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**Nemzetközi tudományos konferencia**
**a Magyar Tudomány Ünnepe alkalmából**
International Scientific Conference
on the Occasion of the Hungarian Science Festival

**Sopron, 2023. november 23.**
23 November 2023, Sopron

# FENNTARTHATÓSÁGI ÁTMENET: KIHÍVÁSOK ÉS INNOVATÍV MEGOLDÁSOK

SUSTAINABILITY TRANSITIONS: CHALLENGES AND INNOVATIVE SOLUTIONS

**Szerkesztők** / Editors:
**OBÁDOVICS Csilla, RESPERGER Richárd, SZÉLES Zsuzsanna, TÓTH Balázs István**

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# Sustainable Project Management

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**Abstract:**
Nowadays, in parallel with the increasing number of projects to be implemented and the key role of project management, organizations are implementing more and more different types of projects. Besides traditional investment projects, such projects appeared as IT, organizational development and R&D. Unfortunately, as the number of projects has increased, the number of unsuccessful projects has also increased. My research looks at the reasons why projects fail. A broad introduction to project management is also part of my research, so sustainability, as one of the most important topics of today, cannot be left out of my study. Sustainable project management places great emphasis on environmental sustainability. To this end, the aim is to minimise environmental impacts during project design and implementation. This may include the use of renewable energy, energy saving solutions, waste minimisation and nature conservation. The purpose of the study is to present the relationship between the human resources required during project implementation and project failure. If we do not have properly trained resources to implement the project, it will probably cause the project to fail. This is why the sustainability of human resources is necessary.

**Keywords:** project implementation, project management, failure, sustainability, environmental impacts
JEL Codes: D2, M12

## 1. Introduction

The topic of my research: Development of strategic management among medium-sized enterprises, during the implementation of projects, examination of the failure of projects. Nowadays, project management has grown into a separate profession. The number of projects is increasing day by day. Projects have become part of our everyday lives. However, their successful implementation often falls short of expectations. The sustainability of project management and the provision of adequate resources also affects the successful implementation of projects, which is why I have to deal with this topic as well. I present the relationship between project management and sustainability, and I also point out the importance of the sustainability of power sources.

## 2. Literature review

### *2.1. Project, project management*

To understand the relationship between sustainability and project management, I will first introduce the reader to the literary concepts of project, project management and sustainability.

Projects play a key role in the development of the economy, as illustrated by a World Bank survey which estimates that the amount spent on projects is about 22% of GDP generated

in the world economy, meaning every fifth dollar generated from project-like activities in the world. In developing countries e.g. 43% in China and 39% in India. (Word Bank, 2008)

For the Project Management Institute (PMI), the largest professional organization in project management, Anderson Economic Group prepared an analysis of the professional situation of project management in 2017 and pointed out two important phenomena. One such phenomenon is that project management activities are gaining an increasing role in other areas beyond the seven classic industries previously identified (construction, energy, manufacturing, ITC, finance and insurance, oil and gas and business services), e.g. in health care. Another such phenomenon is the increase in labour market demand for the number of jobs with project management skills. According to the research, by 2027, employers will need 87.7 million employees working in the field of project management (PMI, 2017).

At the beginning of the development of project management in the middle of the 20th century, new professional knowledge, new project management tools and methods, e.g. The creation and development of PERT (program evaluation and review technique) or WBS (work breakdown structure) have been completed in the hands of end users (Morris, 1994). The United States military industry and the National Aeronautics and Space Administration (NASA) and, of course, the construction industry played a key role in the development and knowledge of project management. The development of project management knowledge was undertaken by the largest project management organizations. Examples of such organizations are the Project Management Institute (PMI) or the International Project Management Association (IPMA) with a European background. These organizations have developed standards summarizing the basics of project management, which have contributed to the recognition of project management as an independent discipline.

Projects have some basic features, namely that they are limited in time, cost and resources (human and technical). The project must therefore be completed within a given timeframe and within a given budget. In fact, this is the essence of project management. Project management is the management, control, organization of the project process itself, which focuses on the resources on the one hand and the methodological and technical tools on the other hand to achieve the goal (Görög, 1993).

According to the Project Management Institute: A project is a series of reasonably chosen activities involving the use of resources (time, money, people, materials, energy and space) to achieve predefined goals (www.pmi.org).

According to Mihály Görög (2003:26): "A project is any activity that is a one-time and complex task for an organization, the duration of which (start and end) and the costs (resources) of its fulfilment are defined, and (similarly to the strategic objectives) aims to achieve a defined goal (result)."

Project management is the process of a conscious effort by one or more people, consisting of planning, managing and controlling resources (knowledge, skills, tools, techniques and money) to ensure that the project meets the partnership requirements, the objectives set, and time and cost constraints (Henczi & Murvai 2012).

Project management is a discipline concerned with the organisation and management of resources, with the aim of ensuring that the work carried out by the resources results in the achievement of the project's objectives within a given time and cost frame and in accordance with quality parameters (Görög, 2003).

"Project management is the application of knowledge, skills, tools and techniques in activities to meet project requirements." (PMI, 2008).

There is an essential connection between the concepts of the project. Each formulation mentions the 3 pillars of the project, cost deadline and project content. These three factors are the basis of every project, it can be any type of project, investment or software development, etc. We must always define the purpose and content of the project. Of course, expansion and

modification can take place during implementation, but a basic content must be defined. We also need to define the time frame available for the implementation of the project, it is worth defining some milestones. If the content of the project and the available time frame have been determined, all that remains is to determine and estimate the costs. The cost frame may change if the content of the project changes, as well as the time frame. These three basic factors are closely related to each other and changing any of them can affect the other two!

Personally, I consider the description formulated by Mihály Görög (2003) to be the best interpretation and I usually refer to it in my studies.

### *2.2. Criteria for sustainability*

Sustainability criteria are principles aimed at preserving the well-being of people, the planet and future generations, which can be applied in many areas, including project management!

#### *The concept of sustainable project management*

One of the first formulations of sustainable project management is that a project is sustainable if it minimizes the resources that the project manager and his team use from the start of the project to its completion (Agarwal et al., 2019).

According to Agarwal , sustainable project management is about maintaining positive impacts and minimizing negative impacts (economic, environmental and social) in the identification, design, monitoring and implementation of projects in a way that delivers the benefits expected by stakeholders and contributes to a sustainable society (Agarwal et al., 2019).

Sustainable project management practices include the responsible use of resources for sustainability and project management to support future change (Michaelides et al., 2014).

#### *The sustainability aspects*

*Objective and values:* In sustainable project management, the basic goal is to create projects that are aligned with the principles of sustainability. In addition, we also consider the needs and expectations of the relevant interest groups.

*Environmental sustainability:* Sustainable project management places great emphasis on environmental sustainability. To this end, the aim is to minimize environmental impacts during project planning and implementation. This may include the use of renewable energies, energy saving solutions, waste minimization and nature conservation aspects.

*Social sustainability:* Social sustainability means that the project has a positive impact on society. For example, supporting local communities, creating jobs and training local residents. It is also important to respect human rights and ethical principles.

*Economic sustainability:* Economic sustainability means that the project is profitable and sustainable in the long term. The project must have adequate financial planning and be able to use resources efficiently.

*Risk management:* Risk management also plays an important role in sustainable project management. Sustainability risks, such as those from climate change or social pressures, must be monitored. Adequate risk management makes it possible to preserve the sustainability of the project.

*Measurement and reporting:* Sustainable project management needs measurable and inferable results. The performance of the project is regularly measured and reported on the achievement of sustainability goals. Reporting enables the identification of important areas for the project and possible corrections.

*Leadership and commitment:* In sustainable project management, commitment and leadership are key. Management and the project team must be actively involved in achieving sustainability goals. This often requires education and training.

***Connection between project management and sustainability***

The connection between project management and sustainability is obvious. Projects are temporary efforts that use resources to achieve different strategic goals. In this regard, sustainability defines the evaluation criteria for the appropriate use of resources and the economic, social and environmental effects of the results in the project (Armenia et al., 2019).

## 3. Material and method

First of all, I reviewed in detail both domestic and international literature on the topic of the research. To create this study, I delved deeply into the topics of the project, project management and sustainability. During the secondary research, I analysed scientific publications related to projects, project management and sustainability, and also considered international statistics.

I also integrated the feedback received during the iterations into the research process. The research is basically exploratory, however, the analyses and results are not only intended to present the facts, but also to convey explanatory experiences. Based on qualitative information and data, I examine and analyse the relationships between the presented factors, thereby contributing to a deeper understanding in the field of research.

## 4. Results

***Sustainability of human resources***

When we talk about sustainability, everyone thinks of the general formulations... but what about the sustainability of human resources? Hungary and other Western European countries are also struggling to replace specialists. The number of employees can only be collected, but the expertise is already questionable!

When we talk about sustainability, we also have to pay attention to the following areas:

- sustainability of human resources,
- sustainability of professional standards,
- sustainability of quality work,

essential for the successful implementation of the project.

More important elements from the point of view of the sustainability of human resources

- white collar workers,
- blue collar workers,
- professional qualifications to maintain,
- experience attitude,
- to maintain training standards,
- to maintain professional work,
- to maintain motivation.

White collar workers, the leaders of the projects. The main player in the organization is the Project Manager:

- he is in the centre,
- he is a leader,
- he takes responsibility,
- able to decide,
- etc.

Human resources professionals have been emphasizing for years how challenging it is to find professionals with the right experience and education to implement their ideas. Based on my own experience, I would say that one of the biggest challenges is finding the right project manager! The project manager is a key person whose task is to implement the project, based on

the golden triangle model, with adequate quality, on time and in a cost-effective manner. There is no doubt that this position is crucial.

The project manager has to solve many challenges and to do this he has to have a wide range of competencies. He is characterized by a high level of technical knowledge, excellent communication skills, and an economic and organizational approach. In addition, you must also have the ability to firmly reject the demands of the client or your own project team when necessary.

Different methodologies and different competences are required in different areas. For example, project management is important in both the IT and construction industries, but the methodologies they use may be completely different. At the same time, project managers are universally in great demand, as these professionals are able to operate effectively in diverse fields.

One of the key players in the investment is the project manager. The selected project leader must have appropriate experience and qualifications in line with the content of the project. The project manager has to solve complex and risky tasks in order to complete the project, and the success of the project depends mainly on his competence. Turner defined the following project management leadership styles (Table 1).

**Table 1: Project Management Leadership Styles**

| Project management leadership style | Competence tested | | |
|---|---|---|---|
| | **Decision making** | **Decision execution** | **Flexibility** |
| ***Laissez-Fair*** | high | high | high |
| ***Democratic*** | high | low | high |
| ***Autocrat*** | low | low | high |
| ***Bureaucratic*** | low | low | low |

Source: Turner, J. R. (1999)

In fact, a representative of any leadership style can be qualified to lead a project if they have the appropriate experience and qualifications. In order to select the other members of the project, it is necessary to know: the investment value, size of the project, and the technical content of the project.

***Blue collar workers***

We also need to talk about skilled construction workers. Unfortunately, we are also in trouble in this area in Hungary. Our best manual workers prefer to go abroad to work in hopes of higher pay. The other field where there are serious problems is mechanical engineering. 60% of welding and plumbing workers work abroad. And we are filling in the missing resources from the countries to the east.

***Why is sustainable project management important?***

If we cannot maintain quality resources, project implementation will require even more effort and therefore more money and probably more time. And why is it important to improve the success of project implementation? International statistics show surprising results in terms of project implementation. Below I present three international statistics, which show the statistics and the reasons for the unsuccessful implementation of the projects.

The first report: Project Failure Statistics according to a 2019 IPMA global survey:

- only 19% of organizations deliver successful projects, at least most of the time,
- only 30% of organizations deliver on time,

– only 36% deliver projects on budget,
– only 44% deliver projects that meet original goal and business intent,
– only 46% of projects delivered receive stakeholder satisfaction.

The second report: *Standish Group Chaos Report 2020* (Figure 1). The success of the project is being addressed by several organizations, including Standish Group, an independent international consulting firm founded in 1985. This organization publishes a publication called "Chaos Report" each year, which is based on a database of IT projects and contains the overall success rates of the projects examined in that year. The publication illustrates the percentage of projects that have been successfully completed, failed or challenged. Their database of more than 50,000 projects is one of the largest of its kind in the world. It is clear from their analysis that the examined projects are approx. 70% are not considered successful.

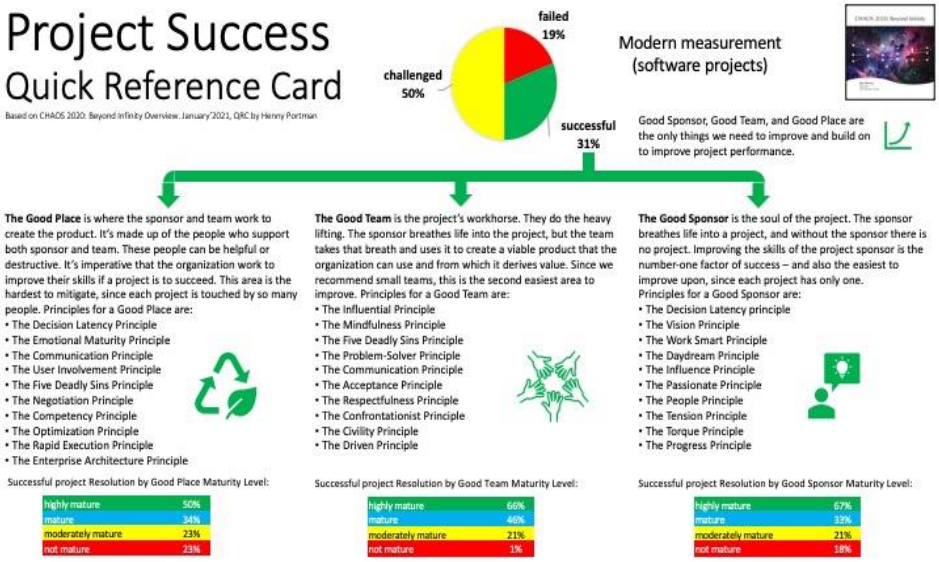


**Figure 1: Standish Group Chaos Report 2020**
Source: Johnson (2020)

Third report: *Standish Group Chaos Report 1996-2022*. (Figure 2) The analysis of the period between 1996 and 2022 in the latest report did not change either. The graph clearly shows that between 2009 and 2013 there was an increase in the percentage of successful projects, but from 2014, a decrease can be seen again.

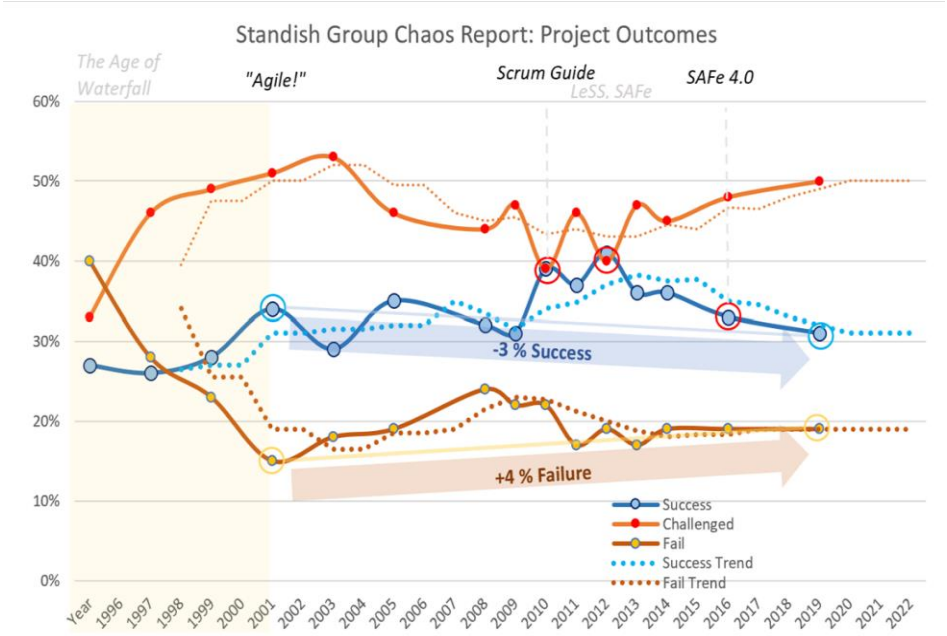


**Figure 2: PMI's 2017 Pulse of the Profession Report**
Source: PMI (2017)

## 5. Conclusions and recommendation

The number of investments has increased significantly in the past period, as a result of which domestic resources are no longer sufficient to implement the projects. Foreign construction companies appeared more and more in the market competition, and Hungarian enterprises were also forced to adapt to the changing conditions, including the employment of foreign workers. The lack of resources can be traced back to a number of reasons. One of the fundamental reasons is the lack of specialists, which is partly caused by the transformation of the education system and the lack of vocational training. The professionals of the old generation have largely reached retirement age, and there are few opportunities for professional training for the new generation. Those who do stay in their profession often take jobs abroad for more attractive salaries. As a result, due to the shortage of specialists in the domestic market, businesses are forced to replace the specialists with trained or auxiliary workers.

The rest of the workforce typically works as a helper. As a result, the project is implemented at a slower pace, which causes delays and other problems in the implementation of projects. The same situation can be felt in other fields as well, which poses a challenge to the efficient and timely execution of construction and investment projects.

Sustainable project management is a holistic approach that encompasses the entire project life cycle. Projects of this type primarily strive to achieve long-term success, while trying to generate positive social, environmental and economic effects. These projects often work closely with relevant stakeholders, considering their perspectives and needs.

Sustainable project management not only focuses on the achievement of short-term project goals, but also emphasizes the achievement of long-term sustainability goals. These goals have wider social and environmental benefits and can be followed by positive changes for society, the environment and the economy. Sustainable project management thus connects project activities with long-term sustainability strategies, thereby contributing to sustainable development.

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