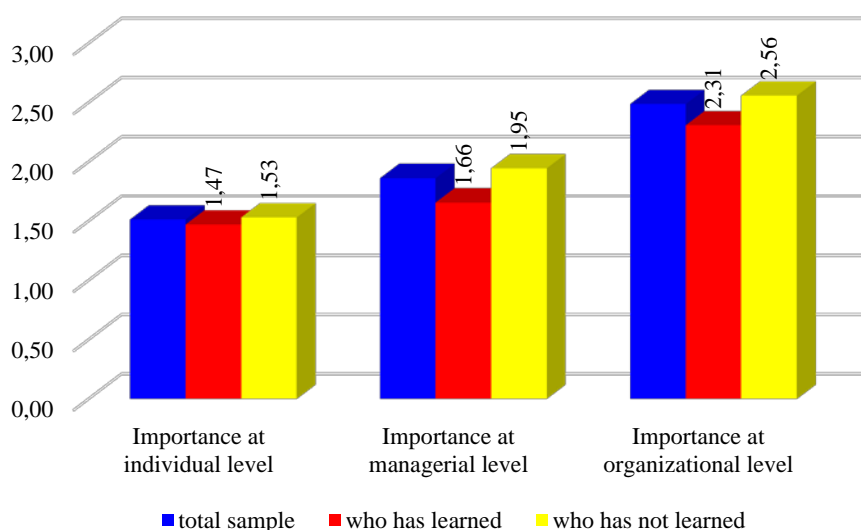

Figure 5. The importance of the project approach at individual, managerial and company level (N = 792, educated N = 227, uneducated N = 565)

We also sought respondents' views on the effectiveness of project education. The graph below clearly shows that respondents almost unanimously perceive the lower primary school as the most effective setting for project education (3.37 - almost the maximum). There is little difference in the scores obtained for respondents who

have not studied or who have studied project management before (3.33 vs. 3.39). The least effective stage was considered by respondents to be the upper primary school (1.44), and here again there is a relatively unanimous view (1.45 vs. 1.42). Project-based learning was also considered important by respondents at secondary school level (2.46) and in higher education during undergraduate studies (2.37). Project education at secondary and tertiary level was also relatively unanimously rated by respondents. Interestingly, however, the proportion of respondents who had previously studied project management is much higher at the tertiary level (2.57 vs. 2.29). Respondents' perceptions also suggest that project teaching is less effective at Master's level. There is a huge difference in the opinion of respondents who have previously studied project management (1.00) and those who have not previously studied this type of knowledge (2.00). This clearly shows that respondents who have had previous project education clearly see its importance in terms of basic education as well as in primary education at lower secondary level. All this information points to precise directions for project education in the future.
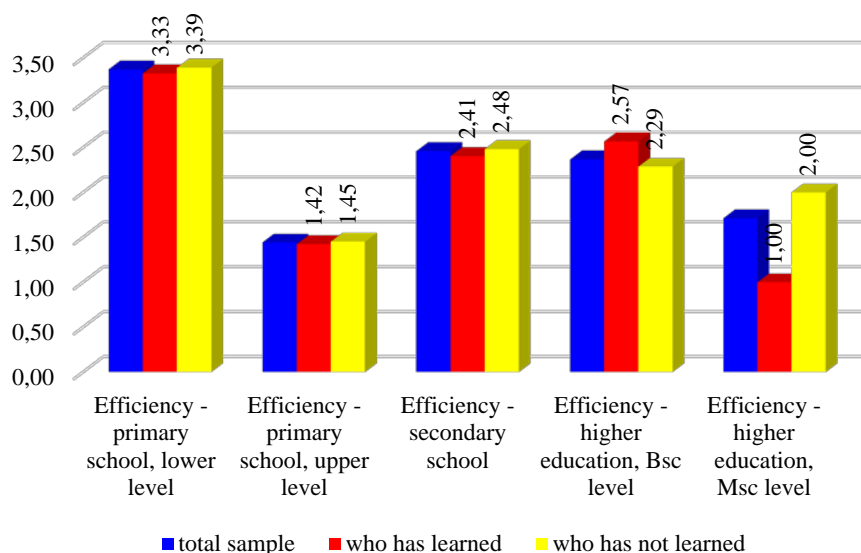

Figure 6. The effectiveness of project-based learning (N = 792, educated N = 227, not educated N = 565)

Next, we also wanted to know to what extent previously learned project management skills influence perceptions of importance and effectiveness. For this study, a Chi-square test was conducted. In terms of importance, it is clearly shown that previous target studies influence the perception of the importance of project management at both managerial and corporate level.

Table 2. Correlation between the importance of the project approach and previous project education(N = 792)

	Chi-negyzet ertek
Importance at individual level	0,256
Importance at managerial level	0,000
Importance at organizatioal level	0,005

In terms of the effectiveness of project education, previous participation in targeted education clearly influences the perception of the effectiveness of project education at secondary school level as well as in terms of higher education. All these findings clearly emphasize the generalization of project management education.

Table 3. Correlation between effectiveness of project training and prior project management knowledge (N=792)

	Chi-negyzet ertek
Efficiency - primary school, lower level	0,359
Efficiency - primary school, upper level	0,467
Efficiency - secondary school	0,000
Efficiency - higher education, Bsc level	0,000
Efficiency - higher education, Msc level	0,000

Summary and Conclusions

The results presented in this study show a very mixed picture with regard to the issues examined. As regards the importance of project management, it is clear that it is of primary importance in the minds of respondents at the enterprise level. This clearly shows that they see project management as an entirely applied economics, with less practical use outside the corporate context. However, it is very important to apply the project approach at the individual level. It is also interesting to note that respondents do not see its importance at managerial level, even though it is the managers who make the decisions on projects. All this suggests that it is very important to generalize project learning and to show its practical usefulness as well as its usefulness at the individual level. On this basis, the second hypothesis formulated in the research is rejected.

The results also show that the most important arena for project-based learning, as perceived by the respondents, would be primary education, including lower secondary education. In this case, it would be necessary to implement group work that strengthens group cohesion and encourages students to work together towards measurable results, using playful methods and integrated into the curriculum. It is also essential to highlight project-based learning at secondary school level. Here, in addition to playful tasks, it would be worthwhile to teach the theoretical foundations of project management and to build on this in the basic training to develop professional skills. The results also show that respondents at master's level no longer consider project teaching to be at all important in terms of effectiveness. All these results confirm our first hypothesis.

As regards the future of project-based education, it is worth reflecting on the main messages of the research. Project-based tasks should be much more widely integrated into primary and secondary education, consolidating the skills and competences that strengthen the project approach at individual level. It would be worth treating these skills as financial competences, which are becoming increasingly important in our lives. In setting future educational development directions, it is certainly worthwhile to think about strengthening project competences, so that the practical benefits of the project management discipline can be felt not only at the corporate level but also at the individual level.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

Acknowledgements or Notes

References

Aggteleky, B., Bajna, M. (1994). *Projekttervezes* - Projektmenedzsment, Kozdok. Rt.

Aranyossy, M.; Blaskovics, B.; Horvath, A.A. (2015): Informaciotechnologiai projektek sikere es kudarca – Nemzetkozi tapasztalatok es hazai kutatasi eredmenyek, *Vezetestudomany 2015*(5), 66-78.

Gorog, M. (1996). *Bevezetes a projektmenedzsmentbe*, Aula Kiado.

ISO - Nemzetkozi Szabvanyügyi Szervezet / ISO: 8402, 1994 szabvany

Kremer, B. (2008): A projekt-korsagrol – avagy a tanoda szindroma. *Educatio*, 2008(4), 539-548.

Lakatosne, Szuhai, Gy. (2018). Tudatos eletvezetes, avagy a projektmenedzsment technikak alkalmazasa mindennapjainkban. *Opus et Educatio,* 5(1), 105-114.

Lakatosne, Szuhai, Gy., Poor, J. (2017). *Tudatos eletvezetes projektszemlelet a maganeletben*. Publio Kiado, Győr

PMI (2019). *Project management body of knowledge*, PMBOK.

PMI (2021): *Pulse of profession*. Retrieved October 1 2021 from https://www.pmi.org/learning/thought-leadership/pulse/pulse-of-the-profession-2021.

Verzuh, E. (2005): *The fast forward MBA in project management*. John Wiley & Sons, Inc.

Wellingtone (2016): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wellingtone (2017): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wellingtone (2018): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wellingtone (2019): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wellingtone (2020): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wellingtone (2021): The state of project management, Retrieved September 20 2021 from, https://wellingtone.co.uk/publications/state-of-project-management-research/

Wysocki, R.K. (2019). *Effective project management – traditional, agile, extreme, hybrid.* John Wiley & Sons, Inc.

Author Information

Agnes Csiszarik-Kocsir
Obuda University,
Hungary
Contact e-mail:*kocsir.agnes@kgk.uni-obuda.hu*

Janos Varga
Obuda University,
Hungary

Reka Saary
Obuda University
Hungary

To cite this article: